

2020 U.S. Goodwill Impairment Study

February 2021

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Historical Goodwill Impairment Studies

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INTRODUCTION

Duff & Phelps is pleased to launch the 2020 U.S. Goodwill Impairment Study (the “2020 Study”), now in its 12th year of publication. The 2020 Study examines general and industry goodwill impairment (GWI) trends through December 2019 of over 8,800 publicly traded companies incorporated in the U.S.

Also included in this year’s edition is an expanded look at the largest 30 impairments recorded during 2019, a feature that debuted in last year’s study.

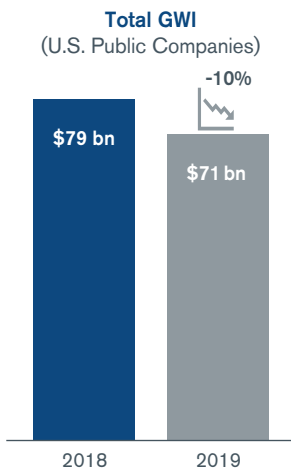
Recognizing the significance of a recent global health event, this study also touches on the impact of the COVID-19 pandemic on goodwill impairments taken by U.S. based companies up to the time of writing.* Times of crises and significant economic recessions always place an additional focus on impairments recorded by publicly traded companies.

Goodwill and impairment continue to be topics of interest to standard setters and stakeholders. Both the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) have current projects addressing goodwill and impairment. More developments in this area are expected to take place in 2021.

* Information collected through January 28, 2021.

HIGHLIGHTS OF THE 2020 STUDY

Total GWI recorded by U.S. public companies fell 10%, from \$78.9 billion (bn) in 2018 to **\$71.0 bn in 2019**, but this was still the second highest level since the 2008 global financial crisis.* Moreover, the 2018 aggregate GWI amount was significantly



impacted by a single GWI event of \$22.1 bn, recorded by General Electric (GE). If GE's impairment event was excluded from the 2018 totals, aggregate GWI would have risen by 25% in 2019 (from \$56.7 bn in 2018).

Additionally, the number of GWI events increased by 4%, from 307 in 2018 to 318 in 2019. The size of impairments has generally become larger, with the average GWI per event (excluding GE's 2018

impairment) rising by 21% in 2019 to \$223 million (mn), or a drop of 13% if GE was included.

Trade tensions between the U.S. and its main trading partners (particularly China), combined with a Brexit impasse, created significant uncertainty among companies and global investors in late 2018 and early 2019. Most major economies saw growth decelerate in 2019, with U.S. real GDP moderating to 2.3%. Nevertheless, U.S. investors grew optimistic into 2019 and a "Phase 1" trade deal announced in October 2019 between the U.S. and China spurred new stock market record highs.

M&A activity by U.S. publicly traded companies saw deal value drop marginally (by 4%) in 2019 relative to the record levels achieved in 2018, while deal volume fell 18%. Yet, 2019 still marked the second-best year in M&A deal value since we began tracking these statistics in 2008. This led to \$391 bn of goodwill being added to U.S. public companies' balance sheets in 2019. However, the onset of the COVID-19 pandemic put a damper on M&A activity by U.S. acquirers, with the number of closed deals in 2020 dropping to the lowest level in the study's records (statistics begin in 2008).†

* The 2020 Study only captures companies that are incorporated in the U.S. Therefore, certain companies that are incorporated outside of the U.S. are excluded from our analyses, even if they are viewed as U.S. companies by financial markets. If such companies were included, total GWI in 2019 would, at a minimum, increase by Schlumberger's \$8.8 bn impairment, leading to an aggregate \$79.9 bn and thereby exceeding the 2018 GWI total amount.

† Source: S&P Capital IQ platform. M&A activity based on transactions closed in each year, where U.S. publicly traded companies acquired a 50% or greater interest.

From an industry standpoint, GWI increased or remained at similar levels in seven out of ten industries analyzed, with Industrials and Consumer Discretionary being notable exceptions. Industrials saw its aggregate goodwill impairment drop by over 80% in 2019 to \$4.5 bn. However, excluding the top impairment event in 2018 (GE's \$22.1 bn), aggregate impairments in Industrials have remained at comparable levels over the last four years. In 2019, the industries with the largest increase in GWI over 2018, are as follows, in order of magnitude (\$ in billions):

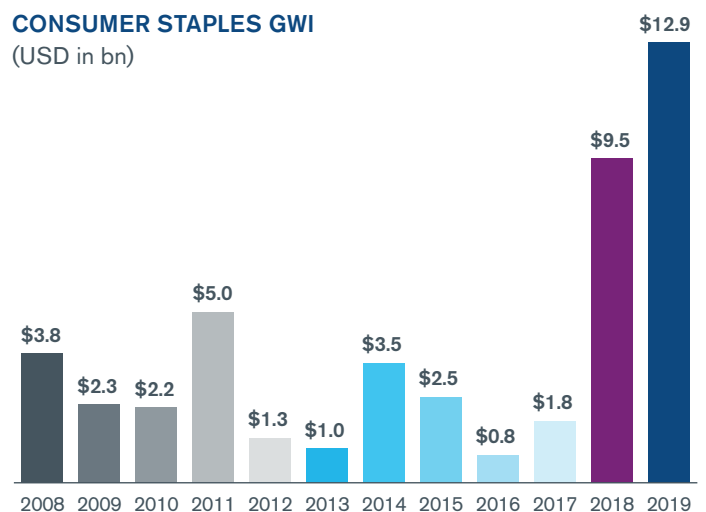
- Communication Services (\$8.6 to \$19.7)
- Information Technology (\$2.7 to \$8.1)
- Consumer Staples (\$9.5 to \$12.9)

Communication Services' aggregate GWI amount more than doubled from 2018 to 2019, reaching its highest level since 2007. However, 2007 was dominated by a single large impairment event (Sprint-Nextel at \$29.7 bn out of the \$29.8 bn industry total), whereas 2019 impairments affected the industry more broadly. Traditional broadband, video and voice service providers were under pressure from new entrants (vertical integration and disrupting start-ups), as well as large providers that underwent M&A consolidation.

Information Technology's aggregate GWI amount tripled from 2018 to 2019, reaching its highest level since 2015. After seeing steep declines in GWI for the two years following 2015, the trend appears to have reversed, with GWI for this industry increasing for two consecutive years.

Consumer Staples reached a new record high in aggregate GWI since we began collecting statistics in 2005. Established companies are struggling with shifting consumer tastes and competition from new brands and/or lower prices. GWI in this industry has now increased for three consecutive years.

