Valuation Insights

FOURTH QUARTER 2021

INSIDE

EXECUTIVE SUMMARY

Shannon Pratt's "Valuing a Business" has been the definitive valuation resource for over 40 years. Sadly, Shannon passed away in November 2021 at the age of 88. In this issue of *Valuation Insights*, we remember Shannon and discuss the enduring legacy he leaves behind.

In our **Technical Notes** section, we showcase our "10 Essential Cyber Security Controls for Increased Resilience" that can significantly improve your security posture and increase your opportunities for cyber insurance coverage.

In our **International in Focus** article, we review the highlights from the 2021 *European Goodwill Impairment Study.*

Finally, our **Spotlight** article announces three key changes in our Valuation Advisory Services executive management team enhancing the firm's leadership across the globe.

In every issue of *Valuation Insights*, you will find industry market multiples that are useful for benchmark valuation purposes.

Be sure to visit our library of CPE-eligible virtual events and webinars, where our valuation experts discuss issues and topics that may be impacting your business.

We hope that you find this and future issues of the 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.
https://multiples.duffandphelps.com/

Shannon Pratt's "Valuing a Business" - Preserving a Legacy

Roger Grabowski

Shannon P. Pratt was recognized as the foremost authority in business valuation and was a legendary author and teacher of the many concepts used today throughout the world. He authored his first valuation book, "Valuing a Business: The Analysis and Appraisal of Closely Held Companies" ("Valuing a Business"), in 1981. That book served as the basis for educating thousands of business valuation consultants. Valuing a Business was quoted over the years in other publications, referenced by attorneys tackling litigations where valuation was an issue, and cited in court decisions. Shannon did not just present theory, rather, he provided the reader with practical examples for the nuances of the topics that he had come to understand during his many years of experience.

During his 50-year career, Shannon authored or co-authored many valuation books, including "Cost of Capital: Applications and Examples," the fifth edition, with Roger J. Grabowski (John Wiley & Sons, 2014).

Shannon was planning for the sixth edition of Valuing a Business, when his son suddenly passed away in 2017. Shannon took the advice of his family and decided to unwind his firm.

Led by a committee of the American Society of Appraisers (ASA) members, the ASA Educational Foundation has become the sponsoring organization for Valuing a Business. Twelve years had passed since the fifth edition had been published, so updating the existing material and adding new chapters was a large task. Contributing authors and reviewers were identified, and drafts and proofs were read and reread. The effort has taken at least an estimated 8,000 hours.

The Result

Ultimately, 67 of the best and brightest in the valuation profession (including 15 from Kroll) volunteered their knowledge and time to update existing chapters or author newly added chapters. The result is 51 chapters, over 1,000 pages and an online appendix, covering a breadth of topics, including:

- Summaries and analyses of the important opinions in gift, estate, charitable contribution and income tax; shareholder and partner disputes (dissenting stockholder and minority oppression actions); marital dissolutions; and ESOP cases
- Updated and expanded checklist for reviewing a business valuation report, including the minimum performance requirements for financial reporting
- Expanded chapter on developing discount rates, with added examples
- New chapter on forecasting economic income, including new data on long-term industry growth rates when using the income approach
- Updated chapter exploring how differing degrees of control impact discounts for lack of control (DLOC) for noncontrolling interests
- Greatly expanded discussion on new data sources and new tools for quantifying discounts for lack of marketability
- New chapter on valuing intangible assets
- New section on valuing goodwill and going concern value, including court citations
- Expanded chapter on fair value for financial reporting
- New section on valuing private promissory notes in the chapter on valuing debt

- New chapter on valuing interests in REITs and other real property holding entities
- The latest court guidance on discounts for trapped-in capital gains and tax-affecting of pass-through entities
- Updated sections on avoiding common errors made in applying the income approach
- Expanded chapter on option pricing theory
- New chapter on valuing complex capital structures, focused on early-stage, venture capital–backed businesses
- Updated sections on "active versus passive," "double-dipping" and enterprise versus personal goodwill in marital dissolution appraisals
- Expanded and updated discussions of family limited partnerships and their treatment by the IRS and the courts
- Updated chapter on valuation provisions in buy-sell agreements
- New chapter on fairness opinions
- New chapter on solvency opinions

The sixth edition preserves Shannon's easy-to-read style. All who deal with valuations—experienced valuers, those just learning valuation, corporate staff, CFOs, attorneys and judges—will benefit from having such a comprehensive resource that explains the concepts and practice in an easy-to-understand style.

