UNITED STATES SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

☑ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the Fiscal Year Ended September 30, 2020

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the Transition Period From _____ To _____

Commission File Number 001-13836

JOHNSON CONTROLS INTERNATIONAL PLC

(Exact name of registrant as specified in its charter)

Ireland	**98-0390500**
(Jurisdiction of Incorporation)	(I.R.S. Employer Identification No.)
One Albert Quay, Cork, Ireland, T12 X8N6	**(353) 21-423-5000**
(Address of Principal Executive Offices and Postal Code)	(Registrant's Telephone Number)

Securities Registered Pursuant to Section 12(b) of the Exchange Act:

Title of Each Class	Trading Symbol	Name of Each Exchange on Which Registered
Ordinary Shares, Par Value $0.01	JCI	New York Stock Exchange
4.25% Senior Notes due 2021	JCI21B	New York Stock Exchange
3.750% Senior Notes due 2021	JCI21C	New York Stock Exchange
4.625% Notes due 2023	JCI23	New York Stock Exchange
1.000% Senior Notes due 2023	JCI23A	New York Stock Exchange
3.625% Senior Notes due 2024	JCI24A	New York Stock Exchange
1.375% Notes due 2025	JCI25A	New York Stock Exchange
3.900% Notes due 2026	JCI26A	New York Stock Exchange
0.375% Senior Notes due 2027	JCI27	New York Stock Exchange
1.750% Senior Notes due 2030	JCI30	New York Stock Exchange
1.000% Senior Notes due 2032	JCI32	New York Stock Exchange
6.000% Notes due 2036	JCI36A	New York Stock Exchange
5.70% Senior Notes due 2041	JCI41B	New York Stock Exchange
5.250% Senior Notes due 2041	JCI41C	New York Stock Exchange
4.625% Senior Notes due 2044	JCI44A	New York Stock Exchange
5.125% Notes due 2045	JCI45B	New York Stock Exchange
6.950% Debentures due December 1, 2045	JCI45A	New York Stock Exchange
4.500% Senior Notes due 2047	JCI47	New York Stock Exchange
4.950% Senior Notes due 2064	JCI64A	New York Stock Exchange

Securities Registered Pursuant to Section 12(g) of the Exchange Act: **None**

Indicate by check mark whether the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☑ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Exchange Act. Yes ☐ No ☑

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Exchange Act during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☑ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☑ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☑	Accelerated filer	☐
Non-accelerated filer	☐	Smaller reporting company	☐
Emerging growth company	☐		

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report ☑

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☑

As of March 31, 2020, the aggregate market value of Johnson Controls International plc Common Stock held by non-affiliates of the registrant was approximately $20.0 billion based on the closing sales price as reported on the New York Stock Exchange. As of October 31, 2020, 723,907,803 ordinary shares, par value $0.01 per share, were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the definitive Proxy Statement to be delivered to shareholders in connection with the annual general meeting of shareholders to be held on March 10, 2021 are incorporated by reference into Part III.

JOHNSON CONTROLS INTERNATIONAL PLC

Index to Annual Report on Form 10-K

Year Ended September 30, 2020

CAUTIONARY STATEMENTS FOR FORWARD-LOOKING INFORMATION

Unless otherwise indicated, references to "Johnson Controls," the "Company," "we," "our" and "us" in this Annual Report on Form 10-K refer to Johnson Controls International plc and its consolidated subsidiaries.

The Company has made statements in this document that are forward-looking and therefore are subject to risks and uncertainties. All statements in this document other than statements of historical fact are, or could be, "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. In this document, statements regarding Johnson Controls' future financial position, sales, costs, earnings, cash flows, other measures of results of operations, synergies and integration opportunities, capital expenditures and debt levels are forward-looking statements. Words such as "may," "will," "expect," "intend," "estimate," "anticipate," "believe," "should," "forecast," "project" or "plan" and terms of similar meaning are also generally intended to identify forward-looking statements. However, the absence of these words does not mean that a statement is not forward-looking. Johnson Controls cautions that these statements are subject to numerous important risks, uncertainties, assumptions and other factors, some of which are beyond Johnson Controls’ control, that could cause Johnson Controls’ actual results to differ materially from those expressed or implied by such forward-looking statements, including, among others, risks related to: Johnson Controls’ ability to manage general economic, business, capital market and geopolitical conditions, including the impacts of natural disasters, pandemics and outbreaks of contagious diseases and other adverse public health developments, such as the COVID-19 pandemic; the strength of the U.S. or other economies; changes or uncertainty in laws, regulations, rates, policies or interpretations that impact Johnson Controls’ business operations or tax status; the ability to develop or acquire new products and technologies that achieve market acceptance; changes to laws or policies governing foreign trade, including increased tariffs or trade restrictions; maintaining the capacity, reliability and security of Johnson Controls' enterprise and product information technology infrastructure; the risk of infringement or expiration of intellectual property rights; any delay or inability of Johnson Controls to realize the expected benefits and synergies of recent portfolio transactions such as its merger with Tyco and the disposition of the Power Solutions business; the outcome of litigation and governmental proceedings; the ability to hire and retain key senior management; the tax treatment of recent portfolio transactions; significant transaction costs and/or unknown liabilities associated with such transactions; the availability of raw materials and component products; fluctuations in currency exchange rates; work stoppages, union negotiations, labor disputes and other matters associated with the labor force; and the cancellation of or changes to commercial arrangements. A detailed discussion of risks related to Johnson Controls’ business is included in the section entitled "Risk Factors" (refer to Part I, Item 1A, of this Annual Report on Form 10-K). The forward-looking statements included in this document are made only as of the date of this document, unless otherwise specified, and, except as required by law, Johnson Controls assumes no obligation, and disclaims any obligation, to update such statements to reflect events or circumstances occurring after the date of this document.

PART I

ITEM 1 BUSINESS

General

Johnson Controls International plc, headquartered in Cork, Ireland, is a global diversified technology and multi-industrial leader, serving a wide range of customers in more than 150 countries. The Company’s products and solutions enable smart, energy efficient, sustainable buildings that work seamlessly together to advance the safety, comfort and intelligence of spaces to power its customers’ mission. The Company is committed to helping its customers win and creating greater value for all of its stakeholders through its strategic focus on buildings.

Johnson Controls was originally incorporated in the state of Wisconsin in 1885 as Johnson Electric Service Company to manufacture, install and service automatic temperature regulation systems for buildings. The Company was renamed to Johnson Controls, Inc. in 1974. In 2005, the Company acquired York International, a global supplier of heating, ventilating, air-conditioning ("HVAC") and refrigeration equipment and services. In 2014, the Company acquired Air Distribution Technologies, Inc., one of the largest independent providers of air distribution and ventilation products in North America. In 2015, the Company formed a joint venture with Hitachi to expand its building related product offerings. In 2016, Johnson Controls, Inc. and Tyco completed their combination (the "Merger"), combining Johnson Controls portfolio of building efficiency solutions with Tyco’s portfolio of fire and security solutions. Following the Merger, Tyco changed its name to “Johnson Controls International plc.”

In 2016, Johnson Controls completed the spin-off of its automotive business into Adient plc, an independent, publicly traded company. In 2019, the Company sold its Power Solutions business to BCP Acquisitions LLC, an entity controlled by investment funds managed by Brookfield Capital Partners LLC, completing the Company's transformation into a pure-play building technologies and solutions provider.

The Company is a global leader in engineering, manufacturing and commissioning building products and systems, including residential and commercial HVAC equipment, industrial refrigeration systems, controls, security systems, fire detection systems and fire suppression solutions. The Company further serves customers by providing technical services, including maintenance, repair, retrofit and replacement of equipment (in the HVAC, security and fire-protection space), energy-management consulting and data-driven "smart building" services and solutions powered by its digital platforms and capabilities.

Business Segments

The Company conducts its business through four business segments: Building Solutions North America, Building Solutions EMEA/LA, Building Solutions Asia Pacific and Global Products.

Building Solutions North America: Building Solutions North America designs, sells, installs, and services HVAC, controls, refrigeration, integrated electronic security, and integrated fire detection and suppression systems for commercial, industrial, retail, small business, institutional and governmental customers in North America. Building Solutions North America also provides energy efficiency solutions and technical services, including inspection, scheduled maintenance, and repair and replacement of mechanical and control systems, as well as data-driven "smart building" solutions, to non-residential building and industrial applications in the North American marketplace.

Building Solutions EMEA/LA: Building Solutions EMEA/LA designs, sells, installs, and services HVAC, controls, refrigeration, integrated electronic security, integrated fire detection and suppression systems, and provides technical services, including data-driven "smart building" solutions, to markets in Europe, the Middle East, Africa and Latin America.