CONSUMER STAPLES GWI (USD in bn)



2020 STUDY: LOOKING BACK AND LOOKING AHEAD

The 2020 Study captures 8,800+ public companies incorporated in the U.S.* In 2019, the top five impairments totaled \$25.5 bn, while the top 10 impairments reached \$37.4 bn, accounting respectively for nearly 36% and 53% of the aggregate GWI of \$71.0 bn.†

Looking at 2020, the COVID-19 pandemic was the biggest challenge for U.S. companies, as the related economic recession is expected to be the most severe since World War II. Certain companies benefitted from stay-at-home and lockdown policies, while others struggled to survive without the physical presence of consumers. Even within the same industry, there was a marked divergence in performance, depending on the business model and how quickly a company was able to adapt to the new reality.

At the time of writing, the disclosed top 10 GWI events for 2020 reached a combined \$54 bn, far surpassing the top 10 in 2019. Although full 2020 calendar year-end results for U.S. public companies will not be known for some time, early reporting points to overall GWI already exceeding \$120 bn in 2020. For perspective, in 2008, at the height of the global financial crisis, U.S. companies recorded a total GWI of \$188 bn, according to our prior studies. Should the final 2020 aggregate GWI figures remain at a level lower than that in 2008, it will be partly a reflection of the unprecedented level of support provided by both the Federal Reserve (with swift implementation of liquidity-enhancing monetary policies) and the U.S. government (with large fiscal stimulus packages) in response to the COVID-19 crisis. By a wide margin, the most impacted industry so far is Energy, a reflection of the collapse in global oil prices following the classification of COVID-19 as a pandemic.‡

Top 10 GOODWILL IMPAIRMENTS[§] In 2019 (in bn)



* The 2020 Study uses the S&P Capital IQ platform as the primary source of data. The procedures described in the Appendix were undertaken to arrive at the final dataset, which was used to calculate all ratios and summary statistics throughout the study.

† As indicated earlier, the 2020 Study excludes companies that are incorporated outside of the U.S. and yet may be viewed as U.S. companies by financial markets. If they were included, Schlumberger's \$8.8 bn impairment would become the top event for 2019, changing the statistics on GWI concentration.

‡ Data for calendar year 2020 was compiled on January 28, 2021. The identity of the top 10 largest impairment events in 2020 may change once all companies report full-year 2020 results.

§ Calendar years (not "most recent fiscal years") were used to examine impairments during a specific period of time, regardless of company-specific choices of fiscal years. Financial data was also adjusted to include goodwill impairment amounts disclosed within discontinued operations or disposal groups, when identified.

TOP 30 GOODWILL IMPAIRMENT SPOTLIGHT

No.	Company	GICS	Industry	Goodwill Impairment (USD)	% of GW Impaired
1.	The Procter & Gamble Company	30	 Consumer Staples	\$6.8 bn	14%
2.	Lumen Technologies, Inc.	50	 Communication Services	\$6.5 bn	23%
3.	Frontier Communications Corporation	50	 Communication Services	\$5.7 bn	90%
4.	National Oilwell Varco, Inc.	10	 Energy	\$3.5 bn	56%
5.	DXC Technology Company	45	 Information Technology	\$2.9 bn	39%
6.	Dollar Tree, Inc.	25	 Consumer Discretionary	\$2.7 bn	54%
7.	Windstream Holdings, Inc.	50	 Communication Services	\$2.7 bn	98%
8.	Coty Inc.	30	 Consumer Staples	\$2.6 bn	33%
9.	Sprint Corporation	50	 Communication Services	\$2.0 bn	30%
10.	Conduent Incorporated	45	 Information Technology	\$2.0 bn	57%
11.	General Electric Company	20	 Industrials	\$1.5 bn	3%
12.	MEDNAX, Inc.	35	 Healthcare	\$1.4 bn	33%
13.	McKesson Corporation	35	 Healthcare	\$1.2 bn	11%
14.	The Kraft Heinz Company	30	 Consumer Staples	\$1.2 bn	3%
15.	Marathon Petroleum Corporation	10	 Energy	\$1.2 bn	6%

1. Procter and Gamble

- Recognized \$6.8 bn of goodwill impairment in its Shave Care reporting unit, which is the global leader in the blades and razors market. This reporting unit is comprised entirely of acquired businesses. A substantial portion of the impairment stemmed from the mega acquisition of Gillette in 2005.
- The impairment was largely driven by a significant appreciation of the U.S. dollar relative to a number of currencies, a drop in sales volume caused by changing grooming habits (primarily in developed markets) and an increasingly competitive market environment in the U.S. and elsewhere. Collectively, these factors resulted in lower cash flow projections.
- A \$1.6 bn impairment charge related to brands in the Gillette indefinite-lived intangible portfolio was also recorded.

2. Lumen Technologies, Inc. (fka Century Link)

- Recognized an aggregate of \$6.5 bn in goodwill impairment across several reporting units. Competitive pressures contributed to revenue declines in a number of segments during 2019. An internal reorganization in January and a continued decline in the stock price triggered two interim impairment tests in the first quarter of 2019, leading to impairment charges.

- This tops a \$2.7 bn goodwill impairment taken in 2018 in the consumer reporting unit, which ranked as the sixth largest impairment event in our 2019 Study.

3. Frontier Communications Corporation

- Recognized \$5.7 bn of goodwill impairment in 2019, preceded by goodwill impairments totaling \$641 mn and \$2.7 bn in 2018 and 2017, respectively. No goodwill balance remained after the 2019 impairment.
- The series of goodwill impairments over the last three-year period have been due to continued stock price declines and lower profitability driven by sustained revenue deterioration, failure from a strategic transformation initiative in achieving improvements in revenue, shifting customer trends, questions about the long-term sustainability of the capital structure and a lower outlook for the overall industry.
- Filed for bankruptcy shortly following year-end 2019.