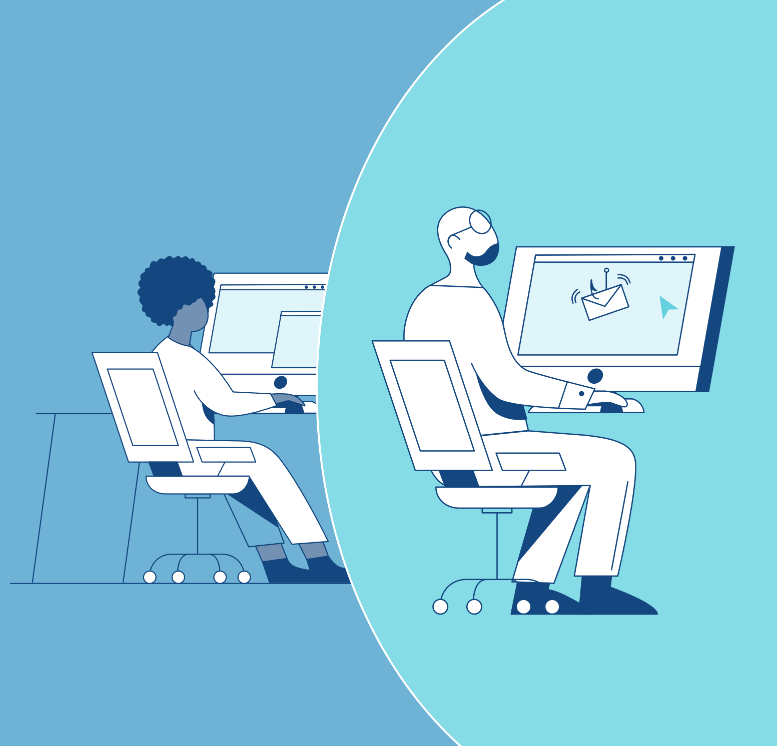
Shannon Pease Pratt passed away in his sleep on the morning of November 26, 2021, at his home in Portland. In March 2022, when the sixth edition of Valuing a Business is released, Shannon's legacy will continue.

For those who would like to read the full article, "Shannon Pratt's Valuing a Business - Preserving a Legacy," please visit QuickRead.

To pre-order the sixth edition of Valuing a Business, please visit the American Society of Appraisers.

10 Essential Cyber Security Controls for Increased Resilience (and Better Cyber Insurance Coverage)

Mari DeGrazia, Jeff Macko, Peter McKeever



While threat actors continue to vary attack methods, these 10 essential cyber security controls can significantly improve your security posture, therefore making it harder for cyber criminals to compromise your network and increasing your opportunities for cyber insurance coverage. Validated by our seasoned cyber security experts based on frontline expertise and with a thorough review of the expanded questionnaires now requested by most cyber insurance carriers, key takeaways for each of the controls are presented here.

Essential Controls: 10 Priority Areas for Increased Cyber Resilience

Multifactor Authentication (MFA)

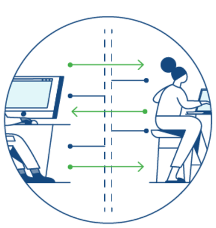
Virtual Private Network (VPN)

Remote Desktop Protocol (RDP)

Endpoint Detection and Response (EDR)

Incident Response Planning

Infrastructure and Segmentation



Backups

Access Control

Security Culture Training

Email Hygiene

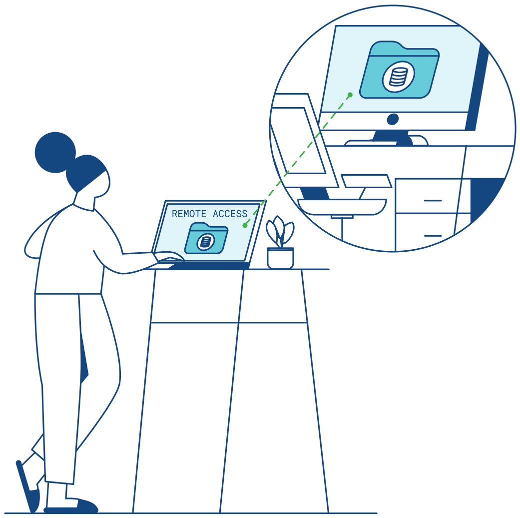
Multifactor Authentication (MFA)

- Passwords alone don't offer sufficient protection, and with increasing rates of credential compromise attacks, it's imperative to require additional forms of authentication, ideally via an app.
- All users, including senior executives and admins, must adhere to MFA procedures. Creating exceptions to MFA introduces openings for attackers.
- MFA should be enabled for every system account with special focus on systems that contain sensitive data such as financial, HR, and other statutory or regulatory protected data.
- Audit your implementation. Criminals tend to exploit and develop workarounds such as abuse of legacy system authentication protocols, which are frequently not included in MFA protections.

Virtual Private Network (VPN)

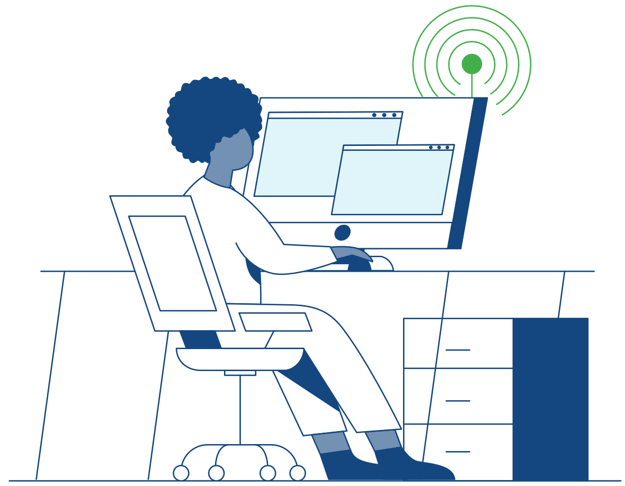
- Recently, VPNs have become a much larger focus for exploitation by bad actors whose intrusion vector focus is a potentially vulnerable or exploitable perimeter. It's important to keep vulnerability scanning technologies as well as blending reactionary and proactive patch management.
- Antivirus solutions cannot detect an adversary who connects to the VPN with stolen admin credentials and is granted heightened privileges, operating as a normal user would. Consider frequent reviews of VPN logs for suspicious activity.
- All users should log into the VPN with minimum access privileges. Admins can escalate privileges once authenticated. Service accounts should not be allowed to authenticate and connect through VPN.

