
Impact of COVID-19 on Goodwill Impairment

Perspectives from U.S. GAAP and IFRS

April 21, 2020

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Greg Franceschi is a Managing Director in the Silicon Valley office and the Global Leader of Duff & Phelps Financial Reporting Practice and Office of Professional Practice.

Greg has completed numerous valuation and consulting projects for leading technology, media, consumer products, retail, medical products and industrial product companies. In addition, Greg has been engaged as an expert witness in valuation related matters.

Before its merger with Duff & Phelps, Greg was a managing director at Standard & Poor's. Prior to that, Greg was a partner at PricewaterhouseCoopers LLC.

Greg received his M.B.A. in finance from the University of Notre Dame and his B.S. in economics from Indiana University. He is an American Society of Appraisers candidate, having completed all testing requirements. Greg is also a member of the D&P Technical Committee and member of the American Institute of Certified Public Accountants (previously licensed in the State of Illinois).

Greg was Co-Chairman of the AICPA Impairment Task Force (publishing the AICPA Accounting and Valuation Guide - Testing Goodwill For Impairment) and has been widely quoted on ASC 350 matters.

Carla Nunes

Managing Director, Valuation Advisory Services



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Carla Nunes is a managing director in the Office of Professional Practice, where she provides firm-wide technical guidance on a variety of valuation, financial reporting and tax issues. She is also the Global Leader of Duff & Phelps' Valuation Digital Solutions group, which produces cost of capital thought leadership content and data housed in the Cost of Capital Navigator.

In 2011, Carla completed a one-year rotation in Duff & Phelps' London office, where she promoted the firm's IFRS education efforts and marketing initiatives, as well dealing with IFRS implementation issues.

Prior to these roles, Carla was part of the Valuation Advisory Services practice, focusing on the valuation needs of primarily consumer and industrial product companies at Duff & Phelps and its predecessor firms, PricewaterhouseCoopers and Standard & Poor's. She has 23 years of experience providing a variety of valuation, financial reporting, and tax services.

Carla has conducted numerous business and asset valuations for a variety of purposes, including purchase price allocations, goodwill impairment testing, mergers and acquisitions, corporate tax restructuring and debt analysis. She has been involved in multiple valuation assignments for a wide range of industries, including pharmaceutical, biotechnology, healthcare, vitamin retail, specialty chemicals, industrial manufacturing and gaming and hospitality. Carla has substantial experience working with multinational companies, having addressed complex tax, international cost of capital and foreign exchange issues.

She is also one of Duff & Phelps' experts in addressing valuation issues related to cost of capital. She authored a chapter titled "Cost of Capital for Divisions and Reporting Units" included in the 4th and 5th editions of the textbook *Cost of Capital: Applications and Examples* (2014), by Shannon Pratt and Roger Grabowski. She was a contributing author to the chapter "Risk-free Rate" in the 5th edition. She is also a co-author of the Duff & Phelps Valuation Handbook series, now available exclusively online in the Cost of Capital Navigator.

Carla received her M.B.A. in finance from the University of Rochester's Simon School, completed coursework for a Masters of Taxation from Villanova University School of Law and received an honors degree in business administration from the University of Lisbon's School of Economics and Management (ISEG Lisbon). She also holds a Chartered Financial Analyst (CFA) designation and is a member of the CFA Institute, the CFA Society of Philadelphia, and the AICPA. Carla has passed the exam and fulfilled all the requirements for the Certified in Entity and Intangibles Valuations (CEIV) credential. Carla is a native Portuguese speaker.

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Javier Zoido is a managing director in the Madrid office (and until 2014 London Office), member of the Executive Committee of Duff & Phelps in Europe, Middle East and Africa (EMEA) and part of the Valuation Advisory Services business unit. He is a member of the International Valuation Standards Council (IVSC) Europe Board. Javier has more than 20 years of experience in valuation and corporate finance.

Javier has performed valuation assignments for the valuation of business enterprises, financial assets, equity securities and intangible assets. These valuations have been for the purpose of assisting clients in tax and financial planning and reporting, transaction advisory support, strategic planning and litigation support. He has performed over 1,000 valuations for clients in Europe, North America, Latin America, Africa and Asia in different sectors such as Telecoms, Food & Beverage, Industrial Products, Gaming, Hospitality, Oil & Gas, and Healthcare, among others. .

Javier started his career at a Spanish consulting firm. After 6 years in the Corporate Finance area of one of the Big 4 firms, Javier joined the London Office of Duff & Phelps in 2006. He has held positions as Vice President and Director in Duff & Phelps previous to his promotion to Managing Director in 2013, whilst still in the London office. Javier opened the Duff & Phelps Madrid office in 2014 which currently has over 100 employees.

He has published articles on valuation topics such as the impact of IFRS 3 on the financial statements of listed companies of the implications of IFRS 16 in Business Valuations.

Javier received his master's in finance from the Escuelas de Finanzas Aplicadas in Madrid, his bachelor's in Economics from the Universidad Complutense de Madrid and is qualified MRICS (Businesses and Intangible Assets)

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Andrew Probert is a managing director in the Transaction Advisory Services practice and leads the firm's global accounting structuring offering, based in the London office. Andrew has over 20 years of experience working on a variety of projects to support a range of corporate transactions, including M&A, securitizations (traditional and synthetic), debt-to-equity swaps, capital reorganization, returns of value, exit strategies including initial public offerings and joint venture arrangements.

Andrew leads accounting structuring/support on financial buy-side and vendor due diligence engagements across many industries and geographies, including Purchase Price Allocations in conjunction with his Valuation Advisory colleagues. He has advised clients on complex accounting and practical issues for financial instruments under IFRS and IFRS conversions for a number of companies and financial institutions.

Prior to joining Duff & Phelps, Andrew was an associate partner at Ernst & Young (EY) focused on designing optimal deal structures and delivering deal value for a wide range of clients and industries. Prior to his tenure with EY, he spent over 14 years at PricewaterhouseCoopers. Andrew is a subject matter expert on IFRS 3 (Business Combinations); IFRS 10 (Consolidated Financial Statements); IAS 32, 39 and IFRS 9 (Financial instruments). His work often involves liaising with senior client management, other advisors, corporate lawyers and legal counsel.

Andrew holds a bachelor's degree in maths with accounting from the University of Exeter and is also a member of the Institute of Chartered Accountants of Scotland.

1. Duff & Phelps Firm Overview



Enhancing Value Across a Range of Expertise

VALUATION ADVISORY

Valuation and consulting for financial reporting, tax, investment and risk management purposes

- Valuation Services
- Alternative Asset Advisory
- Real Estate Advisory
- Tax Services
- Transfer Pricing
- Fixed Asset Management and Insurance Solutions



CORPORATE FINANCE

Objective guidance to management teams and stakeholders throughout restructuring, financing and M&A transactions, including independent fairness and solvency opinions

- M&A Advisory
- Fairness Opinions
- Solvency Opinions
- Transaction Advisory
- ESOP and ERISA Advisory
- Commercially Reasonable Debt Opinions
- Distressed M&A and Special Situations



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- Business Intelligence and Investigations
- Disputes
- Cross-Border Restructuring
- Cyber Risk
- Legal Management Consulting
- Security Risk Management
- Compliance Risk and Diligence
- Compliance and Regulatory Consulting



PRIME CLERK

Provides bankruptcy and class action claims administration through its proprietary software and industry leading management team.

- Chapter 11
- Strategic Communications
- Contract Review
- Corporate Actions
- Class Action



Professional Affiliations

Duff & Phelps Managing Directors provide input to regulators and standard-setters, and actively contribute to the development of valuation industry best practices.



IPEV

International Private Equity
and Venture Capital
Valuation Guidelines

AIMA



2. Introduction: COVID-19 Economic Impact on Goodwill Impairment Testing



COVID-19 Economic Environment Impact on Goodwill Impairment Testing

- The **COVID-19** pandemic has caused **unprecedented turmoil** in the global economy and financial markets, the breadth and duration of which remains unknown.
- The outbreak has contributed to **market volatility** causing substantial declines in market capitalization, one of many factors for consideration as to whether a triggering event for an impairment test has occurred.
- Company **projections may be affected** by disruptions in its supply chain, a shift in demand for its products or services, or the loss of customers.
- While some industries and companies may be more vulnerable than others, both the effects of a pandemic and aggressive COVID-19 containment measures have affected social and economic behavior, increasing overall **uncertainty**.
- In the aggregate, these factors can result in a negative impact on the outlook and valuation of businesses, and the **recoverability** of any associated **goodwill** and other assets.

3. US GAAP / IFRS - Similarities & Differences



Goodwill Impairment Testing

US GAAP and IFRS Similarities and Differences

Conceptually the same:

- Allocated to those CGU/RU that are expected to benefit from the synergies of the combination
- No amortization
- Tested annually for impairment, or
- More frequently if there is an indicator of impairment
- Impairment losses are never reversed for goodwill

Goodwill Impairment Testing

US GAAP and IFRS Similarities and Differences

But with some fundamental differences:

- Level at which testing is undertaken can differ
 1. Cash generating unit (CGU) (IFRS)
 2. Reporting units (RU) (US GAAP)
- Impairment recorded when carrying value exceeds:
 1. 'Recoverable amount' (IFRS); higher of fair value less costs of disposal and value in use (VIU)
 2. 'Fair value' (US GAAP)
- Allocation of impairment losses:
 1. Goodwill and then other assets in CGU (IFRS)
 2. Goodwill only
- Impairment losses are never reversed for goodwill (but it can be reversed for other assets under IFRS)
- US GAAP allows a qualitative test first

4. Impairment Indicators: Triggering Events US GAAP & IFRS



Goodwill Impairment

Triggering Events That May Be COVID-19 Related

Indicators	Relevant to COVID-19?
Macroeconomic conditions	Yes
Industry and market considerations	Possibly
Cost factors	Possibly
Overall financial performance	Possibly
Other relevant entity-specific events	Possibly
Events affecting a CGU/RU	Possibly
A sustained decrease in share price	Possibly

5. Market Prices in Current Environment



Using Stock Prices in Goodwill Impairment Testing

Are stock prices representative of fair value in the aftermath of COVID-19?

- Market prices may not be representative of fair value in an inactive market or in a forced transaction (for example, a forced liquidation or distress sale).
- **Current market conditions are volatile but the observed transactions are orderly transactions occurring in an active market:**
 - In an active market, transactions for the asset take place with sufficient frequency and volume to provide pricing information on an ongoing basis.
 - An orderly transaction assumes exposure to the market for a period before the measurement date to allow for marketing activities that are usual and customary for transactions involving such assets.
- Prices from orderly transactions cannot be ignored and the company's stock price should be considered (given some weight) in the analysis, despite the stress experienced by the markets.
 - As a result, both the market approach (market prices and multiples) and a market capitalization reconciliation of the overall valuation conclusion should be evaluated *with appropriate consideration of recent price trends (not necessarily as of a specific date) and with appropriate sensitivities*.
- Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.
 - Note: the asset in this case is the RU or CGU, which is a different unit of account from an individual share.

What Does Fair Value Mean in Times of Market Dislocation?