No.	Company	GICS	Industry	Goodwill Impairment (USD)	% of GW Impaired
16.	DuPont de Nemours, Inc.	15	 Materials	\$1.2 bn	2%
17.	EnLink Midstream, LLC	10	 Energy	\$1.1 bn	86%
18.	Dow Inc.	15	 Materials	\$1.0 bn	11%
19.	Covetrus, Inc.	35	 Health Care	\$938 mn	125%*
20.	Equitrans Midstream Corporation	10	 Energy	\$852 mn	69%
21.	Bed Bath & Beyond Inc.	25	 Consumer Discretionary	\$716 mn	100%
22.	Molson Coors Beverage Company	30	 Consumer Staples	\$674 mn	8%
23.	Avaya Holdings Corp.	45	 Information Technology	\$657 mn	24%
24.	O-I Glass, Inc.	15	 Materials	\$595 mn	24%
25.	The Mosaic Company	15	 Materials	\$589 mn	34%
26.	AECOM	20	 Industrials	\$588 mn	10%
27.	Arrow Electronics, Inc.	45	 Information Technology	\$570 mn	22%
28.	The Estée Lauder Companies Inc.	30	 Consumer Staples	\$559 mn	29%
29.	Party City Holdco Inc.	25	 Consumer Discretionary	\$556 mn	34%
30.	Entercom Communications Corp.	50	 Communication Services	\$537 mn	100%

4. National Oilwell Varco, Inc.

- Recognized an aggregate goodwill impairment of \$3.5 bn in 2019.
- Impairment driven by certain oil and gas market indicators hitting new decade-lows (signaling a more prolonged downturn for the industry), an increase in the number of oilfield services firms (including customers) declaring bankruptcy and a drop in drilling activity in North America (with U.S. rig count experiencing its first double-digit sequential decline since 2016).
- As an independent provider of equipment and technology to the upstream oil and gas industry, the company is highly dependent on drilling activity and global oil and gas prices.


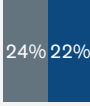

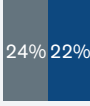

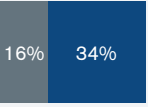

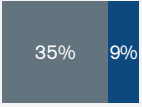

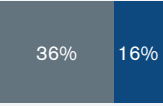

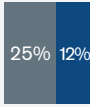

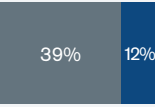



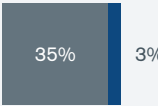

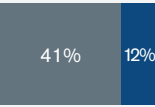
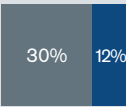
5. DXC Technology

- Recognized an aggregate \$6.8 bn of goodwill impairment in the fiscal year ended March 31, 2020; however, our current study only captures the \$2.9 bn recognized during calendar year 2019.
- DXC Technology was created in April 2017 by the merger of Hewlett Packard Enterprise Services and Computer Sciences Corp, which led to the recognition of a substantial amount of goodwill. Following the merger, revenues have seen annual consecutive declines, without an accompanying reduction in costs.

* The company impaired goodwill from the prior year, as well as a portion of goodwill related to newly acquired businesses in 2019, leading to a GWI/GW ratio greater than 100%.

SUMMARY STATISTICS BY INDUSTRY*

(TABLE 1)










2019 (Companies)	2015	2016	2017	2018	2019		
	Goodwill Impairments: \$ billions (number of events)					Companies with GW	Percent Recording GWI
	Percent of Total Companies that Recorded GWI						
	Percent of Companies with Goodwill						
	Percent of Companies with Goodwill that Recorded a GWI						
 Communication Services (572)	0.1 (1) 1.0% 31.1% 3.1%	0.0 (2) 1.9% 41.9% 4.5%	4.9 (3) 2.9% 36.3% 8.1%	8.6 (22) 3.7% 23.2% 16.1%	19.7 (30) 5.2% 24.0% 21.9%		
 Consumer Staples (476)	2.5 (18) 3.9% 25.7% 15.0%	0.8 (19) 4.1% 33.0% 12.3%	1.8 (23) 4.9% 32.0% 15.4%	9.5 (21) 4.4% 24.5% 17.9%	12.9 (25) 5.3% 23.5% 22.3%		
 Energy (621)	18.2 (65) 9.6% 17.1% 56.0%	7.2 (27) 4.2% 19.3% 21.6%	1.5 (13) 2.2% 19.1% 11.4%	8.1 (33) 5.0% 16.1% 30.8%	8.7 (33) 5.3% 15.6% 34.0%		
 Information Technology (1,228)	12.9 (65) 4.4% 37.1% 11.8%	4.1 (44) 3.0% 42.0% 7.2%	1.3 (41) 2.8% 40.7% 6.9%	2.7 (50) 4.0% 35.0% 11.4%	8.1 (41) 3.3% 35.2% 9.5%		
 Consumer Discretionary (944)	7.6 (51) 4.2% 35.0% 12.0%	5.4 (58) 4.9% 41.0% 11.9%	9.3 (63) 5.3% 40.1% 13.1%	8.7 (49) 5.0% 35.4% 14.2%	7.2 (54) 5.7% 35.6% 16.1%		
 Healthcare (1,468)	1.3 (28) 2.2% 27.9% 8.0%	3.1 (39) 3.1% 30.8% 9.9%	7.2 (51) 3.9% 30.0% 12.9%	15.0 (46) 3.2% 23.7% 13.7%	5.3 (44) 3.0% 24.9% 12.1%		
 Industrials (1,088)	7.7 (74) 6.9% 40.3% 17.1%	4.5 (59) 5.3% 46.0% 11.6%	5.9 (59) 5.4% 45.4% 11.8%	25.1 (50) 4.5% 38.6% 11.6%	4.5 (50) 4.6% 39.0% 11.8%		
 Materials (552)	2.8 (18) 2.9% 19.9% 14.6%	1.0 (19) 3.2% 23.1% 13.7%	1.3 (14) 2.4% 23.1% 10.2%	0.6 (12) 2.0% 18.4% 11.0%	3.7 (14) 2.5% 19.6% 13.0%		
 Financials & Real Estate (1,808)	1.4 (24) 1.6% 37.4% 4.4%	1.2 (15) 1.1% 42.5% 2.5%	1.8 (20) 1.4% 41.1% 3.3%	0.4 (19) 1.2% 35.1% 3.5%	0.4 (20) 1.1% 34.6% 3.2%		
 Utilities (139)	2.3 (6) 4.0% 43.0% 9.2%	1.4 (6) 4.2% 46.9% 9.0%	0.2 (6) 4.2% 42.7% 9.8%	0.2 (5) 3.4% 40.1% 8.5%	0.3 (7) 5.0% 41.0% 12.3%		
TOTAL** (8,896)	56.9 (350) 4.1% 32.5% 12.7%	28.5 (288) 3.4% 37.3% 9.2%	35.1 (293) 3.5% 36.3% 9.6%	78.9 (307) 3.5% 29.9% 11.7%	71.0 (318) 3.6% 30.3% 11.8%		

* Revisions to the Global Industry Classification Standard (GICS®) structure in 2018 affect historical comparability on an industry basis. See Appendix for more information on the methodology.

