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Valuation Insights

First Quarter 2020

INSIDE

EXECUTIVE SUMMARY

In this edition of *Valuation Insights*, we highlight the new current expected credit loss (CECL) standard, effective January 1, 2020, and how this model significantly impacts the manner in which both financial and non-financial institutions estimate credit loss allowances.

In our **Technical Notes** section, we showcase the Duff & Phelps Cost of Capital Navigator International Module, a powerful addition to the Cost of Capital Navigator that provides valuation analysts with cost of capital inputs globally and guides users on accurately quantifying country risks.

In our **International in Focus** article, we take a look at the diverse perspectives on the value of Intellectual Property (IP) and its importance in driving global business objectives, particularly for young startups and Small – Medium Enterprises (SMEs) who are developing prototypes and beginning to scale.

Finally, our **Spotlight article** takes a closer look at the Duff & Phelps Millennials and Auto Trends Report, a timely study that surveyed over 2,000 millennials to reveal if they will buy fewer cars than prior generations.

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.
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CECL Standard Expected to Make a Major Impact

Substantial losses suffered by both financial and non-financial entities during the financial crisis of 2008 prompted the Financial Accounting Standards Board to consider changes to its guidance on accounting for credit losses. Regulators and other market participants perceived that loan loss reserves recognized under then current GAAP were "too little, too late."

In response, in June 2016 the FASB issued Accounting Standard Update (ASU) 2016-13, Measurement of Credit Losses on Financial Instruments (Topic 326), which requires a new method for recognizing credit losses that is referred to as the current expected credit loss (CECL) method. CECL represents a significant change from prior GAAP, which is still used by most entities. Under prior GAAP, loss reserves are recognized when it is probable a loss has already been incurred. The CECL method requires the recognition of all losses expected over the life of a financial instrument upon origination or purchase of the instrument, unless the company elects to recognize such instruments at fair value with changes in profit and loss (the fair value option).

Given the nature and characteristics of the financial instruments involved within this ASU, the accounting impact is estimated to affect more than 5,000 commercial banks and other financial entities that provide credit in the U.S., as well as non-financial institutions. According to current public disclosures made by various institutions, the estimated increases to allowance of loan and lease loss reserves could range from $50 billion to $100 billion (30 to 50 percent) for about $10 trillion of applicable loans, for the financial services industry alone. Certain implementation questions are still being addressed and further guidance will continue to be provided in the future.

The updated guidance is anticipated to significantly impact institutions, both financial institutions, as well as non-financial institutions, through both the changes in loss reserve methodology itself as well as the associated technological, operational and reporting advances that will be needed for proper implementation.

The broad range of financial instruments covered by CECL include financial instruments carried at amortized cost (such as loans held for investments, held to maturity debt securities, trade receivables, receivables that relate to repurchase agreements and securities lending agreements, and reinsurance receivables), finance leases and off balance sheet credit exposures that are not accounted for as insurance contracts or derivatives (such as loan commitments, standby letters of credit and financial guarantees.)

Given the recent changes, CECL will be required to be implemented by public companies that are not included as smaller reporting companies in fiscal years beginning after Dec. 15, 2019, including interim periods within those fiscal years. Other entities are permitted to wait until their first fiscal year beginning after Dec. 15, 2022.

The accounting methodology prior to the adoption of CECL requires the use of an incurred loss model, which recognizes reserves only for losses that are probable of having already been incurred. This methodology does not require (or permit) the incorporation of forward-looking economic forecasts, consideration of industry cycles or the impact and potential adjustments related to the creditworthiness of borrowers. As such, the incurred loss approach can result in reserves that do not reflect expected future developments.

Under ASU 2016-13, the incurred loss model is replaced with the CECL model, which requires entities to estimate and immediately recognize credit losses expected to occur over the contractual life of the financial asset. Measurement under the new methodology is based on, but not limited to, current market conditions, reasonable supportable forecasts over the lifetime of the financial instruments, availability and quality of data, and segmentation and granularity of financial instruments that share similar risk characteristics.

Examples of shared risk characteristics include payment status, internal or external credit score, risk rating or classification, financial asset type, collateral type, size, effective interest rate, term, geographic location, industry of borrower and vintage, among others.