Building Solutions Asia Pacific: Building Solutions Asia Pacific designs, sells, installs, and services HVAC, controls, refrigeration, integrated electronic security, integrated fire detection and suppression systems, and provides technical services, including data-driven "smart building" solutions, to the Asia Pacific marketplace.

Global Products: Global Products designs and produces heating and air conditioning for residential and commercial applications, and markets products and refrigeration systems to replacement and new construction market customers globally. The Global Products business also designs, manufactures and sells fire protection and security products, including intrusion security, anti-theft devices, and access control and video management systems, for commercial, industrial, retail, residential, small business, institutional and governmental customers worldwide. Global Products also includes the Johnson Controls-Hitachi joint venture.

For more information on the Company's segments, refer to Note 19, "Segment Information," of the notes to consolidated financial statements.

Products/Systems and Services

The Company sells and installs its commercial HVAC control systems, security systems, fire-detection systems, equipment and services primarily through its extensive direct channel, consisting of a global network of sales and service offices. Significant sales are also generated through global third-party channels, such as distributors of air-conditioning, controls, security and fire-detection products. The Company's large base of current customers leads to significant repeat business for the maintenance, retrofit and replacement markets. The Company is also able to leverage its installed base to generate sales for its service business. Trusted building brands, such as YORK®, Hitachi Air Conditioning, *Metasys*®, Ansul, *Ruskin*®, Titus®, Frick®, PENN®, Sabroe®, Simplex® and Grinnell® give the Company the most diverse portfolio in the building technology industry.

The Company provides data-driven services and solutions to create smarter, safer and more sustainable buildings. In fiscal 2020, the Company launched OpenBlue, a digitally driven suite of connected solutions that delivers impactful sustainability, new occupant experiences, and respectful safety and security by combining the Company's building expertise with cutting-edge technology, including AI-powered service solutions such as remote diagnostics, predictive maintenance, compliance monitoring and advanced risk assessments.

In fiscal 2020, approximately 35% of sales originated from product offerings, 38% of sales originated from installations and 27% of sales originated from service offerings.

Competition

The Company conducts its operations through thousands of individual contracts that are either negotiated or awarded on a competitive basis. Key factors in the award of contracts include system and service performance, quality, price, design, reputation, technology, application engineering capability and construction or project management expertise. Competitors for HVAC equipment, security, fire detection, fire suppression and controls in the residential and non-residential marketplace include many regional, national and international providers. Larger competitors include Honeywell International, Inc.; Siemens Building Technologies, an operating group of Siemens AG; Schneider Electric SA; Carrier Global Corporation; Trane Technologies plc; Daikin Industries, Ltd.; Lennox International, Inc.; GC Midea Holding Co, Ltd. and Gree Electric Appliances, Inc. In addition to HVAC equipment, the Company competes in a highly fragmented HVAC services market. The loss of any individual contract or customer would not have a material adverse effect on the Company.

Business Strategy

The Company's business strategy is to sustain and expand its position as a global diversified technology and multi-industrial leader in HVAC, industrial refrigeration, fire protection, security and building management systems by offering a full spectrum of products and solutions for customer buildings across the globe. The Company executes its strategy by creating growth platforms, driving operational improvements and creating a high performance culture. The Company has strong starting positions in attractive and growing end-markets across HVAC, controls, fire, security and services, enhanced by its comprehensive product portfolio and substantial installed base. The Company believes that it is well positioned to capitalize on the prevalent trends in the buildings industry, including sustainability and energy efficiency, urbanization in smarter and safer buildings and infrastructure. The Company has three strategic priorities:

Leading position in commercial HVAC equipment: Leverage the technological advantages created by the Company's chiller and rooftop platforms and continued investment in emerging areas such as heat pumps, into leading positions in commercial HVAC. The Company intends to pursue both organic and inorganic opportunities to expand its global commercial HVAC position.

Leading position in building management systems: Strengthen the existing portfolio of individual core systems across controls, fire and security while leading the migration towards flatter architectures and convergence, and building out the capabilities to be a leader in smart buildings which result in lower cost, autonomous and higher value customer outcomes.

Growth enabled by digital: Integrate digital capabilities into our products, including predictive analytics, digital twin technology and "smart building" applications, to provide differentiated capabilities and drive growth. Leverage differentiated capabilities including services innovation enabled by digital, tiered service offerings and efficient service delivery, coupled with the company's large installed base to accelerate service growth.

To realize these priorities, the Company is leveraging its technology leadership, comprehensive product portfolio, global presence, substantial installed base and strong channels to monetize the lifecycle opportunities of install, service, retrofit and replacement which are established and delivered by the Company's direct field businesses across the globe. Towards this end, the Company's field businesses are focused on commercial excellence, technology-enabled services and execution rigor.

Backlog

The Company's backlog is applicable to its sales of systems and services. At September 30, 2020, the backlog was $9.4 billion, of which $9.2 billion was attributable to the field business. The backlog amount outstanding at any given time is not necessarily indicative of the amount of revenue to be earned in the upcoming fiscal year.

At September 30, 2020, remaining performance obligations were $14.4 billion, which is $5.0 billion higher than the Company's backlog of $9.4 billion. Differences between the Company's remaining performance obligations and backlog are primarily due to the following:

- Remaining performance obligations include large, multi-purpose contracts to construct hospitals, schools and other governmental buildings, which are services to be performed over the building's lifetime with initial contract terms of 25 to 35 years for the entire term of the contract versus backlog which includes only the lifecycle period of these contracts which approximates five years;

- The Company has elected to exclude from remaining performance obligations certain contracts with customers with a term of one year or less or contracts that are cancelable without substantial penalty while these contracts are included within backlog; and
- Remaining performance obligations include the full remaining term of service contracts with substantial termination penalties versus backlog which includes one year for all outstanding service contracts.

The Company will continue to report backlog as it believes it is a useful measure of evaluating the Company's operational performance and relationship to total orders.

Raw Materials

Raw materials used by the businesses in connection with their operations, including steel, aluminum, brass, copper, polypropylene and certain flurochemicals used in fire suppression agents, were readily available during fiscal 2020. The Company expects such availability to continue. In fiscal 2021, commodity prices could fluctuate throughout the year and could significantly affect the results of operations.

Intellectual Property

Generally, the Company seeks statutory protection for strategic or financially important intellectual property developed in connection with its business. Certain intellectual property, where appropriate, is protected by contracts, licenses, confidentiality or other agreements. From time to time, the Company takes action to protect its businesses by asserting its intellectual property rights against third-party infringers.

The Company owns numerous U.S. and non-U.S. patents (and their respective counterparts), the more important of which cover those technologies and inventions embodied in current products or which are used in the manufacture of those products. While the Company believes patents are important to its business operations and in the aggregate constitute a valuable asset, no single patent, or group of patents, is critical to the success of the business. The Company, from time to time, grants licenses under its patents and technology and receives licenses under patents and technology of others.

The Company’s trademarks, certain of which are material to its business, are registered or otherwise legally protected in the U.S. and many non-U.S. countries where products and services of the Company are sold. The Company, from time to time, becomes involved in trademark licensing transactions.

Most works of authorship produced for the Company, such as computer programs, catalogs and sales literature, carry appropriate notices indicating the Company’s claim to copyright protection under U.S. law and appropriate international treaties.

Environmental, Health and Safety Matters

Laws addressing the protection of the environment and workers’ safety and health govern the Company’s ongoing global operations. They generally provide for civil and criminal penalties, as well as injunctive and remedial relief, for noncompliance or require remediation of sites where Company-related materials have been released into the environment.

The Company has expended substantial resources globally, both financial and managerial, to comply with environmental laws and worker safety laws and maintains procedures designed to foster and ensure compliance. Certain of the Company’s businesses are, or have been, engaged in the handling or use of substances that may impact workplace health and safety or the environment. The Company is committed to protecting its workers and the environment against the risks associated with these substances.

The Company’s operations and facilities have been, and in the future may become, the subject of formal or informal enforcement actions or proceedings for noncompliance with environmental laws and worker safety laws or for the remediation of Company-related substances released into the environment. Such matters typically are resolved with regulatory authorities through commitments to compliance, abatement or remediation programs and, in some cases, payment of penalties. See Note 22, "Commitments and Contingencies," of the notes to consolidated financial statements for further discussion of environmental matters.