** Amounts shown are aggregates. Differences due to rounding.

SUMMARY STATISTICS BY INDUSTRY*

(TABLE 2)

	2015	2016	2017	2018	2019		
	Goodwill Intensity (GW/TA) Loss Intensity (GWI/GW) Loss Intensity (GWI/TA)					GW / TA	GWI / GW
2019 (Companies)							
 Communication Services (572)	19.2% 0.1% 0.0%	19.6% 0.0% 0.0%	18.7% 2.6% 0.5%	21.6% 1.9% 0.4%	20.6% 3.8% 0.8%	21%	3.8%
 Consumer Staples (476)	22.0% 0.9% 0.2%	22.4% 0.2% 0.1%	21.7% 0.5% 0.1%	23.2% 3.0% 0.7%	22.1% 3.7% 0.9%	22%	3.7%
 Energy (621)	5.0% 14.9% 0.7%	4.7% 6.7% 0.3%	4.4% 1.4% 0.1%	4.9% 8.5% 0.4%	5.1% 7.4% 0.4%	5%	7.4%
 Information Technology (1,228)	19.9% 2.7% 0.5%	19.9% 0.8% 0.2%	19.7% 0.2% 0.0%	23.5% 0.5% 0.1%	25.2% 1.3% 0.3%	25%	1.3%
 Consumer Discretionary (944)	13.7% 2.4% 0.3%	13.7% 1.8% 0.2%	14.7% 2.5% 0.3%	10.0% 4.2% 0.4%	8.4% 3.6% 0.4%	8%	3.6%
 Healthcare (1,468)	26.0% 0.3% 0.1%	26.2% 0.7% 0.2%	27.7% 1.4% 0.4%	28.6% 2.7% 0.7%	26.6% 0.8% 0.2%	27%	0.8%
 Industrials (1,088)	17.9% 1.9% 0.3%	19.3% 1.0% 0.2%	20.4% 1.3% 0.2%	20.5% 4.9% 1.0%	18.7% 0.9% 0.2%	19%	0.9%
 Materials (552)	14.9% 2.6% 0.4%	15.3% 0.9% 0.1%	19.0% 1.1% 0.2%	19.4% 0.4% 0.1%	18.4% 2.0% 0.4%	18%	2.0%
 Financials & Real Estate (1,808)	1.6% 0.3% 0.0%	1.8% 0.2% 0.0%	1.8% 0.3% 0.0%	1.9% 0.1% 0.0%	2.0% 0.1% 0.0%	2%	0.1%
 Utilities (139)	4.5% 3.5% 0.2%	5.3% 2.1% 0.1%	5.2% 0.2% 0.0%	5.2% 0.3% 0.0%	5.2% 0.4% 0.0%	5%	0.4%
TOTAL** (8,896)	7.0% 2.1% 0.1%	7.2% 1.0% 0.1%	7.5% 1.1% 0.1%	8.0% 2.3% 0.2%	7.8% 1.8% 0.1%	8%	1.8%

* Revisions to the Global Industry Classification Standard (GICS®) structure in 2018 affect historical comparability on an industry basis. See Appendix for more information on the methodology.

** Amounts shown are aggregates. Differences due to rounding.

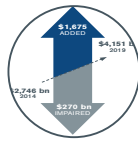
2019 U.S. INDUSTRY SPOTLIGHT

The U.S. Industry Spotlight aggregates data from Tables 1 and 2 and provides a glance at historical GWI trends and statistics, as well as a summary of the relative size and performance of each industry versus the overall universe of companies captured in the 2020 Study.

The guide below provides a brief description of the components of the U.S. Industry Spotlight.

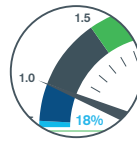
Goodwill Trends

Provides the aggregate goodwill balances for year-end 2014 and 2019, as well as the cumulative goodwill additions and impairments over that five-year period.



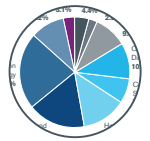
Market-to-Book Ratio Distribution

Highlights the number of companies (shown in percentage terms) with a market-to-book ratio below and above 1.0. The blue shaded area to the left of the needle further separates the proportion of companies with a ratio above and below 0.5. Although not predictive on its own, companies with a low market-to-book ratio may be at a greater risk of impairment. Reporting unit structures, their respective performance and where the goodwill resides are a few of the critical factors that must be considered in the impairment testing process.



Size of Industry Sectors

Represents the aggregate size of the companies within an industry sector relative to the combined size of all the companies included in the 2020 Study sample, measured in terms of market capitalization at the end of 2019.



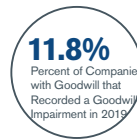
Impairment History

Presents annual GWI amounts and number of impairment events over the 2015-2019 period. The median market-to-book ratio (grey line) provides some context for the annual impairment measures.



Summary Statistics

Depicts the following calendar-year 2019 statistics for the companies included in the 2020 Study sample: (i) Number of Companies; (ii) Goodwill Intensity (GW/TA); (iii) Loss Intensity ratio (goodwill impairment as a percentage of the prior year's total goodwill, or GWI/GW); (iv) Percent of Companies with Goodwill; (v) Percent of Companies with Goodwill that Recorded a Goodwill Impairment; and (vi) Median Market-to-Book ratio.



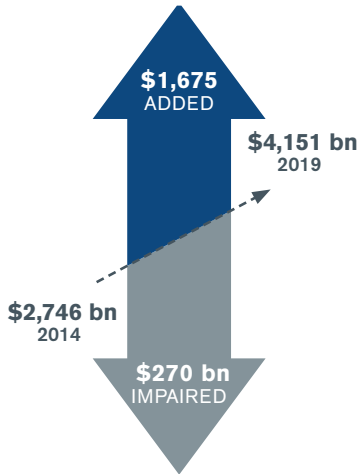
Index

Shows the five-year cumulative returns of 10 industries as represented by the respective S&P 500 sector indices versus the performance of the overall S&P 500 Index over the 2015-2019 period. Summarizes the relative performance of each industry reflecting what a \$1 investment at the end of 2014 would be worth at the end of 2019.