- 1 Fair value \neq fire sale price
- 2 Fair value:
 - Takes into account current market conditions.
 - Reflects a market participant view.
 - Incorporates information that is known or knowable as of the measurement date.
- 3 Accounting standards require that observable prices for the same asset be given appropriate weight when estimating fair value. What weight? Balance the following, as appropriate, in the current environment:
 - The COVID-19 initial market reactions **may be** based on a disproportionate weighting of downside scenarios relative to a more refined company insight into the long-term expected economic impact of the pandemic. This may be an indication of asymmetric information.
 - A consistent decline in market capitalization across an industry cannot be disregarded as it may be indicative of the value of the company in the current crisis.

What is Known and Knowable at March 31, 2020?



Known and Knowable

- **Public market prices** have decreased significantly
- **Energy prices**, in particular the price of oil, have decreased drastically
- **Selected industries** have been considerably impacted by the response to the pandemic
- Many companies are facing a **liquidity crunch** impacting cash resources
- **Uncertainty and risk** have increased, and therefore a market participant required rate of return has likely increased
- Central banks and governments are implementing **monetary and fiscal stimuli**
- The potential for a prolonged **economic downturn** is increasing



NOT Known and Knowable

- When **effective treatments** for COVID-19 will be **available**
- When a **vaccine** will be available to prevent the spread of COVID-19
- Whether **summer weather** will **curtail spread** of COVID-19
- Whether and when spread of **COVID-19 will return** if spread is curtailed
- How long shelter in place and travel **restrictions** will remain in effect
- **When** and by **how much** the **public markets** will increase or decrease in value
- The **full impact** of government and central bank **fiscal and monetary policy** legislation and initiatives
- The **timing, depth, and length** of any prolonged **economic downturn**

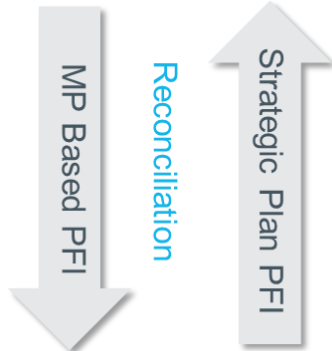
6. Information Asymmetry



Information Asymmetry

- The COVID-19 initial market reactions **may be** based on a disproportionate weighting of downside scenarios relative to more refined insight into the long-term expected economic impact of the pandemic.

Fair Value
(Market Participant)



- Management may have access to data or information that is not known outside the entity and is not included in the external indication of fair value (share price).
 - ✓ This data is expected to be obtainable through the usual and customary due diligence procedures.

Strategic Plan PFI

Information Asymmetry

Market Cap/
or MVIC

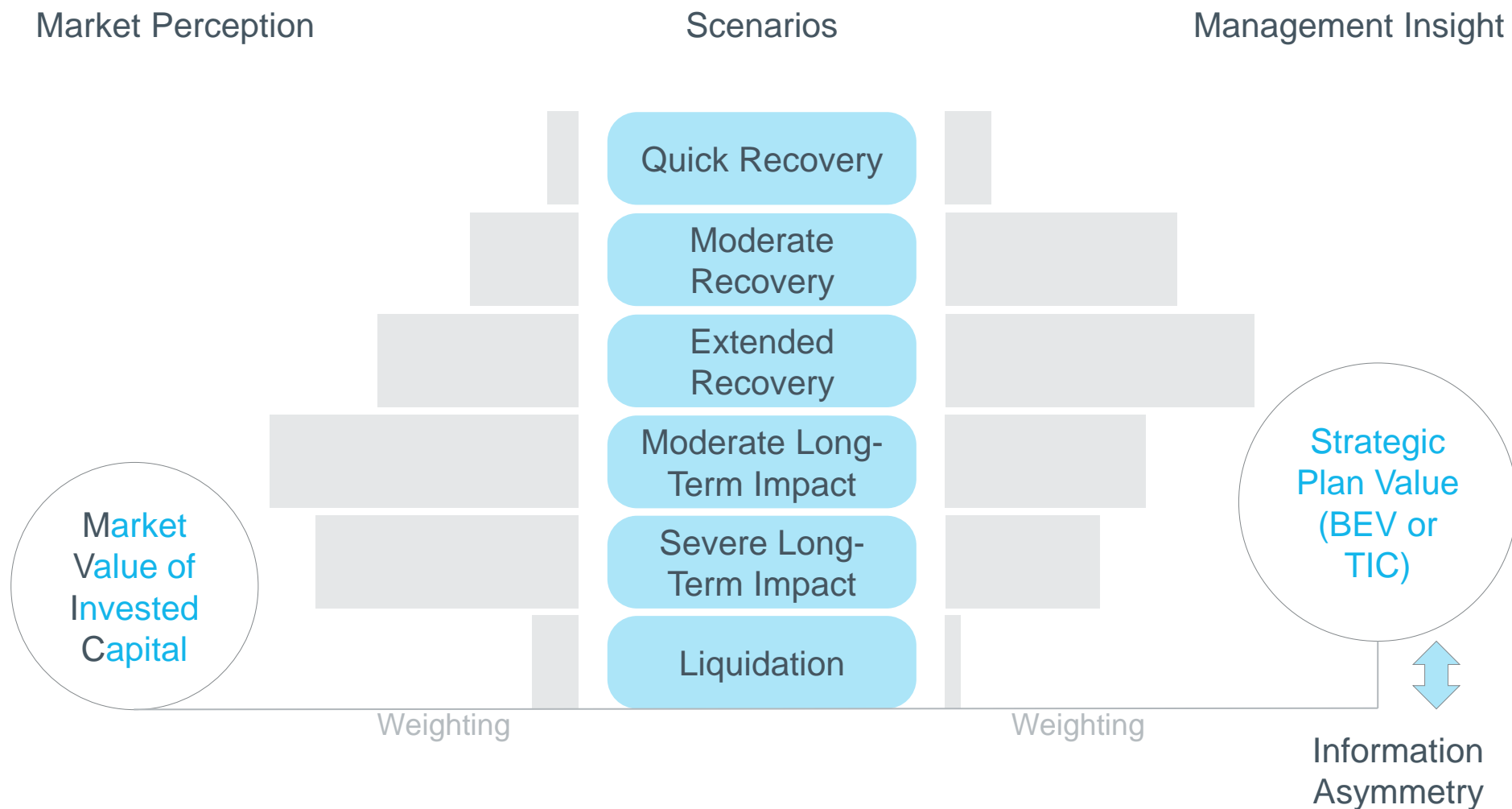
Information asymmetry is best evaluated at the *entity level* (market cap/MVIC) compared to the entity Strategic Plan (Standalone) value (which comprises the sum of the individual RUs/CGUs Strategic Plan values).

Information Asymmetry¹

- The entity, or a controlling shareholder in the entity, may be privy to information that is not available to noncontrolling interests (e.g., public shareholders) in the subject entity. This gives rise to information asymmetry between these parties.
- Market participants conducting usual and customary due diligence in connection with the acquisition of a controlling interest in the entity are likely to identify such information.
- Therefore, such information asymmetry is resolved in the fair value measurement process and is a component of the **control premium or Market Participant Acquisition Premium (MPAP)**
- In contrast, information known to a single buyer is an entity-specific assumption which should be excluded from the fair value measurement and cannot be used to support a MPAP. This buyer would be unwilling to pay more than the value of the economic benefits available to the next most advantageously positioned buyer.

(1) Source: The Appraisal Foundation: *Valuations in Financial Reporting Valuation Advisory 3: The Measurement and Application of Market Participant Acquisition Premiums*, September 6, 2017

Supporting an Asymmetric Information Assertion



Strategic Plan (Standalone) Value vs. Market Cap/MVIC

Supporting an Asymmetric Information Assertion

Fair Value
(Market Participant)

MP Based PFI

Reconciliation

Strategic Plan PFI

Strategic Plan PFI

Market Cap/
or MVIC

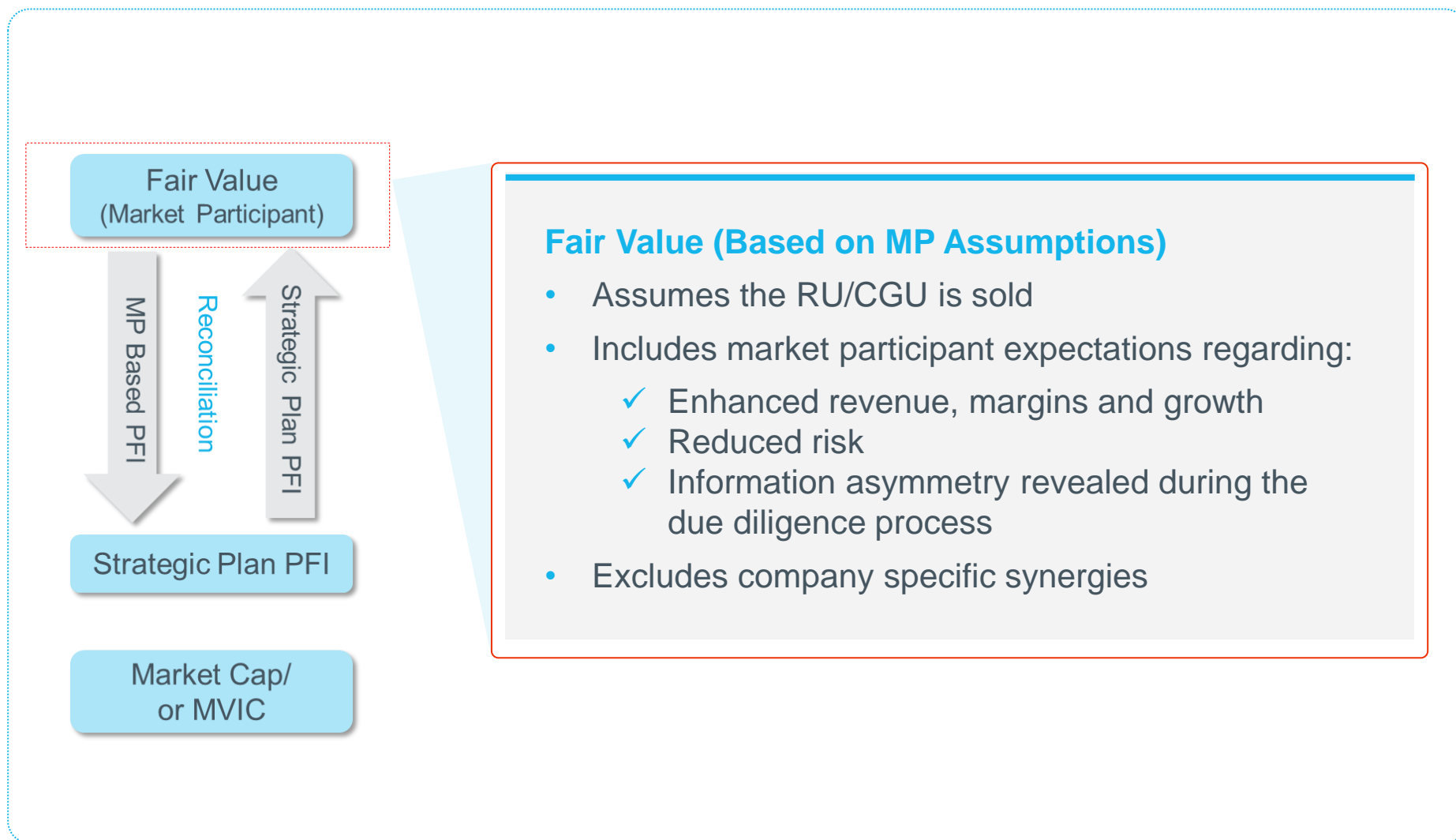
Strategic Plan (Standalone) Value

- Prerogatives of control will continue to reside with the existing controlling shareholder or group of shareholders (current stewardship of the business)
- Commonly associated with the fair value of marketable, noncontrolling interests or with VIU under IFRS
- Does not give consideration to discounts for lack of marketability/liquidity