Remote Desktop Protocol (RDP)



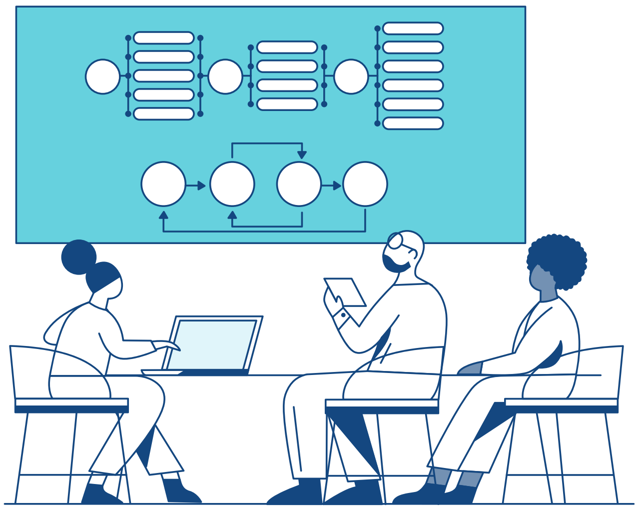
- The category of "remote desktop" software solutions has grown tremendously due to the pandemic. Such solutions allow full control of a remote computer, including local network access and storage.
- Such extensive access presents a goldmine for attackers, and it's crucial to keep remote desktop solutions inaccessible via the internet. Instead, make them accessible only via VPN or implement a virtual desktop solution, such as Citrix or VMware.
- RDP should not be openly accessible from the internet without 2FA or MFA protections.
- Like a variety of remote access solutions, vulnerabilities are constantly uncovered and a robust patch management program is essential.

Endpoint Detection and Response (EDR)



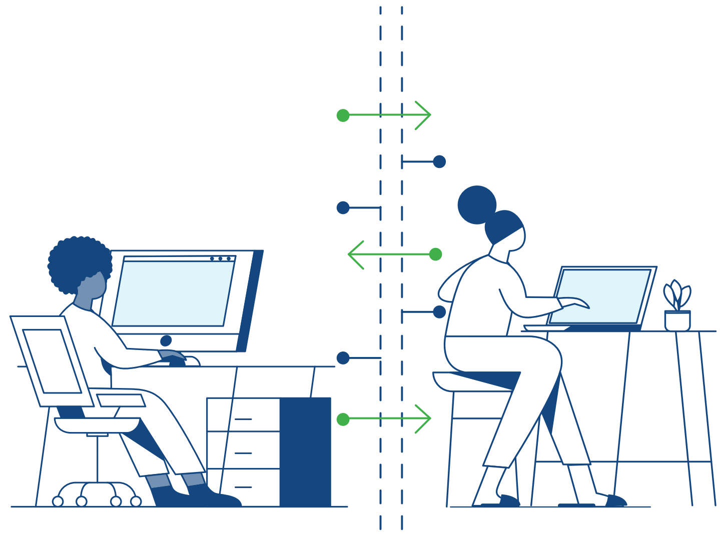
- EDR typically relies on a lightweight agent deployed on endpoints such as laptops, servers and workstations, giving systemwide visibility for spotting suspicious behavior.
- Unlike antivirus, which relies on signature-based detections to spot malware, EDR is tuned to look for suspicious behaviors like network scanning or lateral network movement.
- EDR agents should be deployed as wide as possible in the environment; attackers may enter the network through unmonitored systems.
- Until it is adequately fine-tuned, EDR systems may deliver a high level of alerts. An experienced team needs to monitor and validate alerts that could lead to a real incident.

Incident Response Planning



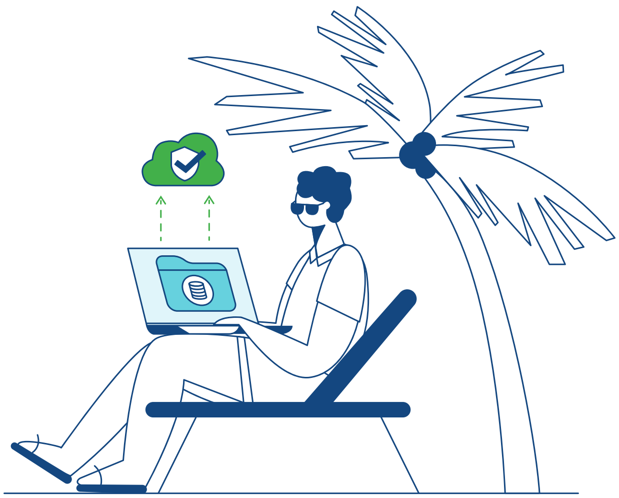
- Your incident response plan should always be readily available and not inaccessible if there is an incident.
- Make sure all the key stakeholders - departments, teams and people - are identified in the IR plan. Who should be contacted first? Where does PR fit in? Who is the contact from each team involved? What's HR's role?
- Test the IR plan regularly and update as needed. If there are role or personnel changes, make sure the plan is updated with new contacts.
- Time matters in an incident response so make sure law firms, forensic firms, etc. are approved ahead of time.