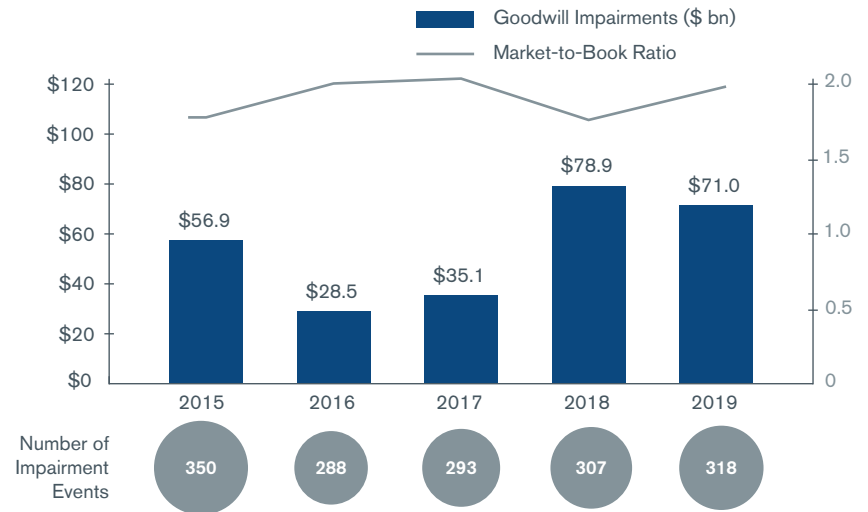


2019 U.S. INDUSTRY SPOTLIGHT

GOODWILL TRENDS 2014 - 2019

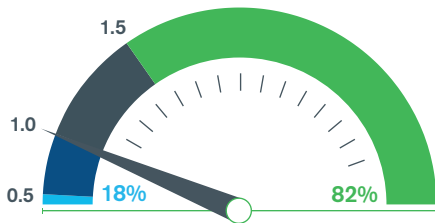


GOODWILL IMPAIRMENT HISTORY



MARKET-TO-BOOK RATIO DISTRIBUTION

(Based on Number of Companies)



SUMMARY STATISTICS

8,896
Companies

7.8%
Goodwill to Total Assets
(GW/TA)

1.8%
Percent of Goodwill
Impaired (GWI/GW ratio)

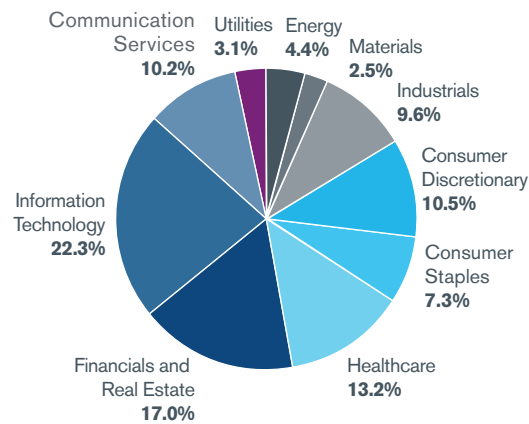
30.3%
Companies with
Goodwill

11.8%
Percent of Companies
with Goodwill that
Recorded a Goodwill
Impairment in 2019

2.0
Market-to-Book
Ratio (median)

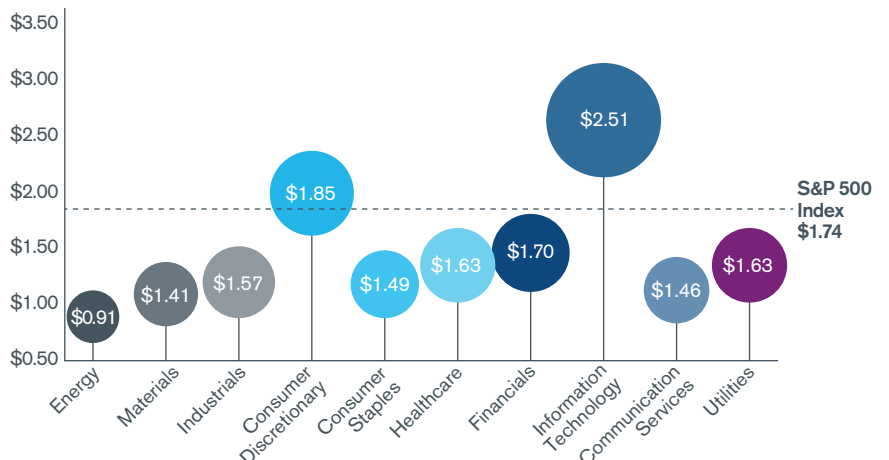
SIZE OF INDUSTRY SECTORS

(Relative to Study's Total Market Cap)



CUMULATIVE 5-YEAR TOTAL RETURN BY INDUSTRY FROM 2015 TO 2019

(YEAR END 2014 = \$1)



GOODWILL IMPAIRMENTS BY SUB-INDUSTRY

CALENDAR YEAR 2019

Goodwill Intensity:

Goodwill to Total Assets (GW/TA)

Loss Intensity:

Goodwill Impairment to Goodwill (GWI/GW)