Market Capitalization (or MVIC) for Public Companies

- Consider pricing trends and sensitivities in the current environment
- Market capitalization (MVIC) of publicly traded companies could equal Strategic Plan value absent information asymmetry

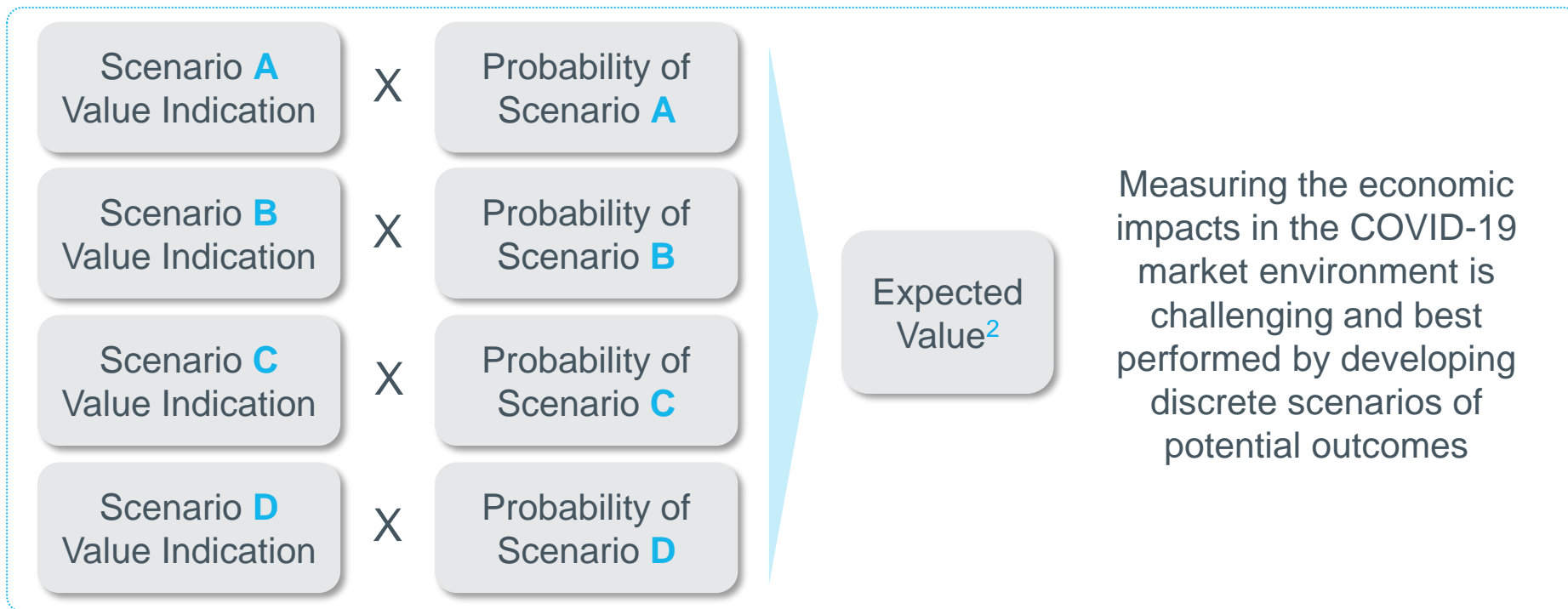
Fair Value = Market Participant Perspective



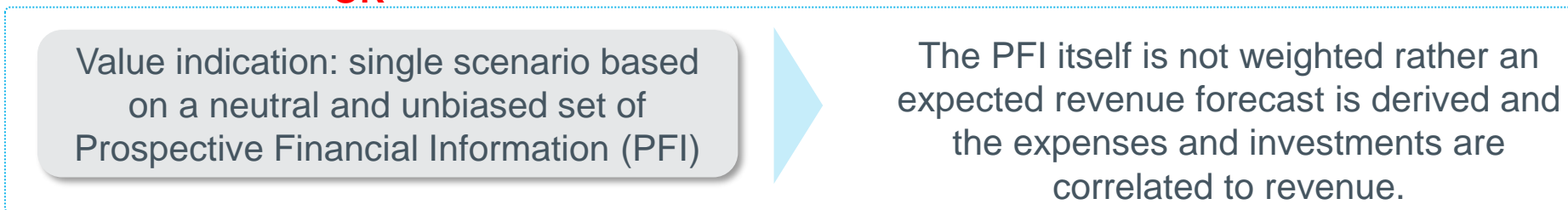
7. Expected Cash Flows and Scenarios



Scenario-based Approach vs. Single Scenario Representative of Expected Value



OR



² May be applied to the Strategic Plan PFI (including for VIU purposes) or the Market Participant PFI (fair value).

Expected Cash Flows – Base Case

- If the company has not considered the impact of COVID-19 on PFI scenarios, we recommend starting with a “Base Case” cash flow forecast based on pre-market volatility conditions.
- Alternative scenarios would then be built off of this “Base Case.”
- Alternative scenarios become critical if the company believes market participant cash flow expectations overweight downside case scenarios.
- The “Base Case” serves as a reference scenario; however, it may be given little or no weight based on the change in economic conditions. Its purpose is to provide a framework to assess what has changed in developing various scenarios.

Assessing Scenarios

- The company should evaluate scenarios and associated probabilities considering factors such as:
 - 1 Customer demand, pricing and diversification
 - 2 Supply chain diversification and disruptions, including increased costs from the relocation of operations or a need to replace suppliers
 - 3 The company's industry, location, and the expected duration of the outbreak
 - 4 Competitors' activities
 - 5 Government and central bank measures
 - 6 Workforce disruptions
 - 7 Credit downgrades and covenant breaches
 - 8 Government and other authorities' estimates of the expected duration of the crisis
 - 9 GDP growth, projections and outlook
 - 10 Interest rate and foreign exchange rate fluctuations, and
 - 11 Other impacts
- Cash flow projections should consider short-term, medium-term and long-term expected impacts.