There is no one method or model that is prescribed by the FASB within the ASU; however there are various models and methodologies that should be contemplated depending on the availability and quality of data and the segmentation of the financial instruments. For example, these models and methodologies would include loss rate, discounted cash flows, vintage analyses, probability of defaults/loss given defaults, provision matrices and regression analyses.

To adhere to the financial reporting requirements of CECL, an institution's CECL solution must address and document the following: (i) the historic information gathered and analysis performed on such data, as well as the impact of the current environment and prospective economic forecasts over the horizon period, (ii) the rationale for the appropriate segmentation or pooling of financial instruments by category, (iii) the selection of the appropriate models and methodologies, (iv) the identification and assessment of any potential qualitative factors, (v) how the institution interprets and understands the results and impacts from the models and methodologies applied for the CECL reserves, and (vi) the calculation of management's current estimation of lifetime losses, as well as back testing for reasonability of results through normal and stressed economic environments.

Other aspects that an institution must consider prior to making their CECL election include (i) the implementation and process requirements, or alternatively, through the fair value option election, (ii) the necessary documentation and governance requirements across audit, risk and compliance, and (iii) the impact of the decision and assessment on its total allowance for credit losses when an institution acquires another company.

Companies, auditors and regulators are expected to observe CECL's impacts and disclosures during the 2020 financial reporting year. To ensure CECL is meaningful to all preparers, auditors, investors, analysts and other users and reviewers of financial statements, during this time, refinements will be made by each institution, with potential recommendations and guidance to follow.

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Introducing a Powerful New Tool to the Cost of Capital Navigator: The International Cost of Capital Module

The global cost of capital information and data previously published in the *Valuation Handbook – International Guide to Cost of Capital* has now been integrated into the Duff & Phelps Cost of Capital Navigator.

What's in it?

The new International Cost of Capital Module provides country-level risk premia (CRPs), relative volatility (RV) factors, equity risk premia (ERPs), and international industry betas which can be used to estimate country-level cost of capital globally for over 180 countries, from the perspective of investors in any one of up to 56 countries (going back to March 2014, quarterly). The new interactive module guides subscribers in accurately quantifying country risks, while explaining and documenting the decision process on the subscriber's unique cross border valuation scenario.

The International Cost of Capital Module includes a "Resources" section that provides complete (and downloadable) documentation of all methodology, definitions, examples, and calculations.

Who Should Use it?

The new International Cost of Capital Module is designed to serve the needs of anyone performing international discounted cash flow analyses or assessing cross-border risks, such as:

- Valuation analysts valuing public and private companies with operations located in multiple countries
- Corporate finance officers when pricing or evaluating proposed cross-border mergers and acquisitions (M&A), raising private or public equity in different jurisdictions, and/or dealing with cross-border stakeholder disputes
- Corporate officers when evaluating investments for capital budgeting decisions in different countries. Investment bankers when pricing initial (or follow-on) public offerings, proposed M&A transactions, and private equity financing for target entities located in a variety of countries
- Private equity investors when pricing or evaluating proposed cross-border M&A transactions, making capital budgeting decisions for entities located in different countries, or updating quarterly valuations of portfolio companies with operations located in foreign countries
- Portfolio managers evaluating investments outside of the country where they are based
- Real estate investors when pricing or evaluating proposed real estate investments, or updating valuations of portfolio companies with operations located in foreign countries
- CPAs and valuation professionals dealing with either valuations for financial and tax reporting purposes, or with dispute and bankruptcy valuation issues involving companies with operations located in multiple countries
- Transfer pricing economists dealing with valuation and transfer of intellectual property and other intangible assets across jurisdictions
- Judges and attorneys dealing with valuation issues in M&A, shareholder and partner disputes, damage cases, solvency cases, bankruptcy reorganizations, regulatory rate setting, transfer pricing, and financial reporting involving entities with operations located in multiple jurisdictions

How to Subscribe

To subscribe to the International Cost of Capital Module, visit dpcostofcapital.com today.