List of industries by sub-industry, as defined by GICS®

GICS Code	GICS Sub-Industry Name	Number Co's	% of Co's with GW	GW/TA	GWI/GW	% of Co's with GW that Recorded GWI	Goodwill Impairment (\$ in millions)	Market-to-Book Ratio
Energy							\$8,700	
10101010	Oil and Gas Drilling	9	33%	3.7%	4.1%	66.7%	\$20	0.7
10101020	Oil and Gas Equipment and Services	104	33%	21.1%	12.8%	52.9%	\$4,441	0.9
10102010	Integrated Oil and Gas	4	25%	0.6%	1.4%	100.0%	\$63	1.5
10102020	Oil and Gas Exploration and Production	335	3%	1.1%	4.9%	9.1%	\$282	1.1
10102030	Oil and Gas Refining and Marketing	74	19%	11.1%	4.5%	14.3%	\$1,350	1.3
10102040	Oil and Gas Storage and Transportation	55	58%	7.8%	5.9%	28.1%	\$2,544	1.9
10102050	Coal and Consumable Fuels	40	5%	1.1%	–	–	–	0.9
Materials							\$3,737	
15101010	Commodity Chemicals	64	19%	13.4%	7.6%	25.0%	\$1,065	2.0
15101020	Diversified Chemicals	6	50%	14.9%	0.9%	33.3%	\$45	1.9
15101030	Fertilizers and Agricultural Chemicals	31	32%	17.4%	3.6%	10.0%	\$589	1.3
15101040	Industrial Gases	6	33%	4.2%	–	–	–	2.2
15101050	Specialty Chemicals	77	36%	33.3%	1.2%	7.1%	\$1,177	2.5
15102010	Construction Materials	18	33%	25.1%	0.1%	16.7%	\$7	2.3
15103010	Metal and Glass Containers	14	71%	26.0%	3.6%	20.0%	\$620	3.8
15103020	Paper Packaging	15	60%	18.8%	–	–	–	3.1
15104010	Aluminum	12	25%	2.5%	4.3%	33.3%	\$25	1.0
15104020	Diversified Metals and Mining	118	3%	11.2%	2.6%	25.0%	\$12	3.2
15104025	Copper	4	25%	0.1%	–	–	–	3.4
15104030	Gold	79	1%	5.9%	–	–	–	2.3
15104040	Precious Metals and Minerals	37	–	–	–	–	–	5.9
15104045	Silver	10	–	–	–	–	–	1.0
15104050	Steel	37	35%	8.0%	3.2%	15.4%	\$198	1.2
15105010	Forest Products	11	18%	2.2%	–	–	–	3.8
15105020	Paper Products	13	31%	3.4%	–	–	–	1.2
Industrials							\$4,544	
20101010	Aerospace and Defense	86	43%	28.1%	0.0%	5.4%	\$37	3.0
20102010	Building Products	43	65%	23.7%	0.6%	7.1%	\$78	2.3
20103010	Construction and Engineering	66	44%	19.7%	5.4%	27.6%	\$1,037	1.8
20104010	Electrical Components and Equipment	111	23%	24.8%	0.0%	3.8%	\$1	2.7
20104020	Heavy Electrical Equipment	34	21%	9.7%	0.8%	28.6%	\$3	1.7
20105010	Industrial Conglomerates	16	50%	16.2%	1.6%	25.0%	\$1,528	3.7
20106010	Construction Machinery and Heavy Trucks	36	67%	11.6%	0.2%	12.5%	\$35	1.6
20106015	Agricultural and Farm Machinery	16	44%	5.6%	3.6%	28.6%	\$174	2.0
20106020	Industrial Machinery	156	42%	32.7%	0.4%	9.1%	\$234	2.8
20107010	Trading Companies and Distributors	71	54%	15.7%	0.5%	5.3%	\$93	1.9
20201010	Commercial Printing	16	44%	17.5%	21.4%	42.9%	\$507	1.9
20201050	Environmental and Facilities Services	117	21%	35.0%	0.9%	12.0%	\$263	2.4
20201060	Office Services and Supplies	31	42%	20.3%	–	–	–	2.5
20201070	Diversified Support Services	51	29%	26.9%	1.0%	20.0%	\$90	2.1
20201080	Security and Alarm Services	14	36%	27.5%	0.8%	20.0%	\$45	1.9

GICS Code	GICS Sub-Industry Name	Number Co's	% of Co's with GW	GW/TA	GW/GW	% of Co's with GW that Recorded GWI	Goodwill Impairment (\$ in millions)	Market-to-Book Ratio
20202010	Human Resource and Employment Services	44	45%	17.1%	1.5%	15.0%	\$73	2.7
20202020	Research and Consulting Services	74	30%	48.3%	0.0%	13.6%	\$3	3.6
20301010	Air Freight and Logistics	26	54%	11.0%	-	-	-	2.7
20302010	Airlines	17	35%	8.6%	-	-	-	1.7
20303010	Marine	6	50%	12.6%	-	-	-	1.6
20304010	Railroads	9	11%	0.0%	-	-	-	4.1
20304020	Trucking	40	50%	4.6%	4.8%	20.0%	\$341	2.5
20305010	Airport Services	3	67%	29.8%	-	-	-	1.2
20305020	Highways and Railtracks	1	-	-	-	-	-	-
20305030	Marine Ports and Services	4	25%	5.5%	-	-	-	0.4
Consumer Discretionary							\$7,222	
25101010	Auto Parts and Equipment	69	38%	10.8%	6.4%	23.1%	\$594	1.5
25101020	Tires and Rubber	4	50%	2.9%	-	-	-	0.8
25102010	Automobile Manufacturers	15	27%	0.4%	-	-	-	1.9
25102020	Motorcycle Manufacturers	7	14%	0.6%	-	-	-	4.2
25201010	Consumer Electronics	26	23%	9.2%	-	-	-	1.7
25201020	Home Furnishings	23	43%	19.8%	0.0%	10.0%	\$2	0.9
25201030	Homebuilding	31	61%	5.4%	0.8%	5.3%	\$49	1.5
25201040	Household Appliances	22	18%	12.7%	-	-	-	3.8
25201050	Housewares and Specialties	8	50%	20.9%	8.3%	100.0%	\$266	1.6
25202010	Leisure Products	55	35%	11.9%	2.3%	21.1%	\$98	2.8
25203010	Apparel, Accessories and Luxury Goods	66	32%	14.1%	0.1%	9.5%	\$6	1.4
25203020	Footwear	14	36%	2.2%	-	-	-	4.2
25203030	Textiles	11	27%	2.6%	31.6%	33.3%	\$11	1.3
25301010	Casinos and Gaming	46	41%	10.1%	0.8%	15.8%	\$119	3.2
25301020	Hotels, Resorts and Cruise Lines	37	32%	25.0%	0.0%	25.0%	\$5	4.5
25301030	Leisure Facilities	38	24%	19.2%	0.1%	11.1%	\$2	1.7
25301040	Restaurants	92	48%	11.2%	1.1%	13.6%	\$199	2.2
25302010	Education Services	45	36%	27.7%	0.1%	12.5%	\$12	1.4
25302020	Specialized Consumer Services	31	39%	21.8%	0.4%	16.7%	\$26	2.3
25501010	Distributors	55	15%	22.0%	1.2%	12.5%	\$82	2.5
25502020	Internet and Direct Marketing Retail	98	26%	12.3%	1.4%	12.0%	\$564	3.8
25503010	Department Stores	7	29%	7.3%	-	-	-	1.1
25503020	General Merchandise Stores	7	57%	8.1%	26.1%	25.0%	\$2,727	3.8
25504010	Apparel Retail	44	36%	2.2%	14.3%	37.5%	\$506	1.7
25504020	Computer and Electronics Retail	8	38%	4.8%	27.2%	33.3%	\$364	2.0
25504030	Home Improvement Retail	8	63%	3.0%	-	-	-	2.8
25504040	Specialty Stores	35	49%	7.9%	12.9%	17.6%	\$623	2.0
25504050	Automotive Retail	34	47%	8.0%	0.0%	6.3%	\$2	2.8
25504060	Home Furnishing Retail	8	50%	2.9%	62.0%	50.0%	\$966	1.3
Consumer Staples							\$12,899	
30101010	Drug Retail	11	18%	17.7%	-	-	-	2.2
30101020	Food Distributors	23	43%	19.9%	3.7%	20.0%	\$346	2.5
30101030	Food Retail	16	44%	7.5%	0.4%	14.3%	\$19	2.1
30101040	Hypermarkets and Super Centers	4	75%	10.9%	-	-	-	4.5
30201010	Brewers	4	75%	25.7%	8.1%	33.3%	\$674	2.6
30201020	Distillers and Vintners	23	17%	25.7%	-	-	-	3.3
30201030	Soft Drinks	50	16%	24.1%	0.1%	25.0%	\$45	7.9
30202010	Agricultural Products	37	14%	9.6%	0.5%	40.0%	\$23	1.7