A

Scenario
Value Indication

B

Scenario
Value Indication

C

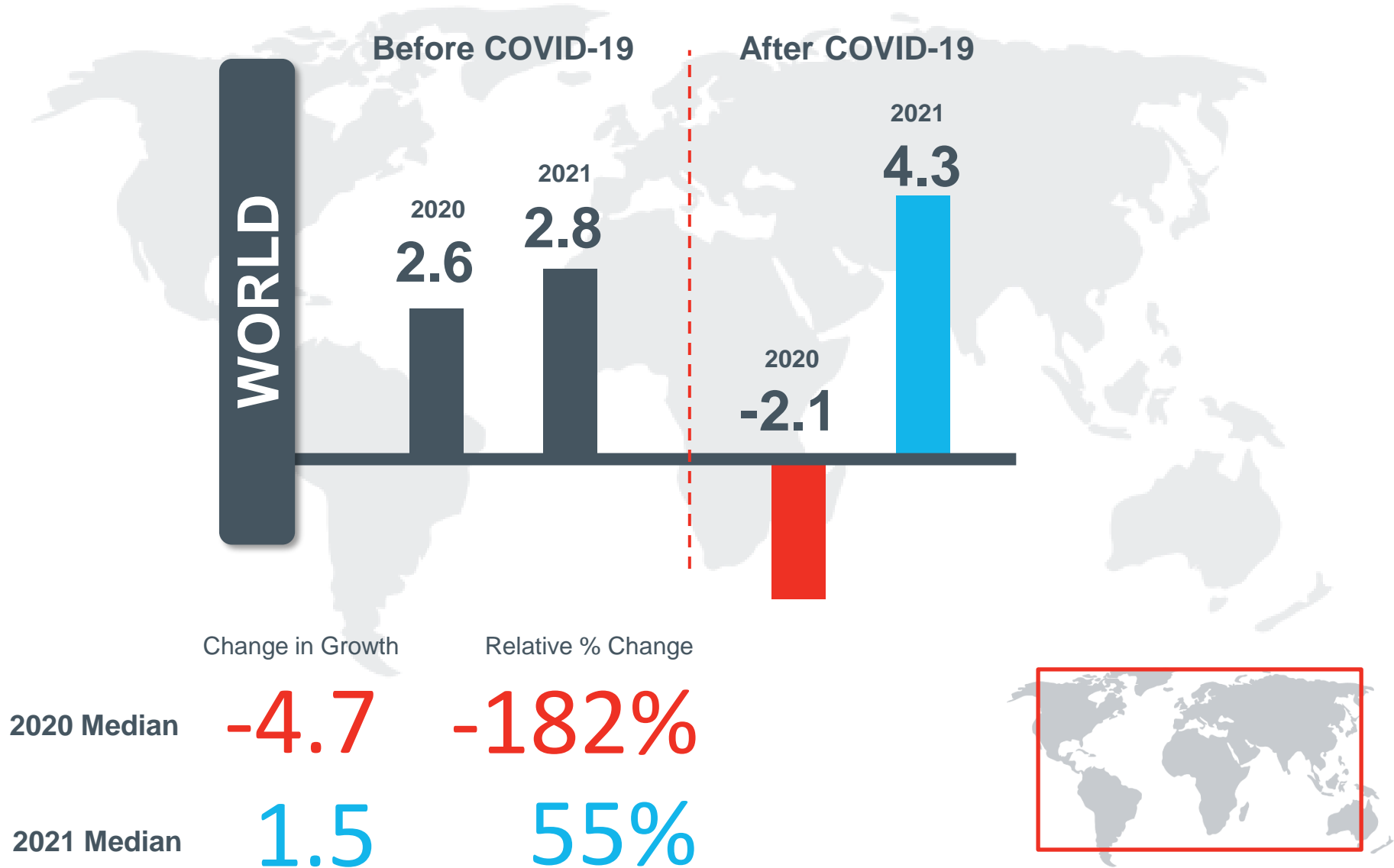
Scenario
Value Indication

D

Scenario
Value Indication

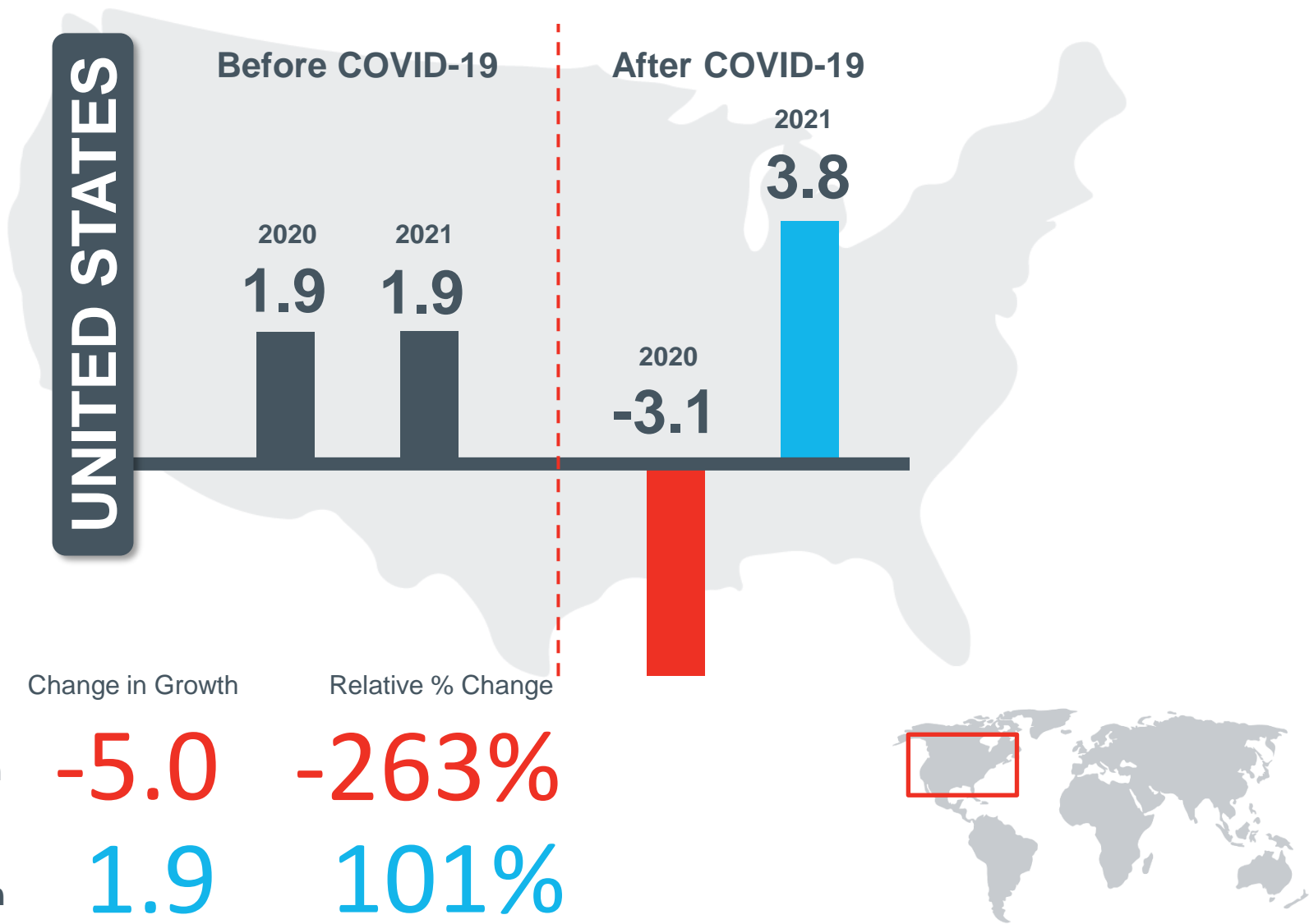
Real GDP growth (%) estimates by region: World

Data as of April 14, 2020



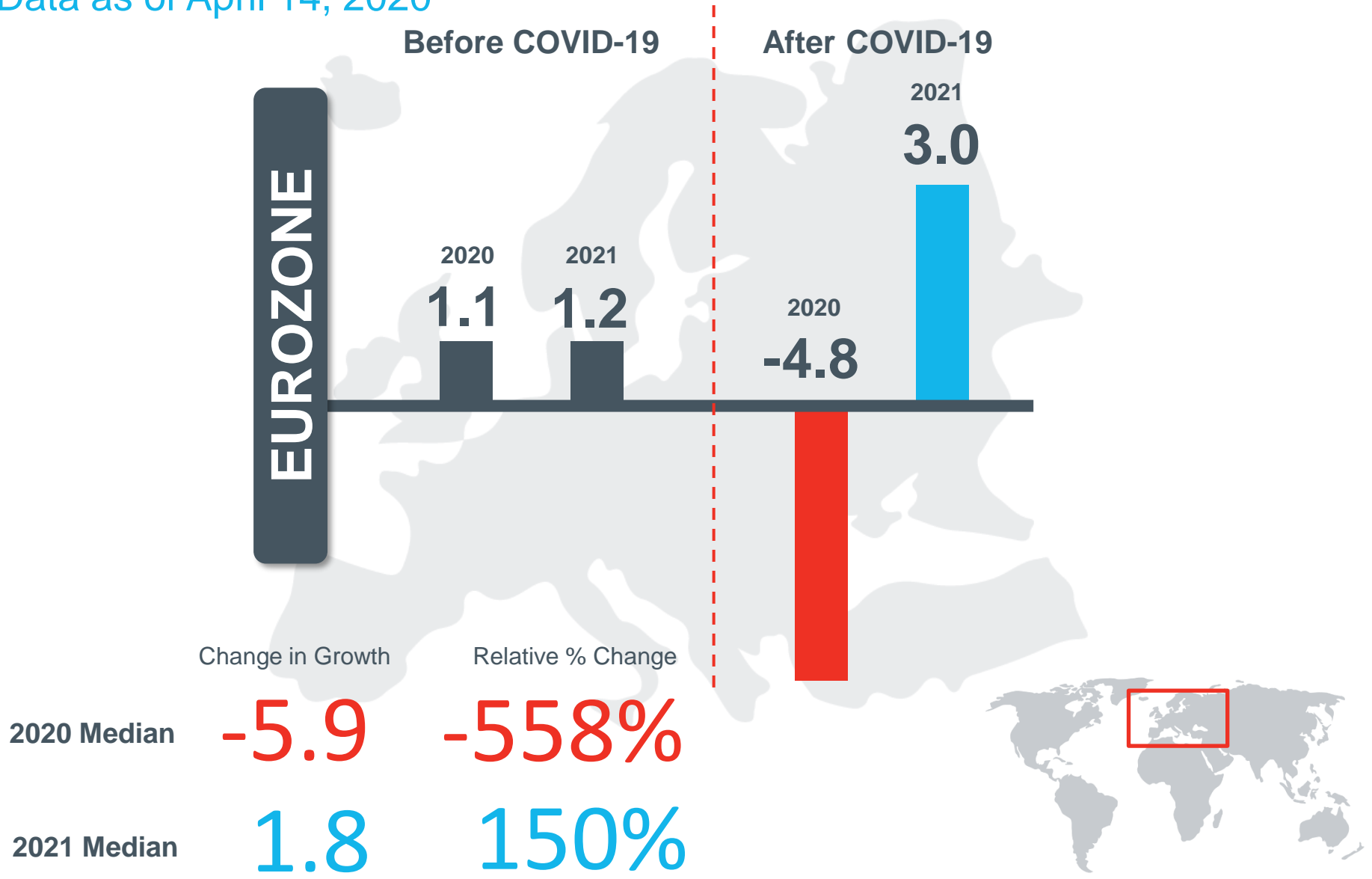
Real GDP growth (%) estimates by region: U.S.

Data as of April 14, 2020



Real GDP growth (%) estimates by region: Eurozone

Data as of April 14, 2020



GWJ Testing Process Selection

Process selection depends on basis of PFI

Is the PFI prepared by the company reflective of:

- Strategic Plan (Standalone) PFI (excl. MP synergies) → “bottom up” perspective

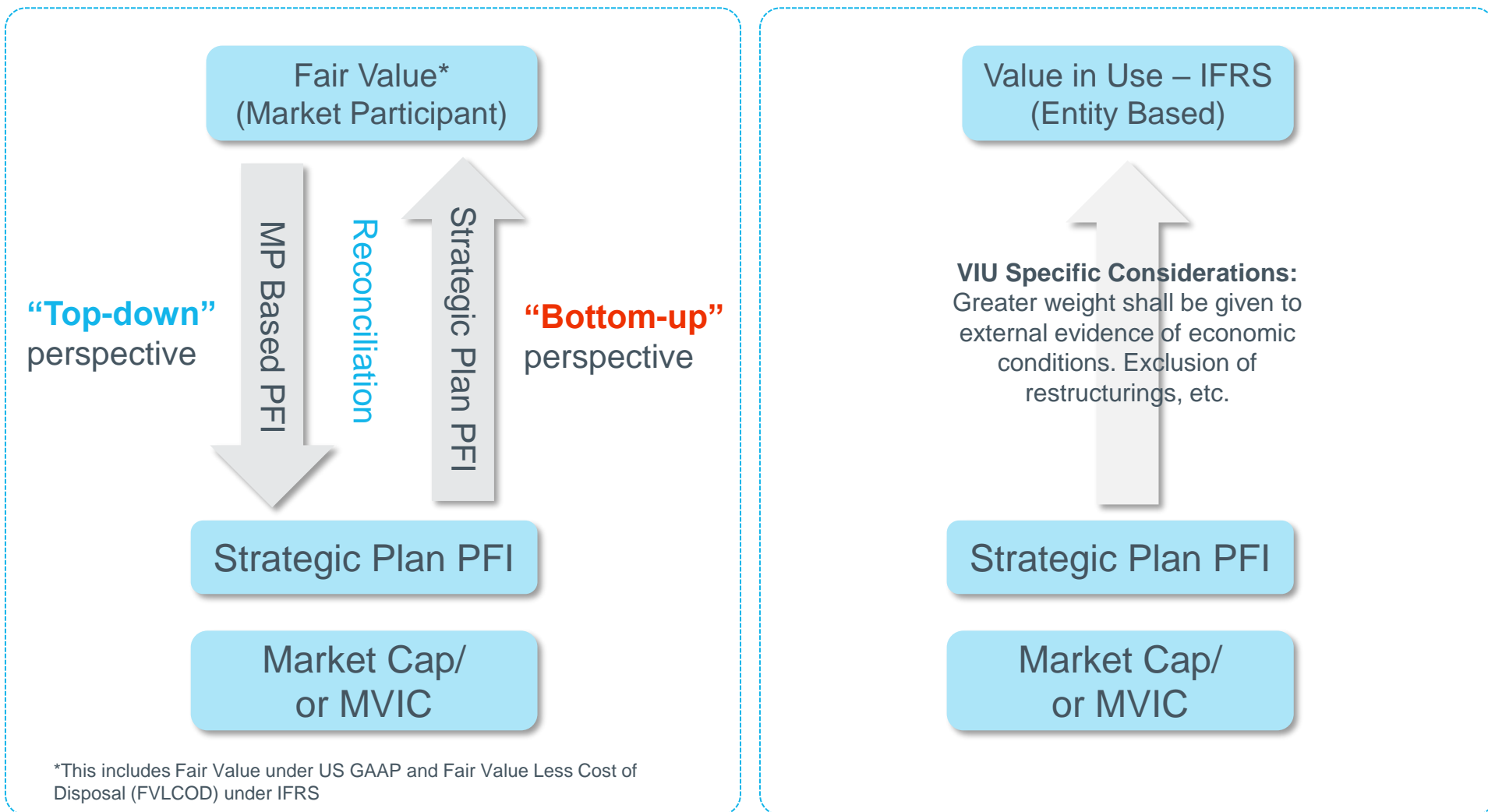
OR

- Market Participant (MP) based PFI → “top-down” perspective

Overall objective of process

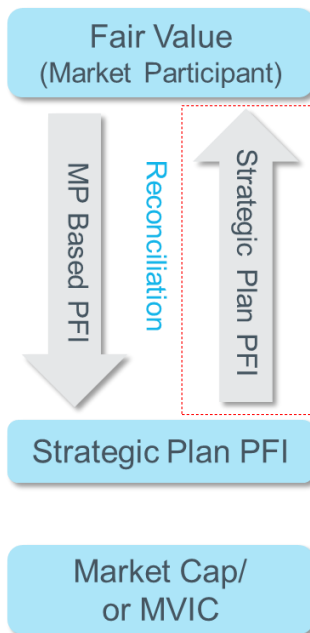
1. To estimate fair values of the RUs/CGUs for the purpose of the GWJ test
2. To explain any differences between the sum of the fair values of the RUs/CGUs and market capitalization/MVIC
3. To support any implied control premium or MPAP between 1. and 2.