Infrastructure and Segmentation



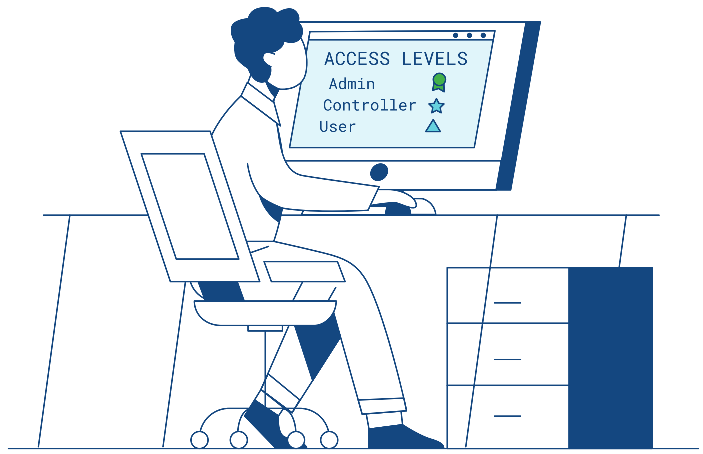
- Having a layered approach to security is key. Threat actors know about critical vulnerabilities and exploits often weeks before they are known to the public.
- Antivirus isn't enough anymore. A monitored detection and response platform (MDR) is needed to catch threats that include polymorphic code, abuse of legitimate tools and credentials, and "Zero Day" attacks.
- Patch management for your perimeter devices is critical. Patch management of your 3rd party contracts is no less critical.
- Have separate and distinct IT and cybersecurity roles. IT keeps things running. They cannot keep up with the ever-changing threat landscape as well.

Backups



- Attackers take advantage of poor recovery capabilities to further their extortion efforts. Assess and test recovery capabilities at least yearly.
- Offline backups are critical to recover from ransomware attacks.
- Multiple backups are key for dealing with data corruption, data loss and malicious events.
- Review data on all devices to determine what needs to be backed up, how often, and the best medium.
- Make sure backups are tested and all procedures documented. Restoring data is only half the equation. Knowing what to restore, when to bring it online and how to engage the business is a challenge most companies learn during a crisis.

Access Control

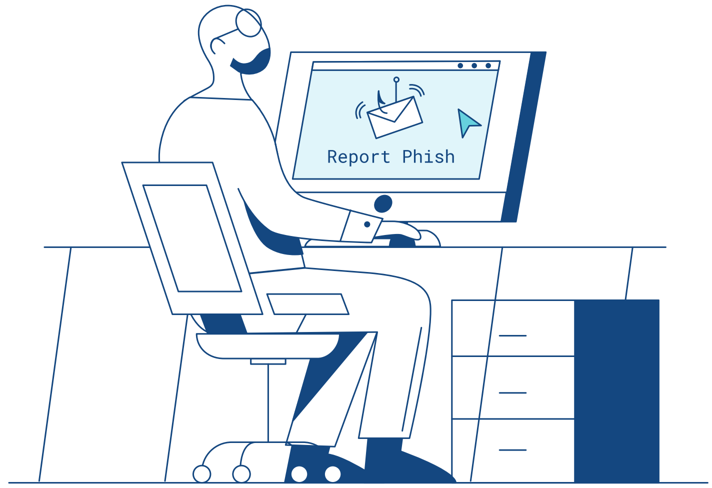


- Overly permissive access rights can open an organization to both internal and external compromises. The more access granted, the more leverage a possible attacker has when compromising an employee's credentials.
- "Least Privilege" is crucial. Users should only be granted access to information relevant for their job during the duration required.
- Coordinate with IT, Infosec and HR. Quickly remove access permissions for departed users and adjust permissions when employees transferring roles no longer need them.
- Managing access rights for IT administrators can be challenging but achievable with the use of privileged-access management solutions, network segmentation, password management and limiting admin level access users.

Security Culture Training

- Culture is key – employees need to feel they can raise concerns and report suspicious issues.
- Companies should have mandatory annual cyber security training for all staff and test awareness of identifying and reporting suspicious activity, email, and behaviors.
- Training employees includes knowing when to retain and delete data. What data is your company required to retain? For how long? Make sure to create and follow a data retention policy so to limit your company's exposure.
- Give employees the right tools and training to be able to recognize external email, phishing email and report suspicious emails directly to the information security team.

Email Hygiene



- Train employees to understand how to identify and report phishing emails.
- Pursue a multi layered defense, including filtering controls on inbound and outbound messages with attachment sandboxing and URL rewrites.
- Visual cues such as tagging the subject line of external communications can be helpful.
- Cloud based email solutions can enable organizations to easily and cost effectively implement core security controls such as MFA and reduce the chances of an attacker gaining access to internal private networks through compromised on-premises servers.
- Adoption of Bring Your Own Device (BYOD) requires additional written policies and technical controls to manage associated risks when company data is accessed from external devices.