Government Regulation and Supervision

The Company's operations are subject to numerous federal, state and local laws and regulations, both within and outside the U.S., in areas such as consumer protection, government contracts, international trade, environmental protection, labor and employment, tax, licensing and others. For example, most U.S. states and non-U.S. jurisdictions in which the Company operates have licensing laws directed specifically toward the alarm and fire suppression industries. The Company's security businesses currently rely extensively upon the use of wireline and wireless telephone service to communicate signals. Wireline and wireless telephone companies in the U.S. are regulated by the federal and state governments. In addition, government regulation of fire safety codes can impact the Company's fire businesses. The Company’s businesses may also be affected by changes in governmental regulation of refrigerants and energy efficiency standards, noise regulation and product safety regulations, including changes related to hydro fluorocarbons/emissions reductions efforts, energy conservation standards and the regulation of fluorinated gases. These and other laws and regulations impact the manner in which the Company conducts its business, and changes in legislation or government policies can affect the Company's worldwide operations, both favorably and unfavorably. For a more detailed description of the various laws and regulations that affect the Company's business, see Item 1A. Risk Factors.

Regulatory Capital Expenditures

The Company’s efforts to comply with numerous federal, state and local laws and regulations applicable to its business and products often results in capital expenditures. The Company makes capital expenditures to design and upgrade its fire and security products to comply with or exceed standards applicable to the alarm, fire suppression and security industries. The Company also makes capital expenditures to meet or exceed energy efficiency standards, including the regulation of refrigerants, hydro fluorocarbons/emissions reductions efforts and the regulation of fluorinated gasses, particularly with respect to the Company’s HVAC products and solutions. The Company’s ongoing environmental compliance program also results in capital expenditures. Regulatory and environmental considerations are a part of all significant capital expenditure decisions; however, expenditures in fiscal 2020 related solely to regulatory compliance were not material. It is management’s opinion that the amount of any future capital expenditures related to compliance with any individual regulation or grouping of related regulations will not have a material adverse effect on the Company’s financial results or competitive position in any one year. See Note 22, "Commitments and Contingencies," of the notes to consolidated financial statements for further discussion of environmental matters.

Human Capital Management

As of September 30, 2020, the Company employed approximately 97,000 people worldwide, of which approximately 36,000 were employed in the United States and approximately 61,000 were outside the United States. Approximately 21,000 employees are covered by collective bargaining agreements or works councils and the Company believes that its relations with the labor unions are generally good.

The Company believes that success of its mission is realized by the engagement and empowerment of its employees to serve and win with clients, everywhere, every day. The Chief Human Resources Officer ("CHRO") is responsible for developing and executing the Company’s human capital strategy. This includes the attraction, acquisition, development and engagement of talent to deliver on the Company’s strategy and the design of employee compensation and benefits programs. The CHRO and the Chief Diversity Officer are responsible for developing and integrating the Company’s diversity and inclusion roadmap. In addition, the Chief Executive Officer ("CEO") and CHRO regularly update the Company’s board of directors and its committees on the operation and status of these human capital trends and activities. Key areas of focus for the Company include:

Health and Safety: The Company’s health and safety programs are designed around global standards with appropriate variations addressing the multiple jurisdictions and regulations, specific hazards and unique working environments of the Company’s manufacturing, service and install, and headquarter operations. The Company requires each of its locations to perform regular safety audits to ensure proper safety policies, program procedures, analyses and training are in place. In addition, the Company engages an independent third party conformity assessment and certification vendor to audit selected operations for adherence to its global health and safety standards. The Company utilizes a mixture of leading and lagging indicators to assess the health and safety performance of its operations. Lagging indicators include the OSHA Total Recordable Incident Rate ("TRIR") and the Lost Time (or Lost Workday) Incident Rate ("LTIR") based upon the number of incidents per 100 employees (or per 200,000 work hours). Leading indicators include reporting and closure of all near miss events and Environmental, Health and Safety ("EHS") coaching and engagement conversations. Reported total workforce numbers include employees and supervised contractors. In fiscal year 2020, the Company had a TRIR of 0.40, a LTIR of 0.12 and 0 work-related fatalities.

Diversity and Inclusion: The Company believes that its rich culture of inclusion and diversity enables it to create, develop and fully leverage the strengths of its workforce to exceed customer expectations and meet its growth objectives. Current key initiatives include employee experience, Business Resource Groups ("BRG"), learning and development, talent acquisition, external relationships, and metrics and measurements. The Company places a high value on inclusion, engaging employees in our BRG programs staffed by employees with diverse backgrounds, experiences or characteristics who share a common interest in professional development, improving corporate culture and delivering sustained business results. The Company maintains its BRG chapters worldwide across nine categories: African American, Asia Pacific, LGBTQ+, Emerging Leaders, Hispanic, Disabilities, Veterans, Women and Sustainability. The Company uses these groups to serve as a source of inclusion and to support the acquisition of diverse talent internally and externally. Each BRG is sponsored and supported by senior leaders across the enterprise.

The Company has implemented several measures that focus on ensuring accountabilities exist for making progress in diversity. The CEO and other senior leaders have diversity and inclusion objectives embedded in their annual performance goals. The Company also commits to having a diverse talent pipeline by partnering with its business units in their workforce planning forecasts to develop initiatives and goals to recruit diverse talent across all leadership and skill areas. The Company trains its recruiting workforce in diversity sourcing strategies and partners with external organizations that develop and supply diverse talent. As of September 30, 2020, approximately 24% of the Company's global workforce was female and 19% of the Company's employees in managerial roles were female. As of September 30, 2020, minorities represented approximately 27% of the Company's US workforce, of which 18% of our US employees in managerial roles were minorities.

Training and Talent Development: The Company is committed to the continued development of its people. Strategic talent reviews and succession planning occur on a planned cadence annually – globally and across all business areas. The CEO and CHRO convene meetings with senior company leadership and the Board of Directors to review top enterprise talent. The Company continues to provide opportunities for the Company's internal employees to grow their careers, with over half of open management positions filled internally during fiscal year 2020.

The Company provides technical and leadership training to employees, customers and suppliers who work for or with the Company's products and services. Training is provided in a number of formats to accommodate the learner's style and pace, location, and technological knowledge and access. In fiscal year 2020, the Company offered more than 3,000 courses to all audiences. In addition, the Company's focus on employee development has been structured over the last several years through programs designed to imbed essential skills that are aligned to the Company's culture. All managers are accountable to introduce and teach a new skill or toolset each month to their teams. In fiscal year 2020, approximately 1.37 million learning activities were completed by approximately 83,000 currently active employees.

Refer to "Impact of COVID-19 pandemic" included in Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations" for information on Human Capital Management actions taken by the Company in response to the COVID-19 pandemic.

Seasonal Factors

Certain of the Company's sales are seasonal as the demand for residential air conditioning equipment generally increases in the summer months. This seasonality is mitigated by the other products and services provided by the Company that have no material seasonal effect.

Research and Development Expenditures

Refer to Note 1, "Summary of Significant Accounting Policies," of the notes to consolidated financial statements for research and development expenditures.

Available Information

The Company's filings with the U.S. Securities and Exchange Commission ("SEC"), including annual reports on Form 10-K, quarterly reports on Form 10-Q, definitive proxy statements on Schedule 14A, current reports on Form 8-K, and any amendments to those reports filed pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934, are made available free of charge through the Investor Relations section of the Company's Internet website at http://www.johnsoncontrols.com as soon as reasonably practicable after the Company electronically files such material with, or furnishes it to, the SEC. Copies of any materials the Company files with the SEC can also be obtained free of charge through the SEC's website at http://www.sec.gov. The Company also makes available, free of charge, its Code of Ethics, Corporate Governance Guidelines, Board of Directors committee charters and other information related to the Company on the Company's Internet website or in printed form upon request. The Company is not including the information contained on the Company's website as a part of, or incorporating it by reference into, this Annual Report on Form 10-K.

ITEM 1A RISK FACTORS

Risks Related to Economic and Political Conditions

The COVID-19 pandemic could have an adverse effect on our business, financial condition, results of operations and cash flows.

The global outbreak of COVID-19 has severely restricted the level of economic activity around the world and has caused a significant contraction in the global economy. In response to this outbreak, the governments of many countries, states, cities and other geographic regions have taken preventive or protective actions, such as imposing restrictions on travel and business operations. Currently, the effectiveness of economic stabilization efforts and other measures being taken to mitigate the effects of these actions and the spread of COVID-19 remains uncertain.

As a result of the COVID-19 pandemic, we and our affiliates, employees, suppliers, customers and others have been and may continue to be restricted or prevented from conducting normal business activities, including as a result of shutdowns, travel restrictions and other actions that may be requested or mandated by governmental authorities. Such actions have prevented, and may in the future prevent us from accessing the facilities of our customers to deliver and install products, provide services and complete maintenance. Although some governments have lifted shutdown orders and similar restrictions, a resurgence in the spread of COVID-19 could cause the reinstitution of such preventive or protective measures. While a substantial portion of our businesses have been classified as essential in jurisdictions in which facility closures have been mandated, some of our facilities have nevertheless been ordered to close, and we can give no assurance that there will not be additional closures in the future or that our businesses will be classified as essential in each of the jurisdictions in which we operate.