GWI Testing Process Selection – US GAAP and IFRS



Strategic Plan (Standalone) PFI

“Bottom Up” Perspective



- A Strategic Plan (Standalone) PFI (excluding MP synergies) is in concept more aligned with the market capitalization/MVIC or VIU (with certain considerations)
- In a “bottom up” analysis, one starts with the Strategic Plan (Standalone) PFI and builds up to Market Participant based PFI, **on a RU/CGU level**
- Information asymmetry has been addressed in the Strategic Plan PFI
- Further adjustments should be made to the PFI for the RU/CGU to reflect enhanced cash flows/and or decreased risks to derive a Market Participant based PFI

PROS

- Enhanced ability to assess **robustness of forecast**
- More direct means to support information asymmetry
- Consistent with FASB’s original intent for the goodwill impairment test

CONS

- Strategic Plans on a RU/CGU level may not be available
- Not all RUs/CGUs may be subject to impairment testing

Market Participant Based PFI

“Top Down” Perspective



- A Market Participant PFI essentially yields fair value starting point
- To quantify the premium implied by the market participant synergies included in the cash flow analysis, two DCF analyses are performed:
 1. The first is based on PFI including MP assumptions; and
 2. A second analysis excluding these MP benefits

PROS

- Direct measure of fair value

CONS

- Less transparency when asserting information asymmetry
- May require two DCF analyses

Potential Adjustments between Strategic Plan and MP-based PFI

Economic Benefits that Support for MPAP

Adjustments may include (applies to both bottom up and top down perspective):

- Superior revenue growth
- Increased operating margins
- Working capital efficiencies
- Capital expenditure efficiencies
- Lower required rate of return
- Any redundant corporate expenses
- Planned acquisition activity (which is removed)
- Nonoperating assets and liabilities
- Legal form of the hypothetical transaction
- Depreciation and amortization amounts
- Share-based compensation
- Fixed and variable costs
- Income tax rate
- Related party transactions
- Interest-bearing debt

“These adjustments may be accompanied by Increased Costs and/or Incremental Risks”

Enhanced cash flows giving rise to a control premium or MPAP are incremental to the PFI that reflects the ongoing operations of the business enterprise absent a change of control transaction.



8. Market Approach & Market Cap Reconciliation



Considerations in Applying the Market Approach

- In the current environment, the market approach may be more appropriately applied by considering forward rather than trailing multiples.
 - ✓ Trailing multiples (e.g. MVIC/LTM EBITDA) and earnings parameters (e.g. LTM EBITDA) may not be appropriate in the current environment as they may not be representative of current and future performance.
- MVIC should be derived with appropriate consideration of recent price trends (not necessarily as of a specific date) and with appropriate sensitivities.
 - ✓ The current crisis affects not only equities, but debt as well. Total invested capital (TIC) should also consider sensitivities, including a range from book value to fair value of debt as debt has first claim on the capital and it is possible that debtholders can get par value back.
- Forward-looking earnings parameters should be derived from analyst expectations reflecting the current market environment.
- Market multiples are applied to forward looking earnings parameters that are consistent with the expected PFI for the company.
- In theory, the market approach (using listed comparable companies) yields a **minority marketable value**. Further consideration should be given to control premiums/MPAP.
- To the extent there are comparable market transactions, the market transaction method should be applied with caution. One should understand the economics embedded in the deal price and whether it is reflective of current market conditions. In theory, this approach yields a **controlling marketable value**.

Control Premium/MPAP Considerations in the Market Approach

- An estimate of the control premium can be derived from the DCF approach and MPAP analysis performed earlier and can be applied to the market approach value indication on a minority marketable basis.
- Benchmark premiums from studies or closed transactions can still be considered, but must be carefully analyzed and cannot be exclusively relied upon.
- Applying a control premium/MPAP, where appropriate, results in a value indication on a **controlling marketable basis**.
- *The indications of the market approach and the DCF approach are weighted to arrive at the fair value of the RU/CGU.*

Key Takeaways

- Control premiums in the current COVID-19 environment will likely increase due to information asymmetry and will require incremental support
- Stock price and market volatility will impact the application of the market approach and market cap reconciliation
- We recommend evaluating information asymmetry discretely from the other elements of MPAP:
 1. It is more transparent to perform the information asymmetry analysis at the entity strategic plan level by comparison to market cap/MVIC, and,
 2. Utilizing a scenario-based approach provides more robust support for an assertion of asymmetric information
 3. The expected cash flow analysis weighs outcomes (value indications), not cash flows
- The nature of the PFI will determine whether a Bottom Up or Top Down perspective is used to assess the MPAP

9. Discount Rate Considerations



The Risk-free Rate (R_f) – Spot Rate or “Normalized” Rate?

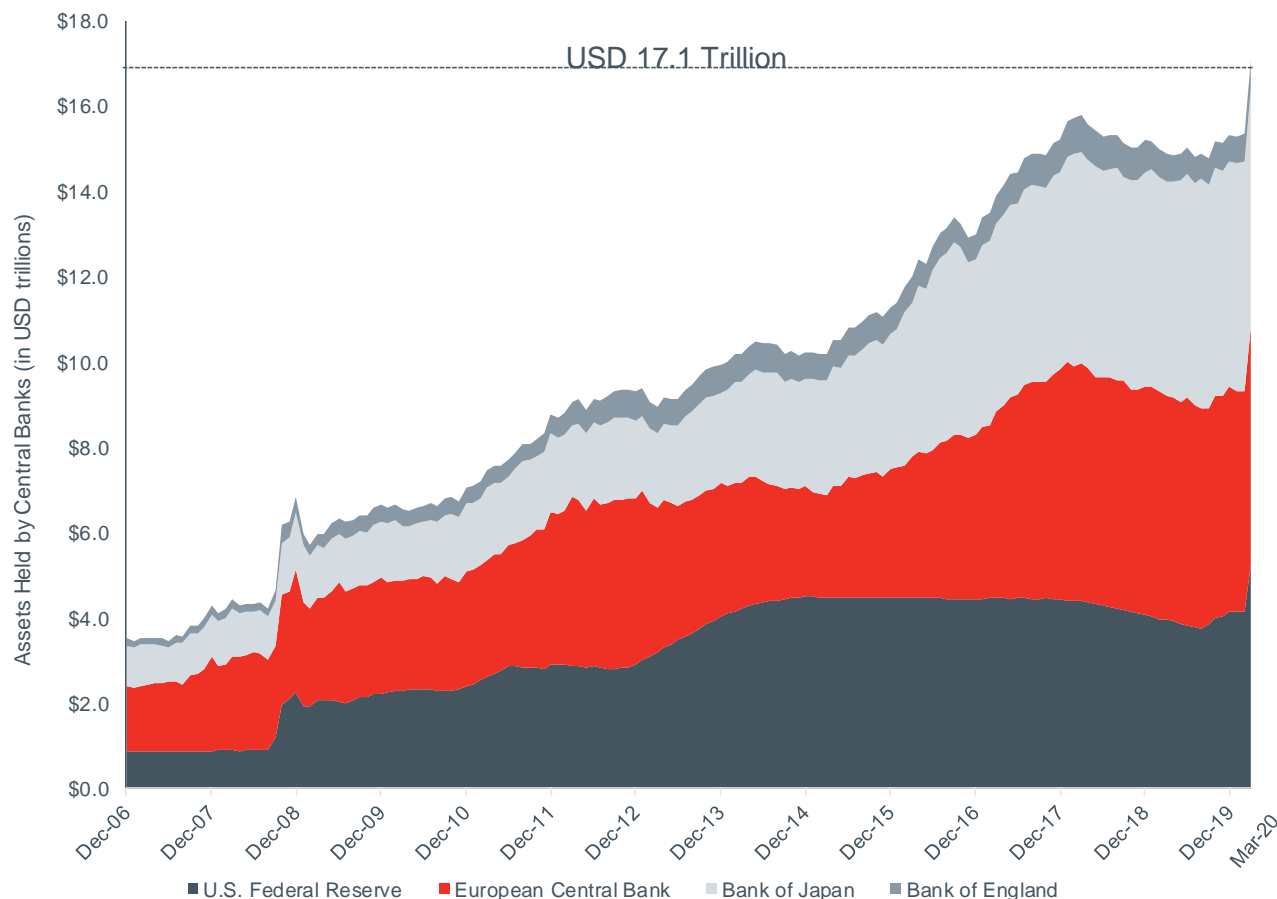
During periods when risk-free rates appear to be abnormally low due to flights to quality or massive monetary policy interventions (i.e. QE or quantitative easing)

=> Duff & Phelps recommends **normalizing** the risk-free rate.