Strengthen your Security

These 10 essential controls, validated by our seasoned cyber experts, can greatly improve your security posture and resilience against a cyber attack when fully implemented. Kroll is here to assist in every step of the journey toward cyber resilience. To reinforce your essential controls, consider a robust managed detection and response solution such as Kroll Responder, which can deliver extensive visibility and immediate response in the event of a compromise. Talk to a Kroll expert today via our 24x7 cyber incident hotlines at https://www.kroll.com/en/hotlines.

KROLL

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The alternative asset industry (private equity/buyout, venture capital, private credit, infrastructure, fund of funds, hedge funds, etc.) has expanded exponentially over the past two decades. Each month, Kroll experts and our guests will focus on key developments and best practices specifically applicable to alternative asset investing.

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2021 European Goodwill Impairment Study: An Overview

Carla Nunes, Greg Franceschi, Michael Weaver

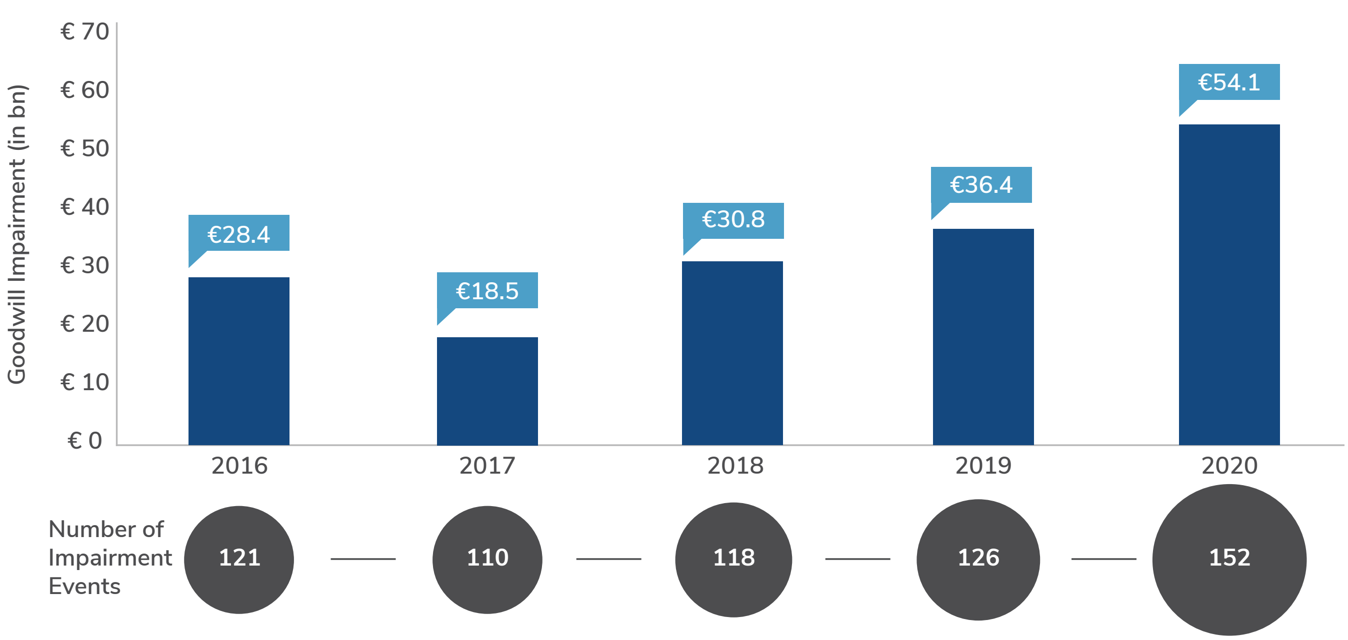
We recently published the *2021 European Goodwill Impairment Study*, which explores goodwill impairment trends by companies in the STOXX® Europe 600 Index, focusing on 2016-2020 calendar years.[1]

Our inaugural study was launched in 2013 and focused on the 2010-2012 calendar years, which enabled us to capture goodwill impairments recorded across countries and industries at the height of the Euro sovereign debt crisis. We find ourselves again in a period of significant upheaval, with companies forced to navigate the global economic crisis created by the outbreak of COVID-19.

The most recent five-year period was characterized by economic uncertainty within Europe. Economic slowdown in 2019 had already clouded the outlook for many companies, leading to an increase in goodwill impairments. The outbreak of COVID-19 led to the worst global economic recession since World War II. Most major economies saw sizable contractions in 2020, with real GDP declining by 6.3% in the Eurozone, eclipsing the decline observed in 2009.[2]

Total goodwill impairment recorded by European listed companies in the STOXX® Europe 600 increased for a third consecutive year. **Goodwill impairment rose 49% to €54.1 billion (bn) in 2020.** This was the highest level in aggregate goodwill impairment for the STOXX® Europe 600 since 2012 (at €66.4 bn), but not as severe as it could have been. The swift actions by governments and central banks, with unprecedent levels of fiscal and monetary support, enabled many businesses to bounce back from the plunge in economic activity related to lockdowns.