The Importance of Intellectual Property for High-Growth Firms

For most Small to Medium Enterprises (SMEs) starting out, intellectual property (IP) can be a difficult concept to grasp—particularly in terms of where it sits within the wider business and the potential value it creates. From patents and copyrights to licensing and contracts, IP and intangible assets are becoming a growing percentage of corporate balance sheets as they become more and more integrated into a business environment driven by digital innovation.

The economic advantage of an enterprise depends on how it is creating value out of its IP. For example, in Europe, SMEs account for approximately 99% of operating businesses, employing two out of every three people and producing 57% of the European Union's GDP. However, according to a report issued by the European Patent Office and the European Union Intellectual Property Office, a large proportion of the value generated by SMEs comes from a small number of High-Growth Firms (HGF), which are often quite innovative.

These innovative businesses rely heavily on IP rights. The report outlines that SMEs that have filed at least one IP right are 21% more likely to experience a growth period afterwards and are 10% more likely to become a HGF than those without IP rights applications. The direct correlation between those who protect their IP and their potential future high growth is the proof point of professional IP valuation advisory services. Once a business can identify where its value sits in terms of intangible assets, it can adequately protect, restore and monetize those assets to maximize enterprise value.

No matter which way you look at it, IP is the cornerstone of every successful growth strategy and will ultimately govern the success of a business in the long-term. It's important to engage with a professional advisory service firm and create an IP strategy that can both protect and exploit the IP portfolio as and when necessary. It's important to apply for IP protection strategically to establish the greatest possible monopoly for your business and successfully bring it to scale.

Top tips to avoid some common IP pitfalls include:

- Don't file a **patent** too early: Filing a patent essentially publishes the recipe of how the product or service can be created, leaving you vulnerable to competitors if you are not ready to go to market.
- Keep records of the **IP you own**: This will prove useful for valuing your business, particularly when looking for capital investment.
- Ensure **third-party consultants** transfer the IP they create to avoid co-ownership of any IP created. If co-ownership is necessary, make sure that the ground rules are established and agreed ahead of time.
- Keep the **trade secrets** secret: Staff are the biggest weakness when it comes to potential trade secret leaks. Use a confidentiality agreement, mark material as confidential and use appropriate internal procedures to ensure protection.

At Duff & Phelps, we have industry leading expertise in the valuation of intangibles and IP, serving businesses across the spectrum throughout the IP lifecycle.

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**The insights from this article came from the inaugural Duff & Phelps Intellectual Property Breakfast Seminar, recently held at the Duff & Phelps Dublin office. A panel of experts offered diverse perspectives on the value of IP and its importance in driving business objectives. Other panel members included: Joe Doyle, Intellectual Property Manager at Enterprise Ireland; Claire Penny, Commercial Director at Wia and formerly of IBM; Niall Quinn, former international footballer and current CEO of Fanzfirst; and James Palmer, Managing Director in Duff & Phelps London office. The panel was chaired by IP strategist Raymond Hegarty, who currently serves as Chief IP Officer with Everseen.*

Will Millennials Drive the Automotive Industry Forward?

Duff & Phelps recently surveyed over 2,000 millennials to reveal if they will buy fewer cars than prior generations.

Given that 2.4 billion people were born between 1980 and 1996, according to Bloomberg, it's a question that's likely keeping some auto industry executives up at night—and there's some anecdotal evidence behind it. Millennials prefer public transportation, ride-hailing, biking/scootering and even walking to driving their own cars—at least that's the conventional wisdom.

However, we wanted to go further than conventional wisdom. In a survey of over 2,000 millennials from around the globe, we obtained real numbers for what millennials, a generation that currently makes up nearly one-third of the world's population, will do when it comes to buying automobiles in the years ahead.

The survey's results indicate that common assumptions about car ownership should be tossed out along with tired millennial stereotypes like poor work ethic, a sense of entitlement and bad attitudes.

Stereotypes aside, the results were surprising given that a higher percentage of millennials live in cities with access to a myriad of public transportation options relative to other generations, yet millennials tend to be more environmentally conscious. However, it's clear that millennials actually do value car ownership, and a high percentage expect to make another car purchase in the next five years. This is good news for automotive companies currently facing headwinds for the first time this decade.