Methods of normalization include :

- Simple averaging
- Various “buildup” methods

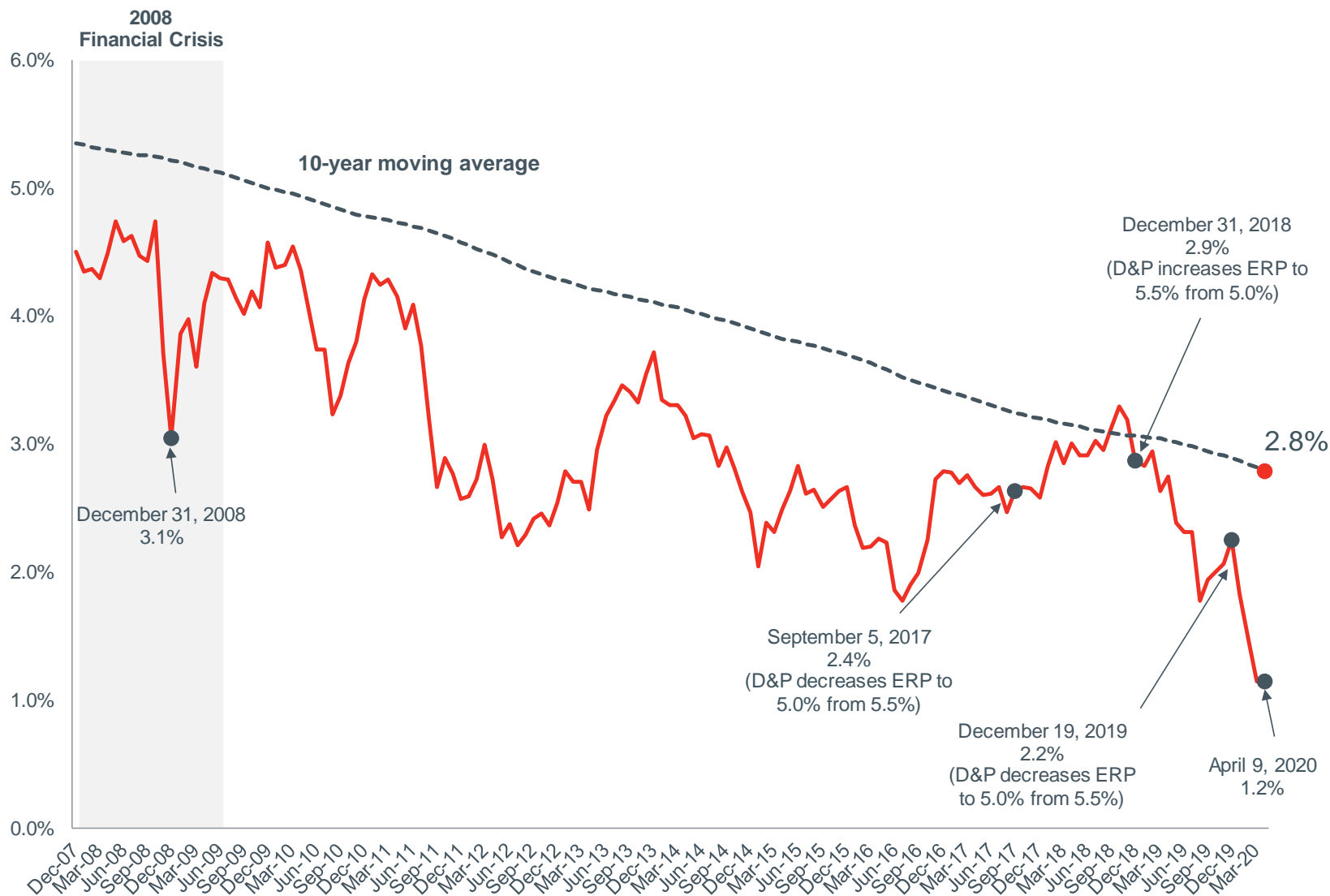
Increase in
Central Banks
Balance Sheets
due to QE
2007 - 2020



Source: Federal Reserve Bank of St. Louis Economic Research and the Bank of England.

20-year U.S. Treasury Yield, including Trailing Average

December 31, 2007 – April 9, 2020



Source: 20-year U.S. government bond series. Board of Governors of the Federal Reserve System.

Risk-Free Rate Normalization – By Buildup

Fisher Equation

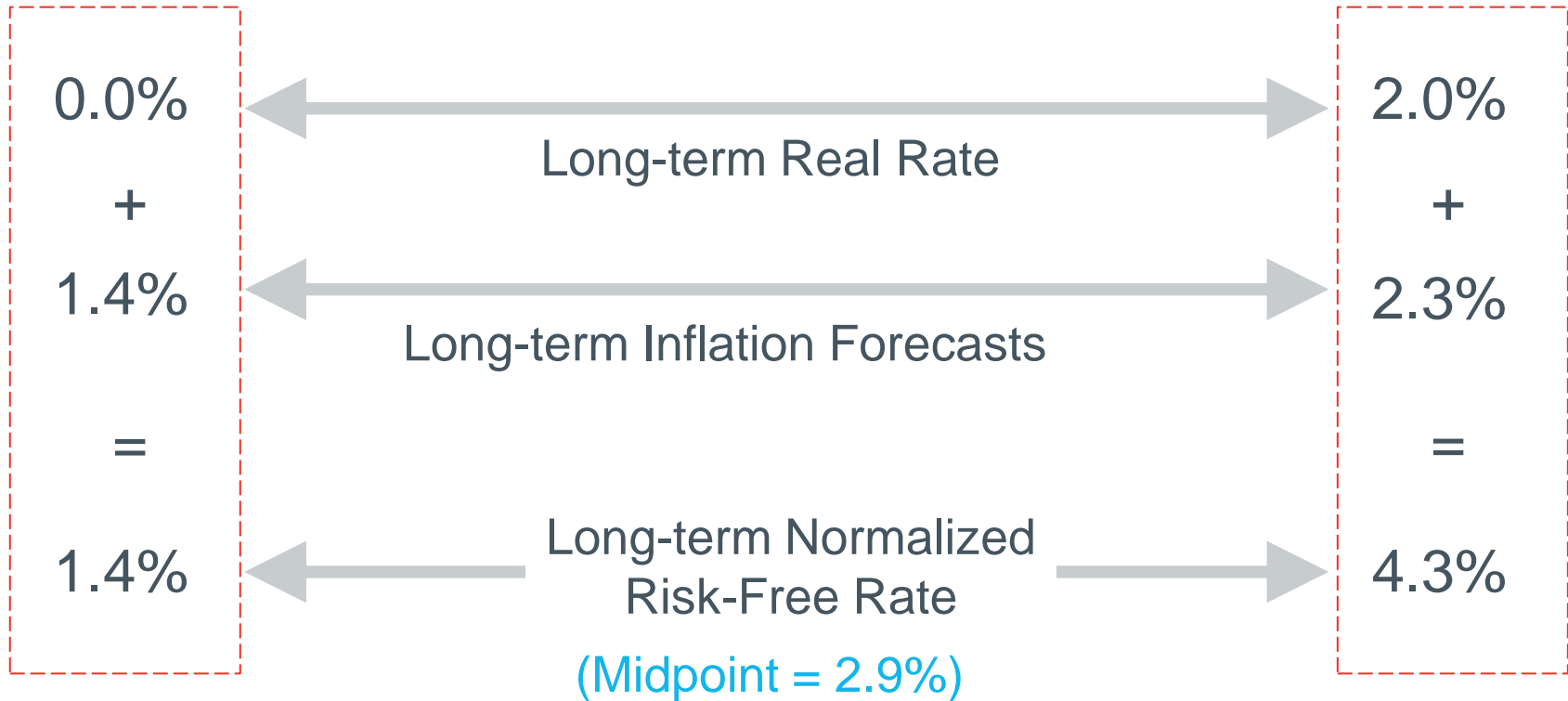
Conceptually, the risk-free rate can be (loosely) illustrated as the return on the following two components: *



* Technically, an Inflation Risk Premium should also be added, but it can be positive or negative, with some academic estimates at close to 0%

Risk-Free Rate Normalization – By Buildup

U.S. Example as of March 23, 2020



=> 10-Year Trailing Average on 20-Year U.S. Treasury Yield = 2.8%

Concluded Normalized Rf = 3.0%

The Duff & Phelps Recommended ERP is a Two-Step Process

Step 1: What is a reasonable range of unconditional ERP that can be expected over an entire business cycle?

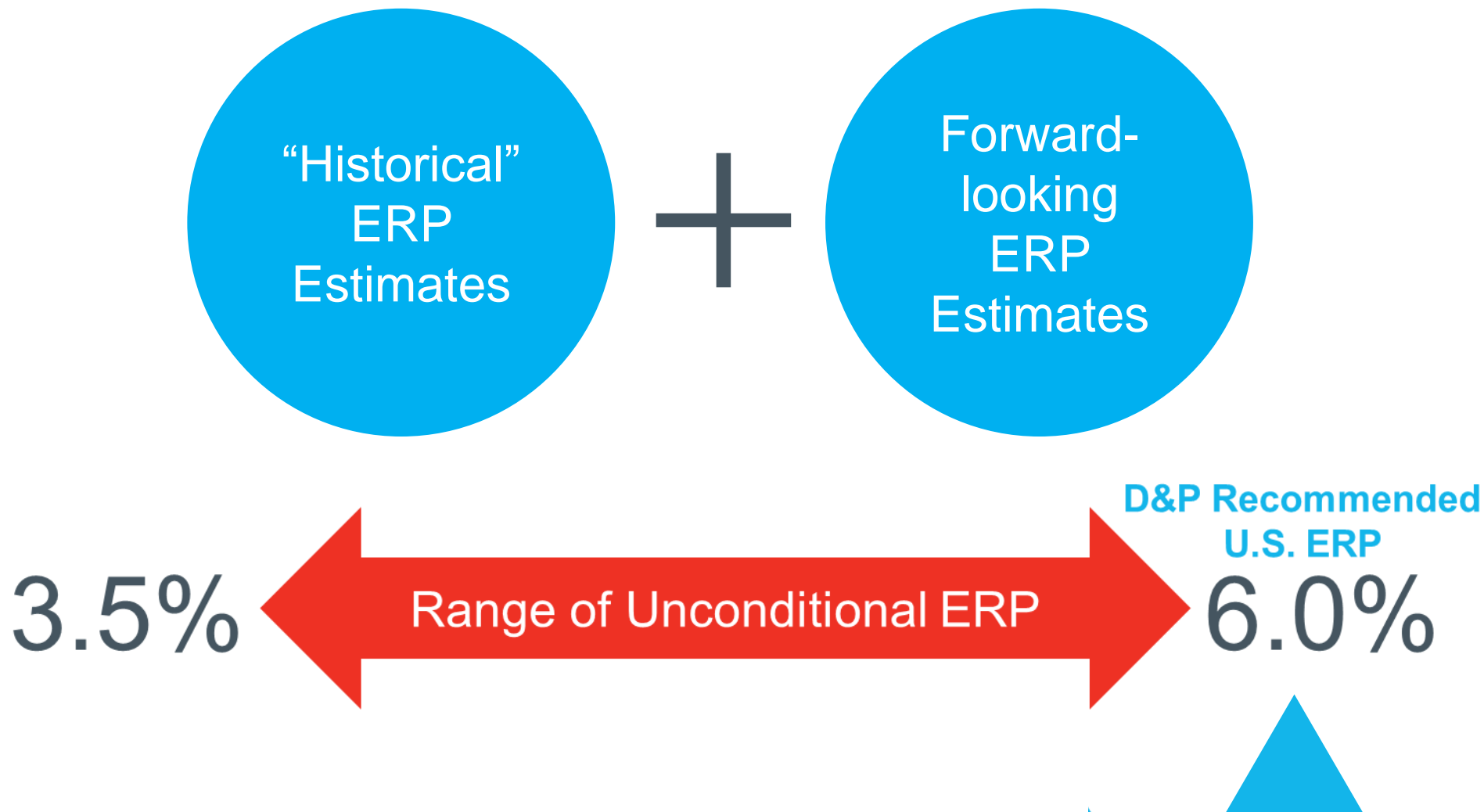
“What is the range?”

Step 2: Research has shown that ERP is cyclical during the business cycle. We use the term conditional ERP to mean the ERP that reflects current market conditions.

“Where are we in the range?”