The COVID-19 outbreak has impacted, and may continue to impact, our office locations, manufacturing and servicing facilities and distribution centers, as well as those of our third-party vendors, including the effects of facility closures, reductions in operating hours and other social distancing efforts. For example, during portions of fiscal year 2020, we experienced temporary reductions of our manufacturing and operating capacity in India, China and Mexico as a result of government-mandated actions to control the spread of COVID-19. In addition, we have modified our business practices (including employee travel, employee work locations and cancellation of physical participation in meetings, events and conferences), and we may take further actions as may be required by government authorities or that we determine are in the best interests of our employees, customers, partners and suppliers. These modifications to our business practices, including any future actions we take, may cause us to experience increases in costs, reductions in productivity and disruptions to our business routines. Further, we have experienced, and may continue to experience, disruptions or delays in our supply chain as a result of such actions, which have resulted in higher supply chain costs to us in order to maintain the supply of materials and components for our products.

Our management of the impact of COVID-19 has and will continue to require significant investment of time from our management and employees, as well as resources across our global enterprise. The focus on managing and mitigating the impacts of COVID-19 on our business may cause us to divert or delay the application of our resources toward new initiatives or investments, which may adversely impact our future results of operations. In addition, issues relating to the COVID-19 pandemic may result in legal claims or litigation against us.

We may also experience impacts from market downturns and changes in consumer behavior related to pandemic fears as a result of COVID-19. For example, we experienced a decline in demand in our global businesses as a result of the impact of efforts to contain the spread of COVID-19. In addition, our customers may choose to delay or abandon projects on which we provide products and/or services. We may also experience adverse impacts on demand and sales volumes from industries that are sensitive to economic downturns and volatility in commodity prices. Further, the COVID-19 pandemic could result in permanent changes in the behaviors of our customers, including the increased prevalence of remote work and a corresponding decline in demand for the construction and maintenance of commercial buildings. Any of these impacts could cause our stock price and the operating performances of our businesses to be adversely affected, which could require us to incur material impairment, restructuring or other charges. For example, in fiscal year 2020, we were required to record an impairment charge of indefinite-lived intangible assets primarily related to our retail business and an impairment of the North America Retail reporting unit's goodwill.

If the COVID-19 pandemic becomes more pronounced in our global markets, experiences a resurgence in markets recovering from the spread of COVID-19, or if another significant natural disaster or pandemic were to occur in the future, our operations in areas impacted by such events could experience further adverse financial impacts due to market changes and other resulting events and circumstances. The extent to which the COVID-19 pandemic impacts our financial condition will depend on future developments that are highly uncertain and cannot be predicted, including new information that may emerge concerning the severity of COVID-19, the longevity of COVID-19, the impact of COVID-19 on economic activity, the actions to contain its impacts on public health, and the global economy and the speed at which economic activity resumes following the lifting of measures designed to mitigate the spread of COVID-19. The impact of COVID-19 may also exacerbate other risks discussed in Item 1A of this Annual Report on Form 10-K, any of which could have a material effect on our financial condition, results of operations and cash flows.

Some of the industries in which we operate are cyclical and, accordingly, demand for our products and services could be adversely affected by downturns in these industries.

Much of the demand for installation of HVAC, security products, and fire detection and suppression solutions is driven by commercial and residential construction and industrial facility expansion and maintenance projects. Commercial and residential construction projects are heavily dependent on general economic conditions, localized demand for commercial and residential real estate and availability of credit. Commercial and residential real estate markets are prone to significant fluctuations in supply and demand. In addition, most commercial and residential real estate developers rely heavily on project financing in order to initiate and complete projects. Declines in real estate values could lead to significant reductions in the availability of project financing, even in markets where demand may otherwise be sufficient to support new construction. These factors could in turn temper demand for new HVAC, fire detection and suppression, and security installations.

Levels of industrial capital expenditures for facility expansions and maintenance are dependent on general economic conditions, economic conditions within specific industries we serve, expectations of future market behavior and available financing. Additionally, volatility in commodity prices can negatively affect the level of these activities and can result in postponement of capital spending decisions or the delay or cancellation of existing orders.

The businesses of many of our industrial customers are to varying degrees cyclical and have experienced periodic downturns. During such economic downturns, including the current economic downturn caused by COVID-19, customers in these industries tend to delay major capital projects, including greenfield construction, maintenance projects and upgrades. Additionally, demand for our products and services may be affected by volatility in energy and commodity prices and fluctuating demand forecasts, as our customers may be more conservative in their capital planning, which may reduce demand for our products and services. Although our industrial customers tend to be less dependent on project financing than real estate developers, disruptions in financial markets and banking systems could make credit and capital markets difficult for our customers to access, and could significantly raise the cost of new debt for our customers. Any difficulty in accessing these markets and the increased associated costs can have a negative effect on investment in large capital projects, including necessary maintenance and upgrades, even during periods of favorable end-market conditions.

Many of our customers inside and outside of the industrial and commercial sectors, including governmental and institutional customers, have experienced budgetary constraints as sources of revenue have been negatively impacted by adverse or stagnant economic conditions. These budgetary constraints have in the past and may in the future reduce demand for our products and services among governmental and institutional customers.

Reduced demand for our products and services could result in the delay or cancellation of existing orders or lead to excess capacity, which unfavorably impacts our absorption of fixed costs. This reduced demand may also erode average selling prices in the industries we serve. Any of these results could materially and adversely affect our business, financial condition, results of operations and cash flows.

Risks associated with our non-U.S. operations could adversely affect our business, financial condition and results of operations.

We have significant operations in a number of countries outside the U.S., some of which are located in emerging markets. Long-term economic uncertainty in some of the regions of the world in which we operate, such as Asia, South America, the Middle East, Europe and emerging markets, could result in the disruption of markets and negatively affect cash flows from our operations to cover our capital needs and debt service requirements.

In addition, as a result of our global presence, a significant portion of our revenues and expenses is denominated in currencies other than the U.S. dollar. We are therefore subject to non-U.S. currency risks and non-U.S. exchange exposure. While we employ financial instruments to hedge some of our transactional foreign exchange exposure, these activities do not insulate us completely from those exposures. Exchange rates can be volatile and a substantial weakening of foreign currencies against the

U.S. dollar could reduce our profit margin in various locations outside of the U.S. and adversely impact the comparability of results from period to period.

There are other risks that are inherent in our non-U.S. operations, including the potential for changes in socio-economic conditions, laws and regulations, including anti-trust, import, export, labor and environmental laws, and monetary and fiscal policies; protectionist measures that may prohibit acquisitions or joint ventures, or impact trade volumes; unsettled or unstable political conditions; government-imposed plant or other operational shutdowns; backlash from foreign labor organizations related to our restructuring actions; corruption; natural and man-made disasters, hazards and losses; violence, civil and labor unrest, and possible terrorist attacks.

These and other factors may have a material adverse effect on our business and results of operations.

Risks Related to Government Regulations

Our businesses operate in regulated industries and are subject to a variety of complex and continually changing laws and regulations.

Our operations and employees are subject to various U.S. federal, state and local licensing laws, codes and standards and similar foreign laws, codes, standards and regulations. Changes in laws or regulations could require us to change the way we operate or to utilize resources to maintain compliance, which could increase costs or otherwise disrupt operations. In addition, failure to comply with any applicable laws or regulations could result in substantial fines or revocation of our operating permits and licenses. Competition or other regulatory investigations can continue for several years, be costly to defend and can result in substantial fines. If laws and regulations were to change or if we or our products failed to comply, our business, financial condition and results of operations could be adversely affected.