Our online survey was performed with the goal of obtaining responses from men and women between the ages of 23 and 38 (born between the years 1980 and 1996) from some of the largest automotive markets around the world. The survey examines the responses on a global as well as a regional level grouped as follows: the U.S. and Canada; Latin America, including Mexico, Brazil and Argentina; Europe, including Germany, UK, France and Italy; and Asia, including China (other than Hong Kong), Hong Kong, Japan, India and Singapore. The charts, data and findings in this report are based on the global survey responses unless otherwise indicated.

Key Findings include:

- **Millennials value car ownership—will the trend continue?** Three-quarters of millennials own cars, and most of them expect to purchase or lease a new car in the next five years
- **Millennial city dwellers will continue to own/lease cars:** 88% of global millennials living in cities who have a car expect to purchase or lease another one in the next five years
- **Having a car = necessity:** Globally, 87% of millennials believe that a car is a necessity on some level
- **Will millennials replace their old car with a new one?** Of the 57% of millennials who plan to sell or terminate their lease in the next three years, 94% plan to replace their vehicles
- **Market share of hybrid/Electric Vehicles (EVs) poised to increase:** While gas or diesel powertrains remain the preferred choice globally, millennials' interest in hybrids and EVs is high relative to current market share
- **Millennials prefer owning/leasing a car over ride-hailing services:** Globally, 75% of millennials chose owning/leasing a car over using ride-hailing services, if they would cost the same

To request a copy of the full report visit, www.duffandphelps.com/Millennials-Automotive-Report or email contactus@duffandphelps.com.

North American Industry Market Multiples

AS OF DECEMBER 31, 2019

Industry	Market Value of Equity to Net Income U.S.	Canada	MVIC to EBIT U.S.	Canada	MVIC to EBITDA U.S.	Canada
Energy	7.4	10.8	11.4	14.0	7.0	5.6
Energy Equipment & Services	—	15.3	15.0	19.2	7.8	7.3
Oil, Gas & Consumable Fuels	7.2	10.5	10.4	12.8	6.5	4.9
Materials	15.9	16.9	16.0	16.1	10.5	9.0
Chemicals	18.5	—	16.9	—	11.1	—
Metals & Mining	10.2	15.0	9.7	16.5	8.5	8.4
Industrials	18.7	17.1	16.4	16.3	11.7	11.0
Aerospace & Defense	19.2	—	15.8	—	12.5	—
Building Products	22.0	—	15.8	—	12.3	—
Construction & Engineering	16.5	—	15.7	—	10.5	—
Electrical Equipment	18.2	—	17.0	—	14.0	—
Machinery	21.2	—	17.4	—	12.7	—
Trading Companies & Distributors	15.6	—	15.9	14.8	11.5	10.5
Commercial Services & Supplies	19.6	—	18.7	—	11.1	—
Professional Services	13.1	—	14.9	—	11.1	—
Road & Rail	18.3	—	16.7	—	7.5	—
Consumer Discretionary	17.0	14.4	16.3	15.4	11.7	12.4
Auto Components	14.3	—	14.3	—	7.6	—
Household Durables	12.0	—	13.2	—	11.3	—
Textiles, Apparel & Luxury Goods	17.9	—	15.1	—	11.4	—
Hotels, Restaurants & Leisure	21.4	14.4	20.4	15.3	13.6	12.8
Diversified Consumer Services	—	—	16.3	—	11.4	—
Specialty Retail	16.4	—	16.3	—	11.4	—
Consumer Staples	20.0	19.9	17.2	17.2	12.9	12.3
Food Products	22.7	—	17.2	—	13.5	—
Personal Products	—	—	11.5	—	11.5	—
Health Care	23.3	23.8	22.6	18.8	16.5	14.2
Health Care Equipment & Supplies	38.8	—	31.8	—	21.9	—
Health Care Providers & Services	21.4	—	16.0	—	12.5	—
Biotechnology	15.1	—	13.3	—	—	—
Pharmaceuticals	12.5	—	—	—	11.9	—
Information Technology	23.2	20.2	21.9	21.2	15.1	15.1
IT Services	26.6	—	22.1	—	14.9	—
Software	30.8	—	27.4	—	20.6	—
Communications Equipment	14.8	—	19.6	—	16.3	—
Electronic Equipment, Instruments & Components	18.4	—	15.5	—	12.5	—
Semiconductors & Semiconductor Equipment	25.6	—	24.9	—	17.4	—
Communication Services	13.8	12.6	17.3	14.4	10.7	9.7
Media	13.5	—	14.3	—	10.5	—
Utilities	24.2	17.1	23.7	21.3	13.9	12.5
Electric Utilities	24.2	—	23.6	—	13.3	—