Duff & Phelps Recommended U.S. Equity Risk Premium (ERP)

For discount rates developed as of March 25, 2020 (and thereafter)

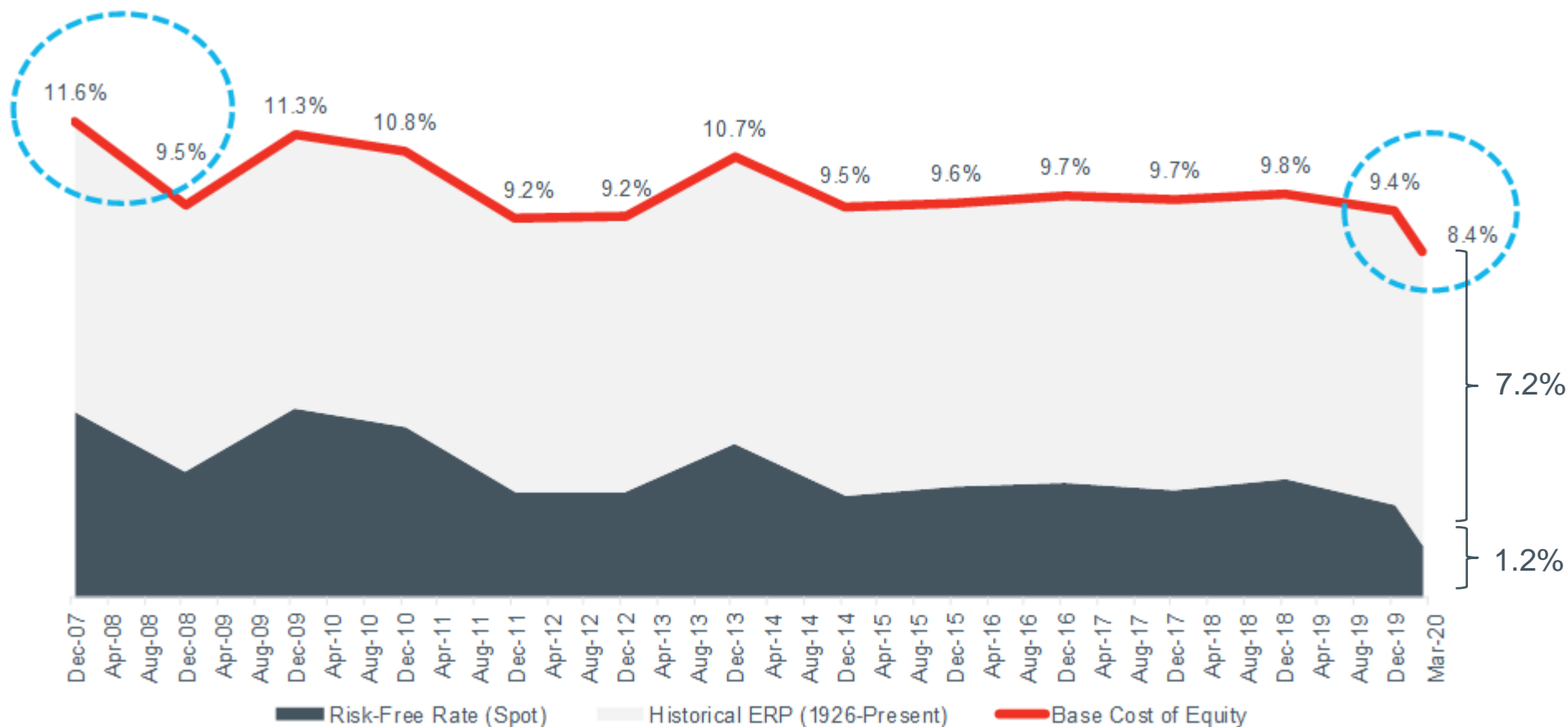


Summary Table of Factors as of March 25, 2020

Factor	Change	Effect on ERP
U.S. Equity Markets	↓	↑
Implied Equity Volatility	↑	↑
Corporate Debt Spreads	↑	↑
EPU and Equity Uncertainty	↑	↑
GDP Growth and GDP Growth Forecasts	↓	↑
Unemployment Environment	↓	↑
Consumer Sentiment	↓	↑
Business Confidence	↓	↑
Sovereign Credit Ratings	↔	↔
Default Spread Model	↑	↑
Damodaran Implied ERP Model	↑	↑

Spot 20-year U.S. Government Yield in Conjunction with Unadjusted “Historical” Equity Risk Premium*

2007 – March 25, 2020



*The Historical Equity Risk Premium is defined as the ERP over the years 1926–Present as of the date of the analysis. For example The Historical Equity Risk Premium for December 2018 spans the years 1926–2018 while the Historical ERP for 2019 spans the years 1926–2019.

10. Duff & Phelps Goodwill Impairment Studies

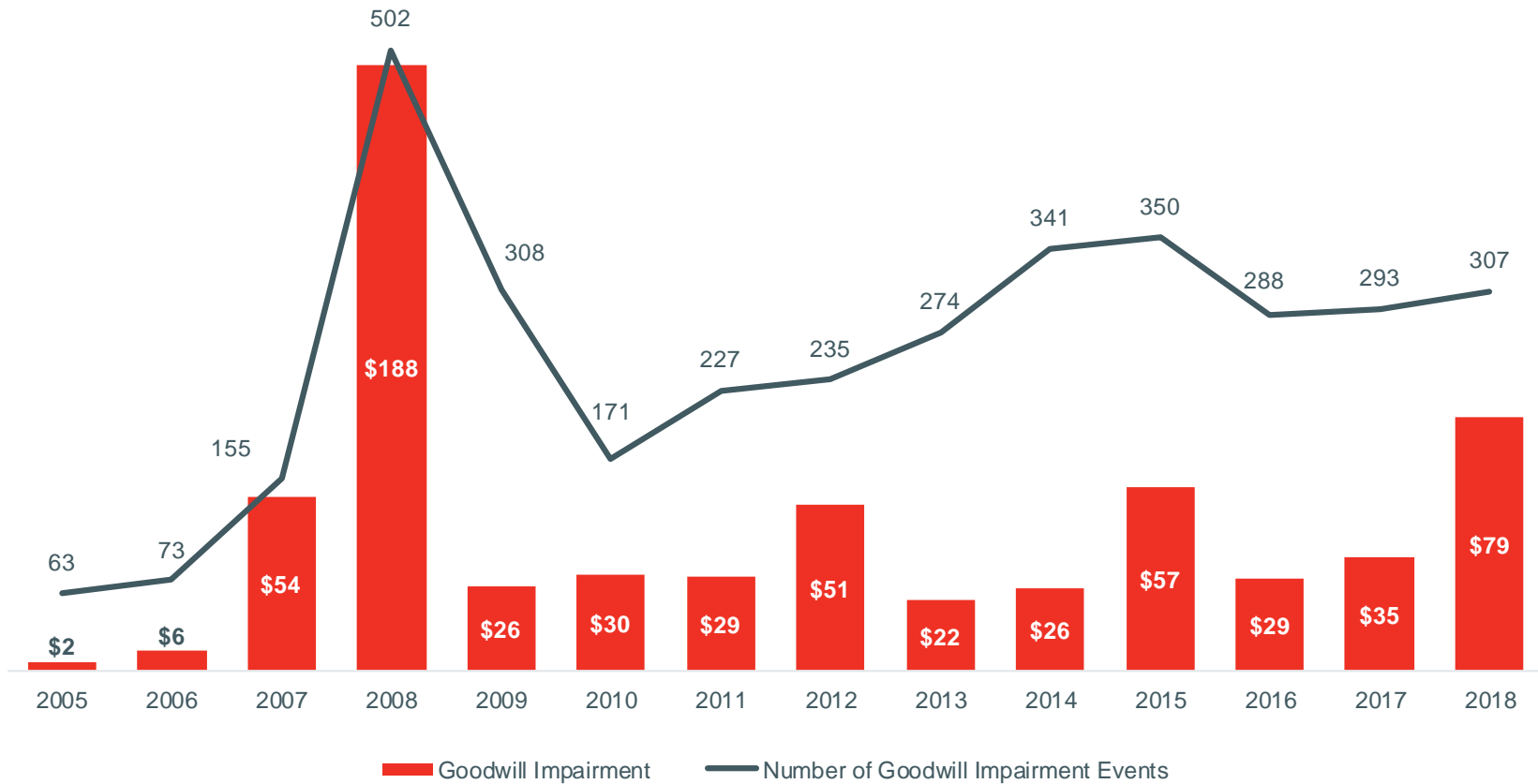


Historical Aggregate Goodwill Impairment and Number of Impairment Events



U.S.

(U.S. Dollars in Billions)



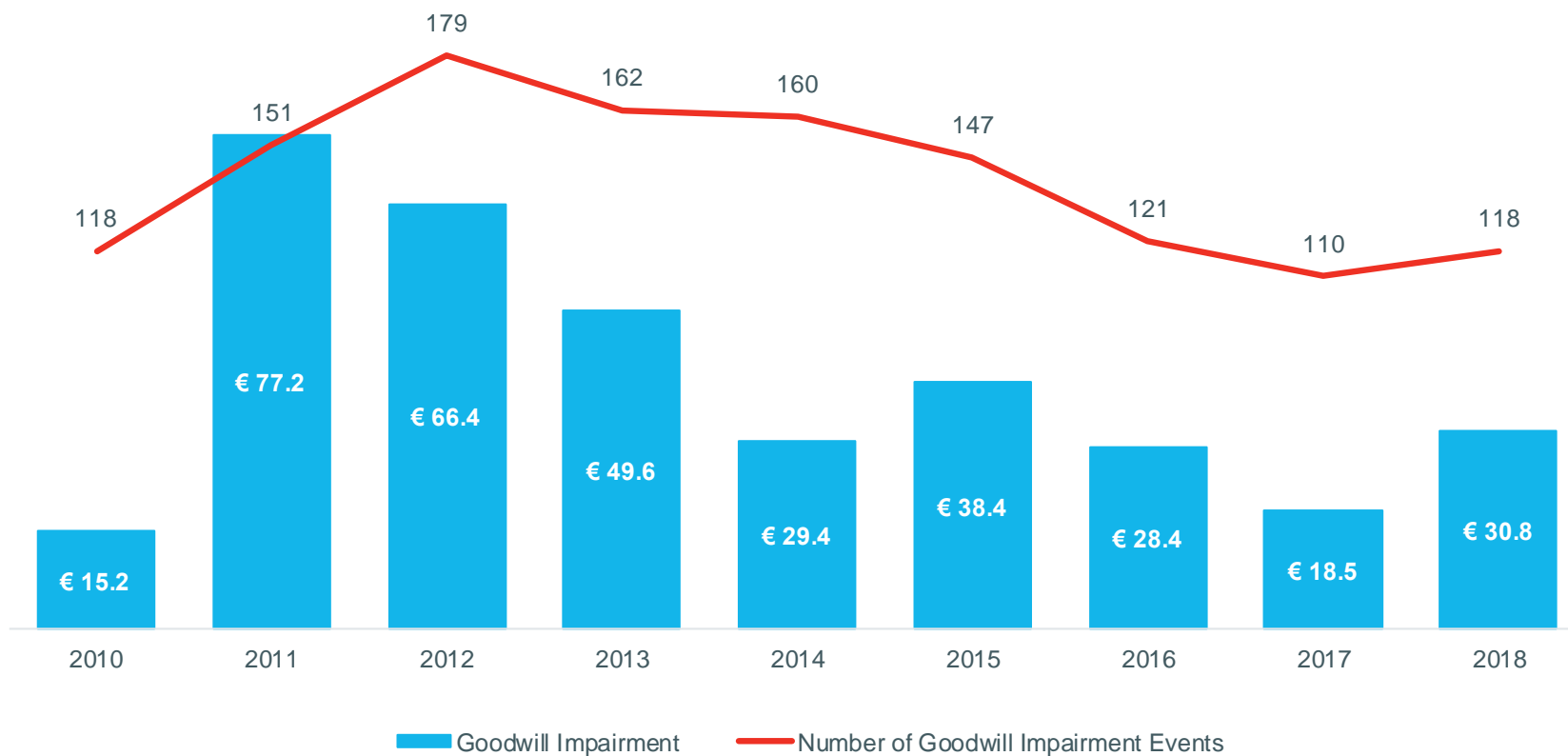
Access historical Duff & Phelps' Goodwill Impairment Studies covering the U.S., Europe, and Canada, by visiting: www.duffandphelps.com/GWISudies