GICS Code	GICS Sub-Industry Name	Number Co's	% of Co's with GW	GW/TA	GW/GW	% of Co's with GW that Recorded GWI	Goodwill Impairment (\$ in millions)	Market-to-Book Ratio
30202030	Packaged Foods and Meats	121	31%	33.6%	1.0%	13.5%	\$1,345	2.8
30203010	Tobacco	20	35%	11.6%	0.0%	28.6%	\$1	3.8
30301010	Household Products	24	50%	31.0%	11.8%	16.7%	\$6,899	5.9
30302010	Personal Products	143	10%	19.5%	29.3%	57.1%	\$3,547	2.9
Healthcare							\$5,337	
35101010	Healthcare Equipment	233	27%	33.0%	0.1%	4.7%	\$131	4.5
35101020	Healthcare Supplies	59	47%	25.2%	1.8%	10.7%	\$148	5.4
35102010	Healthcare Distributors	39	31%	18.6%	7.0%	25.0%	\$2,147	5.0
35102015	Healthcare Services	106	33%	34.6%	1.1%	17.1%	\$1,719	3.3
35102020	Healthcare Facilities	50	38%	25.5%	0.0%	10.5%	\$9	2.6
35102030	Managed Healthcare	16	56%	29.5%	0.3%	11.1%	\$259	3.2
35103010	Health Care Technology	91	31%	26.1%	3.5%	10.7%	\$228	4.0
35201010	Biotechnology	513	17%	13.2%	0.8%	11.6%	\$381	3.6
35202010	Pharmaceuticals	309	18%	23.3%	0.3%	21.8%	\$308	4.0
35203010	Life Sciences Tools and Services	52	56%	38.0%	0.0%	3.4%	\$7	5.3
Financials/Real Estate							\$441	
40101010	Diversified Banks	9	89%	1.8%	—	—	—	1.3
40101015	Regional Banks	753	45%	2.8%	0.0%	0.9%	\$5	1.2
40102010	Thriffs and Mortgage Finance	167	31%	0.1%	0.1%	2.0%	\$5	1.2
40201020	Other Diversified Financial Services	8	25%	1.1%	—	—	—	0.9
40201030	Multi-Sector Holdings	17	24%	9.7%	0.1%	50.0%	\$43	1.6
40201040	Specialized Finance	25	28%	33.2%	10.2%	14.3%	\$2	0.9
40202010	Consumer Finance	49	47%	2.1%	0.0%	4.3%	\$11	1.3
40203010	Asset Management and Custody Banks	228	12%	3.3%	0.0%	3.7%	\$1	8.7
40203020	Investment Banking and Brokerage	54	41%	1.0%	0.1%	9.1%	\$31	2.0
40203030	Diversified Capital Markets	1	100%	0.1%	—	—	—	0.1
40203040	Financial Exchanges & Data	22	68%	20.8%	—	—	—	5.6
40204010	Mortgage REITs	48	19%	0.2%	—	—	—	1.0
40301010	Insurance Brokers	19	42%	39.9%	0.1%	37.5%	\$18	3.6
40301020	Life and Health Insurance	30	37%	0.6%	—	—	—	0.9
40301030	Multi-line Insurance	9	67%	1.1%	0.3%	16.7%	\$28	1.1
40301040	Property and Casualty Insurance	53	53%	2.7%	—	—	—	1.3
40301050	Reinsurance	3	67%	0.5%	—	—	—	1.1
60101010	Diversified REITs	24	21%	3.8%	1.8%	20.0%	\$50	1.4
60101020	Industrial REITs	14	21%	0.4%	—	—	—	2.2
60101030	Hotel and Resort REITs	20	10%	0.7%	1.4%	50.0%	\$9	1.1
60101040	Office REITs	23	17%	0.1%	—	—	—	1.7
60101050	Healthcare REITs	19	26%	1.3%	—	—	—	2.1
60101060	Residential REITs	22	27%	0.3%	—	—	—	2.7
60101070	Retail REITs	37	16%	0.3%	0.3%	16.7%	\$2	1.7
60101080	Specialized REITs	32	56%	13.2%	0.0%	5.6%	\$0	2.9
60102010	Diversified Real Estate Activities	16	6%	0.0%	—	—	—	1.0
60102020	Real Estate Operating Companies	59	2%	0.2%	—	—	—	1.2
60102030	Real Estate Development	32	3%	0.0%	—	—	—	1.7
60102040	Real Estate Services	15	53%	28.0%	2.2%	12.5%	\$237	2.9