Industry	Market Value of Equity to Net Income U.S.	Canada	Market Value of Equity to Book Value U.S.	Canada
Financials	13.5	11.5	1.2	1.2
Banks	13.3	—	1.2	—
Thrifts & Mortgage Finance	13.9	—	1.1	—
Capital Markets	24.6	—	1.7	1.0
Insurance	15.8	—	1.2	—

Industry Market Multiples are available online!
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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 92 (U.S.), and 44 (Canada); the median number of companies in the calculation sample was 56 (U.S.), and 27 (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. Total debt includes capitalized operating leases. 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 DECEMBER 31, 2019

Industry	Market Value of Equity to Net Income Europe	MVIC to EBIT Europe	MVIC to EBITDA Europe
Energy	14.6	14.0	8.3
Energy Equipment & Services	—	18.8	10.4
Oil, Gas & Consumable Fuels	13.5	11.7	7.7
Materials	16.1	16.3	9.2
Chemicals	21.3	19.0	11.1
Containers & Packaging	17.4	18.0	9.3
Metals & Mining	12.3	13.6	7.7
Industrials	17.7	16.5	11.4
Aerospace & Defense	24.6	20.7	14.3
Building Products	21.9	16.9	10.8
Construction & Engineering	12.5	14.5	10.4
Electrical Equipment	20.3	16.7	11.9
Machinery	18.3	15.8	11.2
Trading Companies & Distributors	15.9	14.9	11.6
Commercial Services & Supplies	18.8	16.5	11.2
Professional Services	21.7	17.1	13.8
Marine	—	22.8	12.6
Transportation Infrastructure	18.8	17.7	12.3
Consumer Discretionary	16.6	16.7	11.8
Auto Components	12.0	12.5	7.9
Household Durables	14.3	14.4	11.1
Textiles, Apparel & Luxury Goods	20.0	18.0	13.0
Hotels, Restaurants & Leisure	21.0	18.3	12.5
Specialty Retail	16.4	17.5	11.9
Consumer Staples	21.5	18.7	13.1
Food & Staples Retailing	—	20.4	12.8
Beverages	22.3	18.9	14.3
Food Products	21.3	18.8	12.7
Health Care	30.3	24.8	16.5
Health Care Equipment & Supplies	34.3	26.2	19.4

Industry	Market Value of Equity to Net Income Europe	MVIC to EBIT Europe	MVIC to EBITDA Europe
Health Care Providers & Services	26.1	23.5	14.8
Pharmaceuticals	22.5	18.3	13.5
Information Technology	24.3	20.2	15.4
IT Services	23.2	17.4	14.4
Software	33.0	24.3	20.2
Communications Equipment	—	—	14.4
Electronic Equipment, Instruments & Components	20.5	19.2	13.6
Communication Services	18.3	19.5	11.3
Diversified Telecommunication Services	26.1	20.7	9.8
Media	16.3	17.2	11.3
Entertainment	28.3	23.8	14.8
Utilities	19.5	20.5	11.6
Independent Power and Renewable Electricity Providers	22.9	25.1	11.7

Industry	Market Value of Equity to Net Income Europe	Market Value of Equity to Book Value Europe
Financials	12.0	1.0
Banks	8.9	0.6
Diversified Financial Services	—	1.3
Capital Markets	20.9	1.3
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 70.
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. Total debt includes capitalized operating leases. 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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International Cost of Capital Resources

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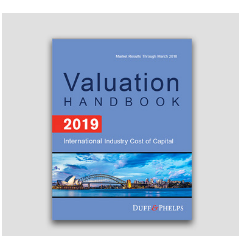

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