Historical Aggregate Goodwill Impairment and Number of Impairment Events



STOXX Europe 600 (a subset of European listed companies)

(Euros in Billions)



Access historical Duff & Phelps' Goodwill Impairment Studies covering the U.S., Europe, and Canada, by visiting:
www.duffandphelps.com/GWISudies

11. Questions



Audience Questions

Resources:

- AICPA Accounting and Valuation Guide: *Testing Goodwill for Impairment*
- The Appraisal Foundation: *Valuations in Financial Reporting Valuation Advisory 3: The Measurement and Application of Market Participant Acquisition Premiums*
- IVSC Perspectives Papers three-part article series on goodwill and goodwill impairment
- Goodwill Impairment Studies: <https://www.duffandphelps.com/insights/publications/goodwill-impairment>

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11. Appendix



S&P 500 Earnings Consensus Estimates – Before and After Coronavirus

Analysis as of April 9, 2020

Forecast Date	31 December 2019	9 April 2020	Difference
S&P 500 Index	9.2%	-8.5%	-17.7%
Energy	21.2	-88.5	-109.7
Financials	37.0	-21.0	-58.0
Industrials	14.9	-20.0	-34.9
Consumer Discretionary	11.9	-16.6	-28.5
Materials	13.0	-9.4	-22.4
Communication Services	11.5	1.5	-10.0
Real Estate	6.6	1.4	-5.2
Consumer Staples	5.7	2.5	-3.2
Utilities	5.7	3.0	-2.7
Healthcare	8.7	3.6	-5.1
Information Technology	9.0	5.2	-3.8

Source: FactSet

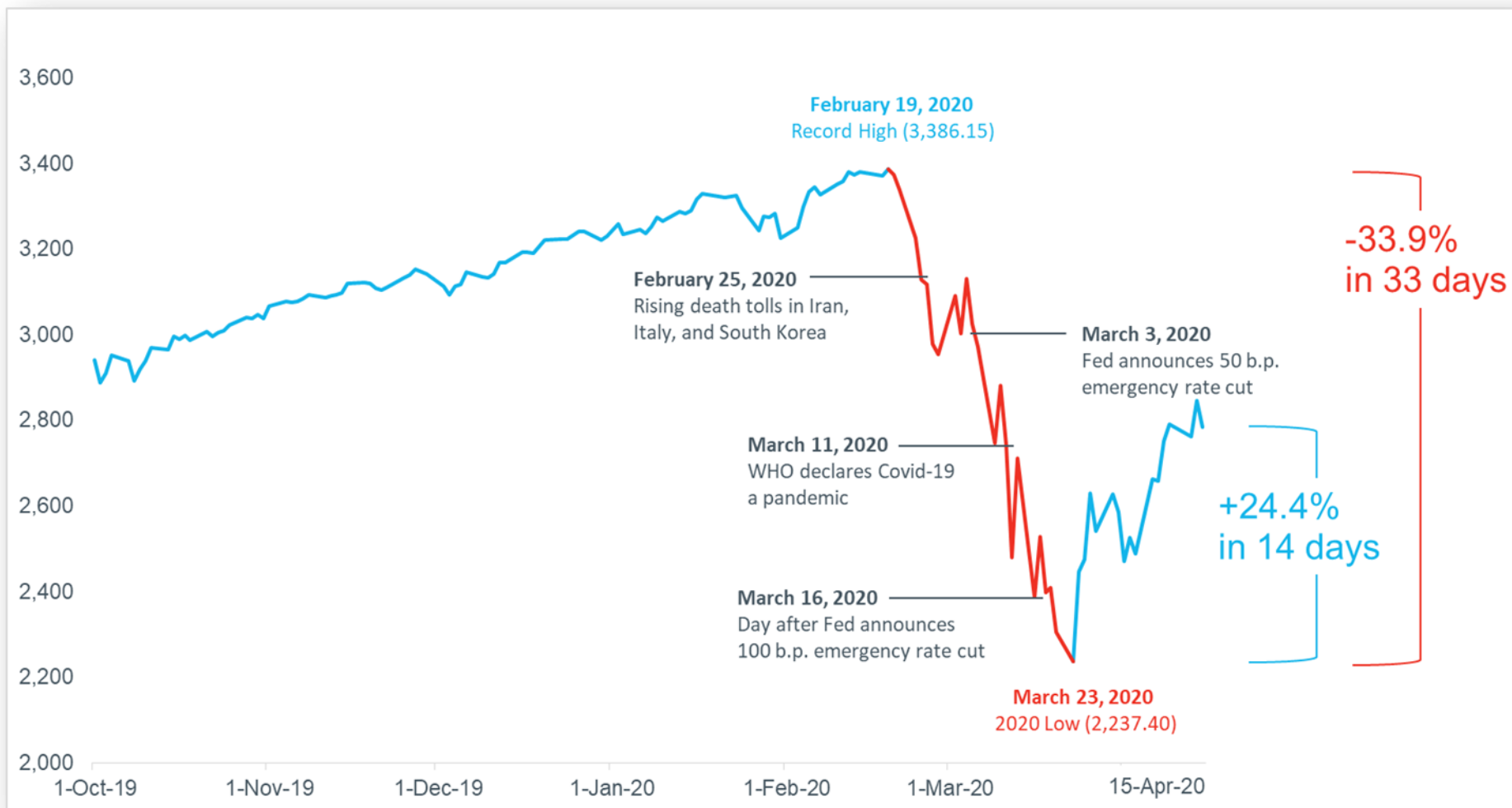
STOXX Europe 600 Earnings Consensus Estimates – Post-Coronavirus Analysis as of April 14, 2020

Forecast Date	9 April 2020
STOXX Europe 600	-13.2%
Energy	-49.7
Consumer Discretionary (Cyclicals)	-21.9
Industrials	-20.4
Financials	-14.7
Basic Materials	-11.4
Technology	-3.8
Consumer Staples (Non-Cyclicals)	-2.6
Healthcare	3.0
Telecommunications Services	4.2
Utilities	10.1

Source: Refinitiv I/B/E/S

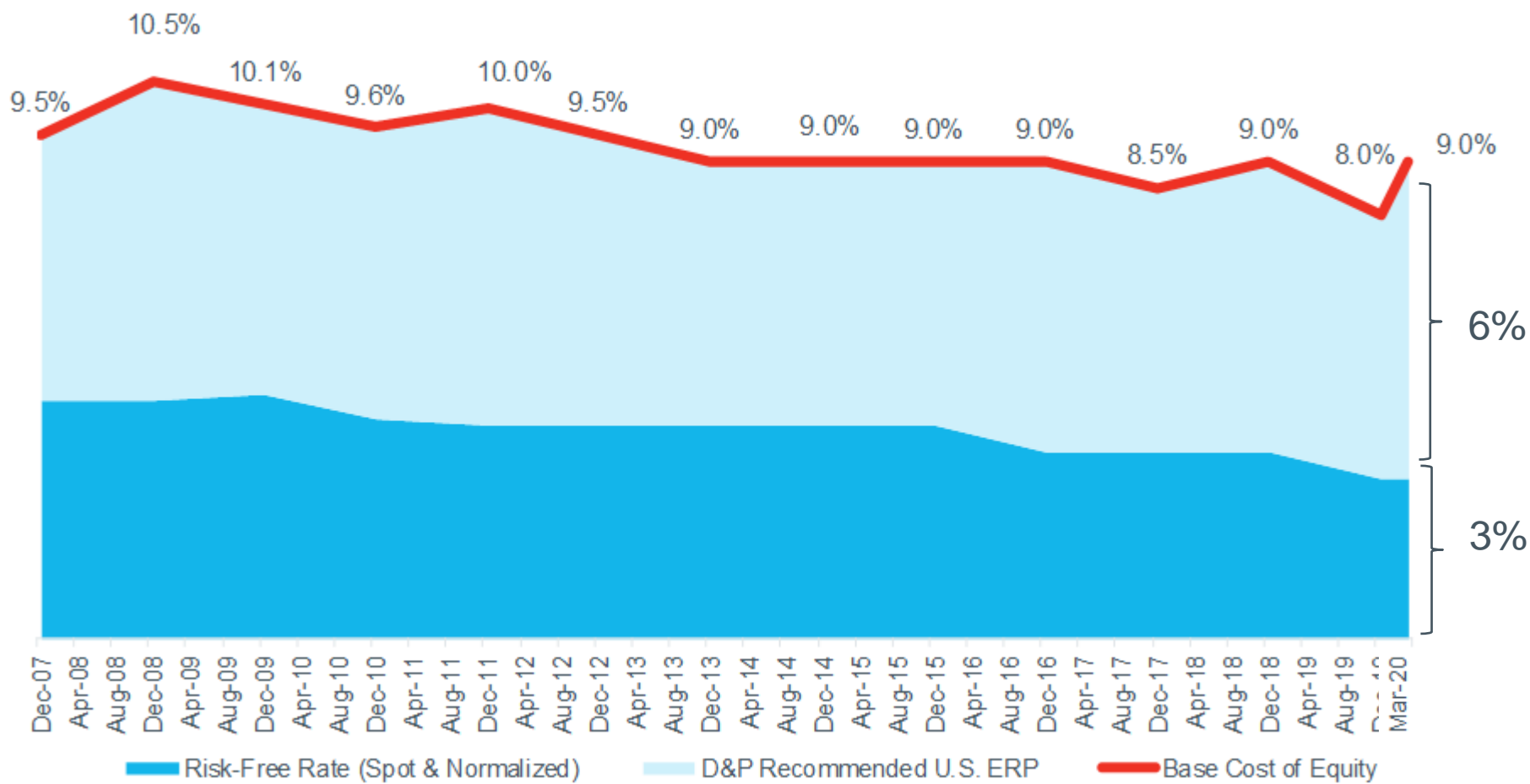
S&P 500 Index

October 1, 2019 – April 15, 2020



Duff & Phelps U.S. Recommended ERP and Corresponding Risk-free Rates

January 2008 – Present



Inferred ERP: Using the D&P U.S. Recommended ERP against a Spot Risk-Free Rate

As of March 25, 2020

Duff & Phelps U.S. Recommended ERP		Normalized Risk Free Rate		Spot 20-Year U.S. Treasury Yield		Inferred U.S. ERP
6.0%	+	3.0%	−	1.23%	=	7.77%