STOXX® EUROPE 600



The number of goodwill impairment events increased for a third consecutive year, rising from 126 in 2019 to 152 in 2020, or 21%. At the same time, the average impairment amount per event also increased by 23%, from €289 million (mn) to €356 mn over the same period.

With this environment as the backdrop, European M&A activity was mixed in 2020, with larger deals skewed towards the start of the year.[3] The number of closed M&A transactions in the Eurozone decreased by 8% in 2020, but deal value more than doubled (up 118%). However, almost 80% of the deal value was linked to transactions announced before March 2020, prior to COVID-19 being declared a pandemic. The UK had a similar story with an overall decline in deal volume for the year (down 15%) and an increase in deal value (up 34% in € terms). Yet, two-thirds of the deal value related to transactions announced prior to March 2020.

Industry Highlights

- The top three industries with the most significant increase in goodwill impairment amounts in 2020 are as follows, in order of magnitude (€ bn):
  - Financials & Real Estate (€17.2 to €22.6)
  - Materials (€1.1 to €5.7)
  - Communication Services (€0.6 to €3.9)
- Financials & Real Estate topped the list for the third consecutive year, registering its highest goodwill impairment level since 2011.
- Materials registered its highest goodwill impairment level since 2013, as the pandemic lockdowns delayed construction projects and disrupted global supply chains.
- Consumer Staples was the only industry seeing a decline in 2019, as demand for necessities helped offset some of the adverse effects of the pandemic. However, the aggregate goodwill impairment in 2020 was still the second highest level registered by this industry, following the record-high reached in 2019.

Geographic Highlights

- At €13.4 bn, Spain was the country within the STOXX® Europe 600 with the highest aggregate amount of goodwill impairment in 2020. This represented more than a threefold increase from the 2019 level (of €4.0 bn), but it was disproportionately driven by a single event.
- At €11.8 bn, the UK saw the second highest goodwill impairment amount, dropping from first place in 2019.
- Germany took the third spot, with aggregate impairment climbing to €9.7 bn, which was accompanied by a record-high number of impairment events for the country.

Additional Insights

Of the countries studied, the UK was the only country seeing a decline in aggregate goodwill impairment from 2019 to 2020. However, UK companies in the STOXX Europe 600 have impaired a significant amount of goodwill since the Brexit vote in 2016, due to the uncertainty created to businesses from exiting the European Union. In 2019, the UK reached its second highest goodwill impairment on record (since we began capturing data in 2010) at €19.3 bn, as Brexit uncertainty hit the outlook for UK companies severely. In the 2016-2019 period—prior to the outbreak of COVID-19—UK companies had impaired a cumulative amount of €43 bn, far outpacing any other European country.

Because in 2019 many UK companies had already revised projections downwards (or adjusted discount rates upwards for incremental risk) to reflect the protracted impact of Brexit, when COVID-19 hit in 2020, the incremental uncertainty to the UK business outlook was not as high on a relative basis, when compared to that in other European countries.

The pace at which UK companies have been impairing goodwill in the aftermath of the 2016 Brexit vote demonstrates that the goodwill impairment model is being applied on a timely basis to reflect the prevailing economic and business conditions. More generally, the impairment levels recorded recently in Europe demonstrate that the changes in the outlook for many companies that carry goodwill—precipitated by changes in the magnitude and timing of expected cash flows and associated risk—often lead to goodwill impairment, as intended by the current goodwill impairment-only model.

Goodwill and impairment continue to be topics of interest to standard setters and stakeholders. The International Accounting Standards Board (IASB) is currently considering introducing more useful disclosures about acquisitions that companies make and simplifying certain aspects of the current impairment-only model for goodwill. The IASB's focus emphasizes the need to provide information about management's stewardship of a company as a key objective of financial reporting.

Robust and timely information provided to investors is a critical foundation of their decisions, which also benefits the smooth functioning of global capital markets and effective market oversight. Once again, this basic principle and the need for transparency is pushed to the forefront in a time of disruption.

Outside the global financial crisis of 2008-2009 and the ensuing Euro sovereign debt crisis, there has not been a time where information about goodwill impairment has been more important as in the current environment.

Download the full 2021 *European Goodwill Impairment Study.*

Sources:

[1] *The STOXX® Europe 600 Index is derived from the STOXX® Europe Total Market Index and is a subset of the STOXX® Global 1800 Index. The index is weighted according to free-float market capitalisation.*

[2] *Growth in real gross domestic product (GDP) based on latest estimates at the time of writing. Source data retrieved on 9 September 2021 from https://ec.europa.eu/eurostat/data/database and https://www.ons.gov.uk/economy/grossdomesticproductgdp*

[3] *Source: S&P Capital IQ platform. M&A activity based on transactions closed in each year, where European listed companies acquired a 50% or greater interest.*

Leadership Changes in Kroll's Valuation Advisory Services Business

Kroll recently announced key changes in our Valuation Advisory Services executive management team that enhances the firm's leadership across the globe. The new leadership appointments mark the latest in Kroll's transformation, positioning the firm to achieve its highest potential with a focus on organic growth, technology, and operational excellence and inclusion.