Due to the international scope of our operations, the system of laws and regulations to which we are subject is complex and includes regulations issued by the U.S. Customs and Border Protection, the U.S. Department of Commerce's Bureau of Industry and Security, the U.S. Treasury Department's Office of Foreign Assets Control and various non U.S. governmental agencies, including applicable export controls, anti-trust, customs, currency exchange control and transfer pricing regulations, laws regulating the foreign ownership of assets, and laws governing certain materials that may be in our products. No assurances can be made that we will continue to be found to be operating in compliance with, or be able to detect violations of, any such laws or regulations. For example, existing free trade laws and regulations, such as the United States-Mexico-Canada Agreement, or any successor agreement, provide certain beneficial duties and tariffs for qualifying imports and exports, subject to compliance with the applicable classification and other requirements. Changes in laws or policies governing the terms of foreign trade, and in particular increased trade restrictions, tariffs or taxes on imports from countries where we manufacture products or from where we import products or raw materials (either directly or through our suppliers) could have an impact on our competitive position, business and financial results. For example, certain of our businesses have a significant presence in the United Kingdom (the “U.K.”), where the success of the Brexit referendum in 2016 has continued to cause political and economic uncertainty. Although it is unknown what the full terms of the U.K.’s future relationship with the European Union will be, it is possible that the U.K. may be at risk of losing access to free trade agreements for goods and services with the EU and other countries, which may result in increased tariffs on U.K. imports and exports that could have an adverse effect on our profitability.

We cannot predict the nature, scope or effect of future regulatory requirements to which our operations might be subject or the manner in which existing laws might be administered or interpreted.

Global climate change and related regulations could negatively affect our business.

The effects of climate change, such as extreme weather conditions, create financial risks to our business. For example, the demand for our products and services, such as residential air conditioning equipment, may be affected by unseasonable weather conditions. The effects of climate change could also disrupt our operations by impacting the availability and cost of materials needed for manufacturing and could increase insurance and other operating costs. These factors may impact our decisions to construct new facilities or maintain existing facilities in areas most prone to physical climate risks. We could also face indirect financial risks passed through the supply chain and disruptions that could result in increased prices for our products and the resources needed to produce them.

There is a general consensus that greenhouse gas emissions are linked to global climate change, and that these emissions must be reduced dramatically to avert the worst effects of climate change. Increased public awareness and concern regarding global climate change will result in more regional and/or federal requirements to reduce greenhouse gas emissions. For example, policies are being implemented to curtail the use of high global warming potential refrigerants, increase building energy efficiency, and shift away from the combustion of fossil fuels as a heating source. In some cases, these policies may render our existing technology and products noncompliant, particularly within our line of HVAC products and solutions. As a result, we may be required to make increased capital expenditures to improve our product portfolio to meet new regulations and standards. While we have been committed to continuous improvements to our product portfolio to meet and exceed anticipated regulatory standard levels, there can be no assurance that our commitments will be successful, that our products will be accepted by the market, that proposed regulation or deregulation will not have a negative competitive impact or that economic returns will reflect our investments in new product development.

There continues to be a lack of consistent climate legislation, which creates economic and regulatory uncertainty. Such regulatory uncertainty extends to incentives, which if discontinued, could adversely impact the demand for energy efficient buildings, and could increase costs of compliance. These factors may impact the demand for our products, obsolescence of our products and our results of operations.

We are subject to requirements relating to environmental and safety regulations and environmental remediation matters which could adversely affect our business, results of operation and reputation.

We are subject to numerous federal, state and local environmental laws and regulations governing, among other things, solid and hazardous waste storage, treatment and disposal, and remediation of releases of hazardous materials. There are significant capital, operating and other costs associated with compliance with these environmental laws and regulations. Environmental laws and regulations may become more stringent in the future, which could increase costs of compliance or require us to manufacture with alternative technologies and materials. For example, proposed federal and state legislative action concerning the use and clean-up of fire-fighting foam products could negatively impact our fire-fighting business and our results of operations, thereby enhancing the risks to our business described under "Potential liability for environmental contamination could result in substantial costs" below.

Federal, state and local authorities also regulate a variety of matters, including, but not limited to, health, safety laws governing employee injuries, and permitting requirements in addition to the environmental matters discussed above. If we are unable to adequately comply with applicable health and safety regulations and provide our employees with a safe working environment, we may be subject to litigation and regulatory action, in addition to negatively impacting our ability to attract and retain talented employees. New legislation and regulations may require the Company to make material changes to its operations, resulting in significant increases to the cost of production.

We could be adversely affected by violations of the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act and similar anti-bribery laws around the world.

The U.S. Foreign Corrupt Practices Act (the "FCPA"), the U.K. Bribery Act and similar anti-bribery laws in other jurisdictions generally prohibit companies and their intermediaries from making improper payments to government officials or other persons for the purpose of obtaining or retaining business. Recent years have seen a substantial increase in anti-bribery law enforcement activity, with more frequent and aggressive investigations and enforcement proceedings by both U.S. and non-U.S. regulators, and increases in criminal and civil proceedings brought against companies and individuals. Our policies mandate compliance with these anti-bribery laws. We operate in many parts of the world that are recognized as having governmental and commercial corruption and local customs and practices that can be inconsistent with anti-bribery laws. We cannot assure you that our internal control policies and procedures will always protect us from reckless or criminal acts committed by our employees or third party intermediaries. In the event that we believe or have reason to believe that our employees or agents have or may have violated applicable anti-corruption laws, or if we are subject to allegations of any such violations, we may be required to investigate or have outside counsel investigate the relevant facts and circumstances, which can be expensive and require significant time and attention from senior management. Violations of these laws may result in criminal or civil sanctions, which could disrupt our business and result in a material adverse effect on our reputation, business, financial condition, results of operations and cash flows. In addition, we could be subject to commercial impacts such as lost revenue from customers who decline to do business with us as a result of such compliance matters, or we could be subject to lawsuits brought by private litigants, each of which could have a material adverse effect on our reputation, business, financial condition, results of operations and cash flows.

We are subject to risks arising from regulations applicable to companies doing business with the U.S. government.

Our customers include many U.S. federal, state and local government authorities. Doing business with the U.S. government and state and local authorities subjects us to unusual risks, including dependence on the level of government spending and compliance with and changes in governmental procurement and security regulations. Agreements relating to the sale of products to government entities may be subject to termination, reduction or modification, either at the convenience of the government or for failure to perform under the applicable contract. We are subject to potential government investigations of business practices and compliance with government procurement and security regulations, which can be expensive and burdensome. If we were charged with wrongdoing as a result of an investigation, we could be suspended from bidding on or receiving awards of new government contracts, which could have a material adverse effect on the Company's results of operations. In addition, various U.S. federal and state legislative proposals have been made in the past that would deny governmental contracts to U.S. companies that have moved their corporate location abroad. We are unable to predict the likelihood that, or final form in which, any such proposed legislation might become law, the nature of regulations that may be promulgated under any future legislative enactments, or the effect such enactments and increased regulatory scrutiny may have on our business.

Risks Related to Our Business Operations

Our future growth is dependent upon our ability to develop or acquire new products and technologies that achieve market acceptance with acceptable margins.

Our future success depends on our ability to develop or acquire, manufacture and bring competitive, and increasingly complex, products and services to market quickly and cost-effectively. Our ability to develop or acquire new products, services and technologies requires the investment of significant resources. These acquisitions and development efforts divert resources from other potential investments in our businesses, and they may not lead to the development of new technologies, products or services on a timely basis. Moreover, as we introduce new products, we may be unable to detect and correct defects in the design of a product or in its application to a specified use, which could result in loss of sales or delays in market acceptance. Even after introduction, new or enhanced products may not satisfy customer preferences and product failures may cause customers to reject our products. As a result, these products may not achieve market acceptance and our brand image could suffer. We must also attract, develop and retain individuals with the requisite technical expertise and understanding of customers' needs to develop new technologies and introduce new products, particularly as we increase investment in our digital solutions businesses and our OpenBlue platform. The laws and regulations applicable to our products, and our customers' product and service needs, change from time to time, and regulatory changes may render our products and technologies noncompliant. We must also monitor disruptive technologies and business models. In addition, the markets for our products, services and technologies may not develop or grow as we anticipate. The failure of our technology, products or services to gain market acceptance due to more attractive offerings by our competitors, the introduction of new competitors to the market with new or innovative product offerings or the failure to address any of the above factors could significantly reduce our revenues, increase our operating costs or otherwise materially and adversely affect our business, financial condition, results of operations and cash flows.

Cybersecurity incidents could disrupt business operations, result in the loss of critical and confidential information, and adversely impact our reputation and results of operations.

We rely upon the capacity, reliability and security of our IT and data security infrastructure and our ability to expand and continually update this infrastructure in response to the changing needs of our business. As we implement new systems or integrate existing systems, they may not perform as expected. We also face the challenge of supporting our older systems and implementing necessary upgrades. In addition, we are increasingly relying on our IT infrastructure to support our operations as we manage the impact of COVID-19, including through initiating remote-work protocols for a substantial number of our employees in regions impacted by the spread of the virus. If we experience a problem with the functioning of an important IT system as a result of the increased burden placed on our IT infrastructure or a security breach of our IT systems, including during system upgrades and/or new system implementations, the resulting disruptions could have an adverse effect on our business.