GICS Code	GICS Sub-Industry Name	Number Co's	% of Co's with GW	GW/TA	GW/GW	% of Co's with GW that Recorded GWI	Goodwill Impairment (\$ in millions)	Market-to-Book Ratio
Information Technology							\$8,117	
45102010	IT Consulting and Other Services	109	26%	35.9%	4.3%	3.6%	\$2,940	2.4
45102020	Data Processing and Outsourced Services	87	51%	31.8%	2.8%	11.4%	\$2,317	4.4
45102030	Internet Services and Infrastructure	44	34%	31.8%	0.8%	13.3%	\$71	6.4
45103010	Application Software	380	32%	36.3%	1.2%	12.5%	\$903	6.4
45103020	Systems Software	82	38%	22.5%	0.3%	6.5%	\$356	9.8
45201020	Communications Equipment	108	35%	30.3%	1.1%	10.5%	\$544	1.8
45202030	Technology Hardware, Storage and Peripherals	67	27%	14.0%	0.3%	11.1%	\$209	2.0
45203010	Electronic Equipment and Instruments	130	28%	32.2%	0.1%	5.6%	\$6	2.8
45203015	Electronic Components	33	45%	18.9%	0.1%	6.7%	\$9	2.2
45203020	Electronic Manufacturing Services	30	50%	6.4%	2.3%	13.3%	\$47	1.8
45203030	Technology Distributors	42	29%	14.8%	6.7%	25.0%	\$714	1.6
45301010	Semiconductor Equipment	43	51%	17.1%	-	-	-	2.4
45301020	Semiconductors	73	52%	25.5%	0.0%	5.3%	\$1	4.2
Communication Services							\$19,681	
50101010	Alternative Carriers	41	15%	27.3%	21.9%	16.7%	\$6,506	1.8
50101020	Integrated Telecommunication Services	41	34%	19.6%	4.8%	35.7%	\$8,627	1.8
50102010	Wireless Telecommunication Services	24	38%	3.9%	21.5%	22.2%	\$2,009	2.1
50201010	Advertising	86	17%	30.6%	1.7%	13.3%	\$293	2.8
50201020	Broadcasting	36	53%	28.4%	2.7%	42.1%	\$938	1.2
50201030	Cable and Satellite	14	57%	23.6%	-	-	-	2.7
50201040	Publishing	28	32%	27.7%	5.5%	66.7%	\$548	1.6
50202010	Movies and Entertainment	131	18%	32.1%	0.8%	4.3%	\$368	2.7
50202020	Interactive Home Entertainment	36	17%	34.1%	-	-	-	4.8
50203010	Interactive Media and Services	135	21%	11.3%	0.8%	17.9%	\$393	3.2
Utilities							\$348	
55101010	Electric Utilities	34	53%	4.9%	0.1%	16.7%	\$75	2.3
55102010	Gas Utilities	17	71%	10.5%	0.0%	8.3%	\$4	2.3
55103010	Multi-Utilities	16	75%	5.2%	1.3%	25.0%	\$269	2.1
55104010	Water Utilities	23	35%	5.2%	-	-	-	3.3
55105010	Independent Power Producers and Energy Traders	9	22%	5.2%	-	-	-	1.4
55105020	Renewable Electricity	40	13%	2.3%	-	-	-	2.2

APPENDIX: COMPANY BASE SET SELECTION AND METHODOLOGY

The 2020 Study focused on financial data for U.S.-based publicly traded companies filing under U.S. GAAP for the period 2015-2019. The primary sources of data for the 2020 Study were S&P Capital IQ platform, as well as individual company annual and interim financial reports.*

The 2020 Study relies upon the GICS® structure as of the end of calendar year 2019 for industry classification purposes. In September 2016, MSCI and S&P Dow Jones Indices separated exchange-listed equity REITs and other listed real estate companies from the Financials industry to create a new Real Estate GICS® industry sector. However, for purposes of the 2020 Study, statistics continue to be compiled for the combined Financials & Real Estate industry.†

In September 2018, the GICS® structure was further revised to reflect the evolution and convergence of telecommunications, media and internet companies. As a result, the Telecommunication Services sector was broadened and renamed to Communication Services. The renamed sector includes existing telecommunication firms as well as firms selected from the Consumer Discretionary and Information Technology sectors.‡

The following procedures were used to arrive at the 2020 Study dataset, which was used to calculate all ratios and summary statistics throughout the 2020 Study.

- American Depositary Receipts (ADRs), exchange traded funds (ETFs) and Closed End Funds were excluded from the dataset leaving 9,002 U.S.-based, U.S.-traded companies as of March 13, 2020.
- From this set, further excluded were companies identified as consolidated subsidiaries of other companies also within the dataset or not deemed to be publicly traded U.S. firms in 2019, resulting in a base set of 8,896 companies.§**
- The current methodology was first applied in the 2015 Study. The prior selection process excluded companies that did not have stock returns data over the prior five-year period; this restriction was removed in 2015. The five-years returns data selection criterion had been deemed relevant in previous studies, which were performed shortly after the financial crisis of 2008-2009.
- Financial data for all companies in the 2020 Study was adjusted, when applicable, to a calendar year-end (rather than the most recent fiscal year-end) to examine impairments over a specific period of time, regardless of company-specific choices of fiscal year. Financial data was also adjusted to include GWI amounts disclosed within discontinued operations or disposal groups, when identified.

* S&P Global Market Intelligence; S&P Capital IQ platform. S&P Global Market Intelligence is a division of S&P Global, Inc. Adjustments made to financial information contained in the S&P Capital IQ platform and subsequent analytical procedures applied to the data were performed by Duff & Phelps. The information presented in this Study has been obtained with the greatest of care from sources believed to be reliable, but is not guaranteed to be complete, accurate or timely. While most of the information for the 2015-2018 period was carried forward from the prior studies and analyses, certain historical financial data was adjusted for database errors. These corrections did not materially impact the historical trends observed for goodwill impairments.

† In 1999, MSCI and S&P Dow Jones Indices introduced the GICS® classification system, consisting of 10 industry sectors. In September 2016, MSCI and S&P Dow Jones introduced for the first time since the creation of GICS® structure a new eleventh sector for real estate. However, due to a limited sample size, compiling some of the goodwill impairment statistics for a stand-alone Real Estate industry would not result in meaningful comparisons. Therefore, we elected to continue to aggregate statistics for a combined Financials and Real Estate industry.

‡ Structure revisions that were introduced in September 2018 may impact industry level comparisons from prior years. For information on the structure revisions, see <https://www.msci.com/gics>.

§ The dataset includes firms classified by S&P Capital IQ as Public Investment Firms. In prior studies, this category of companies was excluded because it primarily consisted of non-operating and holding companies whose business was essentially comprised of investments in other companies and securities. However, as an increasing number of operating companies have been added to this category – including, but not limited to, firms with positive goodwill balances – we deemed appropriate to incorporate in the 2020 Study dataset those that appeared to have an operating nature. This step added over 240 companies to the dataset.

** The dataset was assessed each year to identify any company with a controlling interest in another company, because in such cases the controlling investor (the parent) would have consolidated the underlying entity's (the subsidiary's) financial results. To avoid double counting the parent's and the subsidiary's reported financial information (including recorded impairments), we excluded the financial results of any subsidiary companies from the dataset that met this criterion.

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