After serving as the leader of the Latin America business and global leader of the Industrial Products Valuation Industry practice, Michael Dolan takes over as the president of the Valuation Advisory Services practice. Paul Barnes served in this role for 16 years and has been with the company and its predecessors for over 40 years. Paul becomes vice chairman of the Valuation Advisory Services practice, supporting the leadership transition and focusing on key client relationships. In Michael's new role, he will lead the firm's Financial Reporting and Tax Valuation, Alternative Asset Advisory, Transfer Pricing, Tax and Fixed Asset and Real Estate Valuation practices.

Michael Weaver becomes the head of international operations for the Valuation Advisory Services practice, after serving as the EMEA business leader for three years. Javier Zoido is appointed as the head of the Valuation Advisory Services practice in Iberia and Latin America.

These appointments represent the dedication to a full suite of valuation advisory services we provide to our clients and our cohesive approach to delivering solutions to the market.

Michael Dolan
Valuation Advisory Services President

Michael Weaver
International Valuation Advisory Services Leader

Javier Zoido
Latin America and Iberia Valuation Advisory Services Leader

North America Industry Market Multiples

As of September 30, 2021

Industry	Market Value of Equity to Net Income		MVIC to EBIT		MVIC to EBITDA	
	U.S.	Canada	U.S.	Canada	U.S.	Canada
Energy	14.3	9.5	18.3	15.3	10.5	9.6
Energy Equipment & Services	18.0	11.1	24.9	16.2	9.9	10.8
Oil, Gas & Consumable Fuels	14.2	8.7	17.6	12.7	10.8	9.2
Materials	15.3	8.9	14.4	9.2	9.6	6.2
Chemicals	16.3	—	15.6	—	10.1	—
Containers & Packaging	19.8	—	15.5	—	10.4	—
Metals & Mining	10.7	8.4	10.0	8.9	7.3	6.1
Industrials	22.0	17.8	19.2	17.4	12.4	11.9
Aerospace & Defense	19.2	—	18.6	—	13.3	—
Building Products	22.0	—	15.8	—	10.7	—
Construction & Engineering	20.6	—	22.4	—	10.3	—
Electrical Equipment	19.8	—	20.3	—	13.5	—
Machinery	27.4	—	21.1	—	14.2	—
Trading Companies & Distributors	21.7	9.5	16.5	8.9	13.3	6.7
Commercial Services & Supplies	24.6	26.5	21.3	22.0	10.8	11.9
Professional Services	22.0	—	19.7	—	11.5	—
Road & Rail	17.0	—	15.7	—	6.7	—
Consumer Discretionary	14.1	16.4	14.3	16.8	9.1	12.1
Auto Components	15.6	—	11.7	—	8.2	—
Household Durables	10.2	—	11.4	—	9.1	—
Leisure Products	13.3	—	10.7	—	8.1	—
Textiles, Apparel & Luxury Goods	14.5	—	14.1	—	8.4	—
Hotels, Restaurants & Leisure	24.1	19.0	25.0	18.3	12.6	—
Diversified Consumer Services	14.1	—	14.2	—	10.7	—
Internet & Direct Marketing Retail	32.4	—	18.3	—	14.4	—
Specialty Retail	10.2	—	12.0	—	6.1	—
Consumer Staples	20.0	14.9	17.4	15.3	11.8	10.5
Food & Staples Retailing	19.2	14.9	18.3	14.2	9.0	10.4
Beverages	27.9	—	21.6	—	18.1	—
Food Products	18.2	13.1	16.5	15.3	12.0	9.4
Personal Products	13.6	—	15.5	—	8.9	—

Industry	Market Value of Equity to Net Income		MVIC to EBIT		MVIC to EBITDA	
	U.S.	Canada	U.S.	Canada	U.S.	Canada
Health Care	21.9	21.0	21.3	16.8	15.1	14.1
Health Care Equipment & Supplies	23.3	—	20.6	19.2	15.0	14.9
Health Care Providers & Services	17.6	—	16.4	—	12.8	14.7
Biotechnology	18.0	—	17.3	—	13.8	—
Pharmaceuticals	15.0	21.5	19.8	14.7	12.5	12.7
Life Sciences Tools & Services	41.7	—	33.3	—	23.5	—
Information Technology	25.4	24.1	22.9	22.4	15.2	15.1
IT Services	27.7	—	27.0	—	15.4	—
Software	34.6	24.2	29.3	19.0	21.0	17.1
Communications Equipment	19.9	—	25.4	—	14.6	—
Technology Hardware, Storage & Peripherals	18.0	—	20.1	—	11.5	—
Electronic Equipment, Instruments & Components	18.4	—	17.8	—	12.1	—
Semiconductors & Semiconductor Equipment	24.5	—	22.1	—	17.1	—
Communication Services	13.5	13.3	18.2	14.6	10.0	8.9
Diversified Telecommunication Services	8.7	—	12.3	—	7.2	—
Media	11.7	8.0	14.1	10.6	9.3	6.1
Entertainment	24.0	—	—	—	17.5	—
Interactive Media & Services	28.3	—	—	—	18.0	—
Utilities	20.0	19.2	21.8	21.3	12.8	12.4
Electric Utilities	20.5	—	22.3	—	12.2	—
Gas Utilities	16.7	—	17.4	—	10.9	—