Global cybersecurity threats and incidents can range from uncoordinated individual attempts to gain unauthorized access to IT systems to sophisticated and targeted measures known as advanced persistent threats, directed at the Company, its products, its customers and/or its third party service providers, including cloud providers. Our customers, including the U.S. government, are increasingly requiring cybersecurity protections and mandating cybersecurity standards in our products, and we may incur additional costs to comply with such demands. While we have experienced, and expect to continue to experience, these types of threats and incidents, none of them to date have been material to the Company. We seek to deploy comprehensive measures to deter, prevent, detect, respond to and mitigate these threats, including identity and access controls, data protection, vulnerability assessments, product software designs which we believe are less susceptible to cyber attacks, continuous monitoring of our IT networks and systems, maintenance of backup and protective systems and the incorporation of cybersecurity design throughout the lifecycle of our products. Despite these efforts, cybersecurity incidents, depending on their nature and scope, could potentially result in the misappropriation, destruction, corruption or unavailability of critical data and confidential or proprietary information (our own or that of third parties) and the disruption of business operations. Cybersecurity incidents aimed at the software imbedded in our products could lead to third party claims that our product failures have caused a similar range of damages to our customers, and this risk is enhanced by the increasingly connected nature of our products. The potential consequences of a material cybersecurity incident include financial loss, reputational damage, litigation with third parties, theft of intellectual property, fines levied by the Federal Trade Commission, diminution in the value of our investment in research, development and engineering, and increased cybersecurity protection and remediation costs due to the increasing sophistication and proliferation of threats, which in turn could adversely affect our competitiveness and results of operations.

Data privacy, identity protection, and information security may require significant resources and presents certain risks.

We collect, store, have access to and otherwise process certain confidential or sensitive data, including proprietary business information, personal data or other information that is subject to privacy and security laws, regulations and/or customer-imposed controls. Despite our efforts to protect such data, our business and our products may be vulnerable to material security breaches, theft, misplaced or lost data, programming errors, or errors that could potentially lead to compromising such data, improper use of our products, systems, software solutions or networks, unauthorized access, use, disclosure, modification or destruction of information, defective products, production downtimes and operational disruptions. A significant actual or perceived risk of theft, loss, fraudulent use or misuse of customer, employee or other data, whether by us, our suppliers, channel partners, customers or other third parties, as a result of employee error or malfeasance, or as a result of the imaging, software, security and other products we incorporate into our products, as well as non-compliance with applicable industry standards or our contractual or other legal obligations or privacy and information-security policies regarding such data, could result in costs, fines, litigation or regulatory actions, or could lead customers to select products and services of our competitors. In addition, any such event could harm our reputation, cause unfavorable publicity or otherwise adversely affect certain potential customers' perception of the security and reliability of our services as well as our credibility and reputation, which could result in lost sales. In addition, we operate in an environment in which there are different and potentially conflicting data privacy laws in effect in the various U.S. states and foreign jurisdictions in which we operate and we must understand and comply with each law and standard in each of these jurisdictions while ensuring the data is secure. For example, proposed regulations restricting the use of biometric security technology could impact the products and solutions offered by our security business. Government enforcement actions can be costly and interrupt the regular operation of our business, and violations of data privacy laws can result in fines, reputational damage and civil lawsuits, any of which may adversely affect our business, reputation and financial statements.

Infringement or expiration of our intellectual property rights, or allegations that we have infringed upon the intellectual property rights of third parties, could negatively affect us.

We rely on a combination of trademarks, trade secrets, patents, copyrights, know-how, confidentiality provisions and licensing arrangements to establish and protect our proprietary rights. We cannot guarantee, however, that the steps we have taken to protect our intellectual property will be adequate to prevent infringement of our rights or misappropriation or theft of our technology, trade secrets or know-how. For example, effective patent, trademark, copyright and trade secret protection may be unavailable or limited in some of the countries in which we operate. In addition, while we generally enter into confidentiality agreements with our employees and third parties to protect our trade secrets, know-how, business strategy and other proprietary information, such confidentiality agreements could be breached or otherwise may not provide meaningful protection for our trade secrets and know-how related to the design, manufacture or operation of our products. We, from time to time, resort to litigation to protect our intellectual property rights. Such proceedings can be burdensome and costly, and we may not prevail. Further, adequate remedies may not be available in the event of an unauthorized use or disclosure of our trade secrets and manufacturing expertise. Finally, for those products in our portfolio that rely on patent protection, once a patent has expired, the product is generally open to competition. Products under patent protection usually generate significantly higher revenues than those not protected by patents. If we fail to successfully enforce our intellectual property rights, our competitive position could suffer, which could harm our business, financial condition, results of operations and cash flows.

In addition, we are, from time to time, subject to claims of intellectual property infringement by third parties, including practicing entities and non-practicing entities. Regardless of the merit of such claims, responding to infringement claims can be expensive and time-consuming. The litigation process is subject to inherent uncertainties, and we may not prevail in litigation matters regardless of the merits of our position. Intellectual property lawsuits or claims may become extremely disruptive if the plaintiffs succeed in blocking the trade of our products and services and they may have a material adverse effect on our business, financial condition, results of operations and cash flows.

We rely on our global direct installation channel for a significant portion of our revenue. Failure to maintain and grow the installed base resulting from direct channel sales could adversely affect our business.

Unlike many of our competitors, the Company relies on a direct sales channel for a substantial portion of our revenue. The direct channel provides for the installation of fire and security solutions, and HVAC equipment manufactured by the Company. This represents a significant distribution channel for our products, creates a large installed base of our fire and security solutions, and HVAC equipment, and creates opportunities for longer term service and monitoring revenue. If we are unable to maintain or grow this installation business, whether due to changes in economic conditions, a failure to anticipate changing customer needs, a failure to introduce innovative or technologically advanced solutions, or for any other reason, our installation revenue could decline, which could in turn adversely impact our product pull-through and our ability to grow service and monitoring revenue.

A material disruption of our operations, particularly at our monitoring and/or manufacturing facilities, could adversely affect our business.

If our operations, particularly at our monitoring facilities and/or manufacturing facilities, were to be disrupted as a result of significant equipment failures, natural disasters, power outages, fires, explosions, terrorism, sabotage, adverse weather conditions, public health crises, labor disputes or other reasons, we may be unable to effectively respond to alarm signals, fill customer orders and otherwise meet obligations to or demand from our customers, which could adversely affect our financial performance.

Interruptions in production could increase our costs and reduce our sales. Any interruption in production capability could require us to make substantial capital expenditures or purchase alternative material at higher costs to fill customer orders, which could negatively affect our profitability and financial condition. We maintain property damage insurance that we believe to be adequate to provide for reconstruction of facilities and equipment, as well as business interruption insurance to mitigate losses resulting from significant production interruption or shutdown caused by an insured loss. However, any recovery under our insurance policies may not offset the lost sales or increased costs that may be experienced during the disruption of operations, which could adversely affect our business, financial condition, results of operations and cash flows.

Our business may be adversely affected by work stoppages, union negotiations, labor disputes and other matters associated with our labor force.

We employ approximately 97,000 people worldwide. Approximately 21% of these employees are covered by collective bargaining agreements or works councils. Although we believe that our relations with the labor unions and works councils that represent our employees are generally good and we have experienced no material strikes or work stoppages recently, no assurances can be made that we will not experience in the future these and other types of conflicts with labor unions, works councils, other groups representing employees or our employees generally, or that any future negotiations with our labor unions will not result in significant increases in our cost of labor. Additionally, a work stoppage at one of our suppliers could materially and adversely affect our operations if an alternative source of supply were not readily available. Stoppages by employees of our customers could also result in reduced demand for our products.

We are exposed to greater risks of liability for employee acts or omissions, or system failure, in our fire and security businesses than may be inherent in other businesses.

If a customer or third party believes that he or she has suffered harm to person or property due to an actual or alleged act or omission of one of our employees or a security or fire system failure, he or she may pursue legal action against us, and the cost of defending the legal action and of any judgment could be substantial. In particular, because many of our products and services are intended to protect lives and real and personal property, we may have greater exposure to litigation risks than businesses that provide other products and services. We could face liability for failure to respond adequately to alarm activations or failure of our fire protection to operate as expected. The nature of the services we provide exposes us to the risks that we may be held liable for employee acts or omissions or system failures. As a result, such employee acts or omissions or system failures could have a material adverse effect on our business, financial condition, results of operations and cash flows.

We do not own the right to use the ADT® brand name in the U.S. and Canada.