Industry	Market Value of Equity to Net Income		Market Value of Equity to Book Value	
	U.S.	Canada	U.S.	Canada
Financial Services	11.4	9.7	1.2	1.2
Banks	11.6	—	1.2	—
Thrifts & Mortgage Finance	12.0	—	1.1	—
Capital Markets	14.2	5.8	2.1	1.1
Insurance	9.2	10.3	1.1	1.2

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

An industry must have a minimum of 10 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 75 (U.S.), and 35 (Canada); the median number of companies in the calculation sample was 42 (U.S.), and 20 (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 (includes capitalized operating leases). EBIT = Earnings Before Interest and Taxes for latest 12 months (includes adjustment for operating lease interest expenses). EBITDA = Earnings Before Interest, Taxes, Depreciation and Amortization for latest 12 months (includes adjustment for operating lease expenses). 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 September 30, 2021

Industry	Market Value of Equity to Net Income	MVIC to EBIT	MVIC to EBITDA
	Europe	Europe	Europe
Energy	11.7	15.4	8.2
Energy Equipment & Services	9.0	16.7	9.3
Oil, Gas & Consumable Fuels	13.0	15.0	7.5
Materials	15.7	14.5	8.8
Chemicals	18.9	16.0	9.8
Containers & Packaging	21.6	19.7	10.5
Metals & Mining	8.7	10.1	6.6
Industrials	21.2	19.6	12.4
Aerospace & Defense	22.3	20.6	13.1
Building Products	20.8	17.8	12.4
Construction & Engineering	15.1	17.0	11.2
Electrical Equipment	25.0	22.3	15.3
Machinery	24.3	20.1	12.8
Trading Companies & Distributors	19.3	19.2	10.6
Commercial Services & Supplies	20.0	18.2	10.2
Professional Services	29.2	24.6	15.1
Marine	13.4	21.1	10.9
Transportation Infrastructure	17.7	17.8	9.8
Consumer Discretionary	16.9	16.4	11.1
Auto Components	16.8	14.0	8.6
Household Durables	13.9	12.7	10.2
Leisure Products	21.0	15.0	11.7
Textiles, Apparel & Luxury Goods	22.1	20.7	14.2
Hotels, Restaurants & Leisure	24.4	24.0	15.8
Internet & Direct Marketing Retail	24.9	22.5	16.6
Specialty Retail	13.5	15.6	8.5
Consumer Staples	21.8	19.0	12.3
Food & Staples Retailing	19.5	18.0	9.4
Beverages	29.4	24.5	17.3
Food Products	20.1	18.4	11.9
Personal Products	27.3	21.0	16.8

Industry	Market Value of Equity to Net Income	MVIC to EBIT	MVIC to EBITDA
	Europe	Europe	Europe
Health Care	28.5	22.4	16.1
Health Care Equipment & Supplies	31.7	26.1	17.9
Health Care Providers & Services	24.8	21.0	13.3
Health Care Technology	36.3	28.0	23.1
Biotechnology	20.9	21.3	16.4
Pharmaceuticals	22.8	20.1	16.2
Life Sciences Tools & Services	44.4	38.0	30.8
Information Technology	27.6	23.4	16.2
IT Services	24.9	21.1	14.5
Software	35.6	28.9	20.3
Communications Equipment	32.0	14.6	16.1
Technology Hardware, Storage & Peripherals	18.1	14.8	12.5
Electronic Equipment, Instruments & Components	26.8	23.4	15.9
Semiconductors & Semiconductor Equipment	33.4	34.0	17.3
Communication Services	18.8	19.2	11.6
Diversified Telecommunication Services	19.4	18.1	8.4
Media	13.8	16.0	10.3
Entertainment	23.2	23.3	16.7
Interactive Media & Services	36.1	32.2	19.2
Utilities	18.7	22.3	13.3
Independent Power and Renewable Electricity Providers	38.6	35.6	17.3

Industry	Market Value of Equity to Net Income	Market Value of Equity to Book Value
	Europe	Europe
Financial Services	11.5	0.9
Banks	8.7	0.6
Diversified Financial Services	12.3	1.1
Capital Markets	18.2	1.9
Insurance	10.3	1.0

An industry must have a minimum of 10 company participants to be calculated. For all reported multiples in Europe, the average number of companies in the calculation sample was 87 and the median number of companies in the calculation sample was 52.

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 (includes capitalized operating leases). EBIT = Earnings Before Interest and Taxes for latest 12 months. EBITDA = Earnings Before Interest, Taxes, Depreciation and Amortization for latest 12 months. Note that due to the exclusion of negative multiples from the analysis, the number of companies used in the computation of each of the three reported multiples across the same industry may differ, which may occasionally result in a counterintuitive relationship between those multiples (e.g., the MVIC-to-EBITDA multiple may exceed MVIC to EBIT).

Upcoming Events

PARMA 2022 Annual Conference
February 27 | 8:00 a.m. PST | Anaheim, CA

Solar + Wind Finance & Investment Summit
March 7 – 9 | 8:00 a.m. MST | Scottsdale, AZ

Nareit's REITwise: Law, Accounting & Finance Conference
March 23 – 25 | 8:00 a.m. EST | Orlando, FL

Energy Workforce Council Annual Conference
April 6 – 8 | 9:00 a.m. CST | Point Clear, AL

RIMS 2022
April 10 – 13 | 8:00 a.m. PST | San Francisco, CA

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