We own the ADT® brand name in jurisdictions outside of the U.S. and Canada, and The ADT Corporation ("ADT") owns the brand name in the U.S. and Canada. Although we have entered into agreements with ADT designed to protect the value of the ADT® brand, we cannot assure you that actions taken by ADT will not negatively impact the value of the brand outside of the U.S. and Canada. These factors expose us to the risk that the ADT® brand name could suffer reputational damage or devaluation for reasons outside of our control, including ADT's business conduct in the U.S. and Canada. Any of these factors may adversely affect our business, financial condition, results of operations and cash flows.

Risks Related to Litigation

Potential liability for environmental contamination could result in substantial costs.

We have projects underway at multiple current and former manufacturing and testing facilities to investigate and remediate environmental contamination resulting from past operations by us or by other businesses that previously owned or used the properties, including our Fire Technology Center and Stanton Street manufacturing facility located in Marinette, Wisconsin. These projects relate to a variety of activities, including arsenic, solvent, oil, metal, lead, perfluorooctane sulfonate ("PFOS"), perfluorooctanoic acid ("PFOA") and/or other per- and polyfluorinated substances ("PFAS") and other hazardous substance contamination cleanup; and structure decontamination and demolition, including asbestos abatement. Because of uncertainties associated with environmental regulation and environmental remediation activities at sites where we may be liable, future expenses that we may incur to remediate identified sites and resolve outstanding litigation could be considerably higher than the current accrued liability on our consolidated statements of financial position, which could have a material adverse effect on our business, results of operations and cash flows.

In addition, we have been named, along with others, in a number of class action and other lawsuits relating to the use of fire-fighting foam products by the U.S. Department of Defense, the U.S. military and others for fire suppression purposes and related training exercises. Plaintiffs generally allege that the fire-fighting foam products contain or break down into the chemicals PFOS and PFOA and/or other PFAS compounds and that the use of these products by others at various airbases, airports and other sites resulted in the release of these chemicals into the environment and ultimately into communities' drinking water supplies neighboring those airports, airbases and other sites. Plaintiffs in these cases generally seek compensatory damages, including damages for alleged personal injuries, medical monitoring, diminution in property values, investigation and remediation costs, and natural resources damages, and also seek punitive damages and injunctive relief to address remediation of the alleged contamination. It is difficult to predict the outcome or ultimate financial exposure, if any, represented by these matters, and there can be no assurance that any such exposure will not be material. Such claims may also negatively affect our reputation. See Note 22, "Commitments and Contingencies," of the notes to consolidated financial statements for additional information on these matters.

We are party to asbestos-related product litigation that could adversely affect our financial condition, results of operations and cash flows.

We and certain of our subsidiaries, along with numerous other third parties, are named as defendants in personal injury lawsuits based on alleged exposure to asbestos containing materials. These cases typically involve product liability claims based primarily on allegations of manufacture, sale or distribution of industrial products that either contained asbestos or were used with asbestos containing components. We cannot predict with certainty the extent to which we will be successful in litigating or otherwise resolving lawsuits in the future and we continue to evaluate different strategies related to asbestos claims filed against us including entity restructuring and judicial relief. Unfavorable rulings, judgments or settlement terms could have a material adverse impact on our business and financial condition, results of operations and cash flows. See Note 22, "Commitments and Contingencies," of the notes to consolidated financial statements for additional information on these matters.

Risks Relating to Strategic Transactions

We may be unable to successfully execute or effectively integrate acquisitions or joint ventures.

We expect acquisitions of businesses and assets, as well as joint ventures (or other strategic arrangements), to play a role in our future growth. We cannot be certain that we will be able to identify attractive acquisition or joint venture targets, obtain financing for acquisitions on satisfactory terms, successfully acquire identified targets or form joint ventures, or manage the timing of acquisitions with capital obligations across our businesses.

Acquisitions and investments may involve significant cash expenditures, debt incurrences, equity issuances, operating losses and expenses. Acquisitions involve numerous other risks, including:

- the diversion of management attention to integration matters;
- difficulties in integrating operations and systems;
- challenges in conforming standards, controls, procedures and accounting and other policies, business cultures and compensation structures;
- difficulties in assimilating employees and in attracting and retaining key personnel;
- challenges in keeping existing customers and obtaining new customers;
- difficulties in achieving anticipated cost savings, synergies, business opportunities and growth prospects;
- contingent liabilities (including contingent tax liabilities) that are larger than expected; and
- potential unknown liabilities, adverse consequences and unforeseen increased expenses associated with acquired companies.

The goodwill and intangible assets recorded with past acquisitions, including our merger with Tyco, were significant and impairment of such assets could result in a material adverse impact on our financial condition and results of operations. Competition for acquisition opportunities in the various industries in which we operate may rise, thereby increasing our costs of making acquisitions or causing us to refrain from making further acquisitions.

Many of these factors are outside of our control, and any one of them could result in increased costs, decreased expected revenues and diversion of management time and energy, which could materially impact our business, financial condition and results of operations.

Risks associated with joint venture investments may adversely affect our business and financial results.

We have entered into several joint ventures and we may enter into additional joint ventures in the future. Our joint venture partners may at any time have economic, business or legal interests or goals that are inconsistent with our goals or with the goals of the joint venture. In addition, we may compete against our joint venture partners in certain of our other markets. Disagreements with our business partners may impede our ability to maximize the benefits of our partnerships. Our joint venture arrangements may require us, among other matters, to pay certain costs or to make certain capital investments or to seek our joint venture partner’s consent to take certain actions. In addition, our joint venture partners may be unable or unwilling to meet their economic or other obligations under the operative documents, and we may be required to either fulfill those obligations alone to ensure the ongoing success of a joint venture or to dissolve and liquidate a joint venture. These risks could result in a material adverse effect on our business and financial results.

Divestitures of some of our businesses or product lines may materially adversely affect our financial condition, results of operations or cash flows.

We continually evaluate the performance and strategic fit of all of our businesses and may sell businesses or product lines. For example, we completed the spin-off of our Automotive Experience business in October 2016 and sold our Scott Safety business in October 2017. In addition, on April 30, 2019, we sold our Power Solutions business to BCP Acquisitions LLC. Divestitures involve risks, including difficulties in the separation of operations, services, products and personnel, the diversion of management's attention from other business concerns, the disruption of our business, the potential loss of key employees and the retention of uncertain environmental or other contingent liabilities related to the divested business. Some divestitures, like the Power Solutions divestiture, may be dilutive to earnings. In addition, divestitures may result in significant asset impairment charges, including those related to goodwill and other intangible assets, which could have a material adverse effect on our financial condition and results of operations. We cannot assure you that we will be successful in managing these or any other significant risks that we encounter in divesting a business or product line, and any divestiture we undertake could materially and adversely affect our business, financial condition, results of operations and cash flows, and may also result in a diversion of management attention, operational difficulties and losses. With respect to the Power Solutions divestiture, there can be no assurance whether the strategic benefits and expected financial impact of the divestiture will be achieved.

Risks Related to Tax Matters

The Internal Revenue Service ("IRS") may not agree that we should be treated as a non-U.S. corporation for U.S. federal tax purposes.

Under current U.S. federal tax law, a corporation is generally considered to be a tax resident in the jurisdiction of its organization or incorporation. Because Johnson Controls International plc is an Irish incorporated entity, it would generally be classified as a non-U.S. corporation (and, therefore, a non-U.S. tax resident) under these rules. However, Section 7874 of the Code ("Section 7874") provides an exception to this general rule under which a non-U.S. incorporated entity may, in certain circumstances, be treated as a U.S. corporation for U.S. federal tax purposes.

Under Section 7874, if (1) former Johnson Controls, Inc. shareholders owned (within the meaning of Section 7874) 80% or more (by vote or value) of our ordinary shares after the Merger by reason of holding Johnson Controls, Inc. common stock (such ownership percentage the "Section 7874 ownership percentage"), and (2) our "expanded affiliated group" did not have "substantial business activities" in Ireland ("the substantial business activities test"), we will be treated as a U.S. corporation for U.S. federal tax purposes. If the Section 7874 ownership percentage of the former Johnson Controls, Inc. shareholders after the Merger was less than 80% but at least 60%, and the substantial business activities test was not met, we and our U.S. affiliates (including the U.S. affiliates historically owned by Tyco) may, in some circumstances, be subject to certain adverse U.S. federal income tax rules (which, among other things, could limit their ability to utilize certain U.S. tax attributes to offset U.S. taxable income or gain resulting from certain transactions). The application of these rules could result in significant additional U.S. tax liability and limit our ability to restructure or access cash earned by certain of our non-U.S. subsidiaries, in each case, without incurring substantial U.S. tax liabilities.

Based on the terms of the Merger, the rules for determining share ownership under Section 7874 and certain factual assumptions, we believe that former Johnson Controls, Inc. shareholders owned (within the meaning of Section 7874) less than 60% (by both vote and value) of our ordinary shares after the Merger by reason of holding shares of Johnson Controls, Inc. common stock. Therefore, under current law, we believe that we should not be treated as a U.S. corporation for U.S. federal tax purposes and that Section 7874 should otherwise not apply to us or our affiliates as a result of the Merger.

However, the determination of the Section 7874 ownership percentage is complex and is subject to factual and legal uncertainties. Thus, there can be no assurance that the IRS will agree with the position that we should not be treated as a U.S. corporation for U.S. federal tax purposes or that Section 7874 does not otherwise apply as a result of the Merger.

Regardless of any application of Section 7874, we are treated as an Irish tax resident for Irish tax purposes. Consequently, if we were to be treated as a U.S. corporation for U.S. federal tax purposes under Section 7874, we could be liable for both U.S. and Irish taxes, which could have a material adverse effect on our financial condition and results of operations.

Future potential changes to the tax laws could adversely affect us and our U.S. affiliates (including the U.S. affiliates historically owned by Tyco).

Legislative and regulatory action may be taken in the U.S., which, if ultimately enacted, could override tax treaties upon which we rely, or broaden the circumstances under which we would be considered a U.S. resident, each of which could materially and adversely affect our effective tax rate. We cannot predict the outcome of any specific legislative or regulatory proposals and such changes could have a prospective or retroactive application. However, if proposals were enacted that had the effect of disregarding the incorporation in Ireland or limiting Johnson Controls International plc’s ability, as an Irish company, to take advantage of tax treaties with the U.S., we could be subject to increased taxation, potentially significant expense, and/or other adverse tax consequences. Additionally, the U.S. Congress, government agencies in jurisdictions where we and our affiliates do business, and the Organization for Economic Co-operation and Development have focused on issues related to the taxation of multinational corporations, such as base erosion and profit shifting. It is possible that jurisdictions in which we do business could react to such developments or their own concerns by enacting tax legislation that could adversely affect us or our affiliates. There is uncertainty regarding the tax policies of the jurisdictions where we operate, and if changes are enacted, there could be a resulting increase in our effective tax rate. Additionally, the tax laws of Ireland and other jurisdictions could change in the future, and such changes could cause a material increase in our effective tax rate.

Changes to the U.S. model income tax treaty could adversely affect us.

On February 17, 2016, the U.S. Treasury released a revised U.S. model income tax convention (the "new model"), which is the baseline text used by the U.S. Treasury to negotiate tax treaties. If any or all of the modifications to the model treaty are adopted in the main jurisdictions in which we do business, they could, among other things, cause double taxation, increase audit risk and substantially increase our worldwide tax liability. We cannot predict the outcome of any specific modifications to the model treaty, and we cannot provide assurance that any such modifications will not apply to us.

Negative or unexpected tax consequences could adversely affect our results of operations.

Adverse changes in the underlying profitability and financial outlook of our operations in several jurisdictions could lead to additional changes in our valuation allowances against deferred tax assets and other tax reserves on our statement of financial position, and the future sale of certain businesses could potentially result in the reversal of outside basis differences that could adversely affect our results of operations and cash flows. Additionally, changes in tax laws in the U.S., Ireland or in other countries where we have significant operations could materially affect deferred tax assets and liabilities on our consolidated statements of financial position and our income tax provision in our consolidated statements of income.

We are also subject to tax audits by governmental authorities. Negative unexpected results from one or more such tax audits could adversely affect our results of operations.

<u>Risks Relating to Our Jurisdiction of Incorporation</u>

Irish law differs from the laws in effect in the U.S. and may afford less protection to holders of our securities.

It may not be possible to enforce court judgments obtained in the U.S. against us in Ireland based on the civil liability provisions of the U.S. federal or state securities laws. In addition, there is some uncertainty as to whether the courts of Ireland would recognize or enforce judgments of U.S. courts obtained against us or our directors or officers based on the civil liabilities provisions of the U.S. federal or state securities laws or hear actions against us or those persons based on those laws. We have been advised that the U.S. currently does not have a treaty with Ireland providing for the reciprocal recognition and enforcement of judgments in civil and commercial matters. Therefore, a final judgment for the payment of money rendered by any U.S. federal or state court based on civil liability, whether or not based solely on U.S. federal or state securities laws, would not automatically be enforceable in Ireland.

A judgment obtained against us will be enforced by the courts of Ireland if the following general requirements are met:

- U.S. courts must have had jurisdiction in relation to the particular defendant according to Irish conflict of law rules (the submission to jurisdiction by the defendant would satisfy this rule); and
- the judgment must be final and conclusive and the decree must be final and unalterable in the court which pronounces it.

A judgment can be final and conclusive even if it is subject to appeal or even if an appeal is pending. But where the effect of lodging an appeal under the applicable law is to stay execution of the judgment, it is possible that in the meantime the judgment may not be actionable in Ireland. It remains to be determined whether final judgment given in default of appearance is final and conclusive. Irish courts may also refuse to enforce a judgment of the U.S. courts which meets the above requirements for one of the following reasons:

- the judgment is not for a definite sum of money;
- the judgment was obtained by fraud;
- the enforcement of the judgment in Ireland would be contrary to natural or constitutional justice;
- the judgment is contrary to Irish public policy or involves certain U.S. laws which will not be enforced in Ireland; or
- jurisdiction cannot be obtained by the Irish courts over the judgment debtors in the enforcement proceedings by personal service Ireland or outside Ireland under Order 11 of the Irish Superior Courts Rules.

As an Irish company, Johnson Controls is governed by the Irish Companies Acts, which differ in some material respects from laws generally applicable to U.S. corporations and shareholders, including, among others, differences relating to interested director and officer transactions and shareholder lawsuits. Likewise, the duties of directors and officers of an Irish company generally are owed to the company only. Shareholders of Irish companies generally do not have a personal right of action against directors or officers of the company and may exercise such rights of action on behalf of the company only in limited circumstances. Accordingly, holders of Johnson Controls International plc securities may have more difficulty protecting their interests than would holders of securities of a corporation incorporated in a jurisdiction of the U.S.

Transfers of Johnson Controls ordinary shares may be subject to Irish stamp duty.

For the majority of transfers of Johnson Controls ordinary shares, there is no Irish stamp duty. However, Irish stamp duty is payable for certain share transfers. A transfer of Johnson Controls ordinary shares from a seller who holds shares beneficially (i.e. through the Depository Trust Company ("DTC")) to a buyer who holds the acquired shares beneficially is not subject to Irish stamp duty (unless the transfer involves a change in the nominee that is the record holder of the transferred shares). A transfer of Johnson Controls ordinary shares by a seller who holds shares directly (i.e. not through DTC) to any buyer, or by a seller who holds the shares beneficially to a buyer who holds the acquired shares directly, may be subject to Irish stamp duty (currently at the rate of 1% of the price paid or the market value of the shares acquired, if higher) payable by the buyer. A shareholder who directly holds shares may transfer those shares into his or her own broker account to be held through DTC without giving rise to Irish stamp duty provided that the shareholder has confirmed to Johnson Controls transfer agent that there is no change in the ultimate beneficial ownership of the shares as a result of the transfer and, at the time of the transfer, there is no agreement in place for a sale of the shares.

We currently intend to pay, or cause one of our affiliates to pay, stamp duty in connection with share transfers made in the ordinary course of trading by a seller who holds shares directly to a buyer who holds the acquired shares beneficially. In other cases, Johnson Controls may, in its absolute discretion, pay or cause one of its affiliates to pay any stamp duty. Johnson Controls Memorandum and Articles of Association provide that, in the event of any such payment, Johnson Controls (i) may seek reimbursement from the buyer, (ii) may have a lien against the Johnson Controls ordinary shares acquired by such buyer and any dividends paid on such shares and (iii) may set-off the amount of the stamp duty against future dividends on such shares. Parties to a share transfer may assume that any stamp duty arising in respect of a transaction in Johnson Controls ordinary shares has been paid unless one or both of such parties is otherwise notified by Johnson Controls.

Dividends paid by us may be subject to Irish dividend withholding tax.

In certain circumstances, as an Irish tax resident company, we will be required to deduct Irish dividend withholding tax (currently at the rate of 20%) from dividends paid to our shareholders. Shareholders that are residents in the U.S., European Union countries (other than Ireland) or other countries with which Ireland has signed a tax treaty (whether the treaty has been ratified or not) generally should not be subject to Irish withholding tax so long as the shareholder has provided its broker, for onward transmission to our qualifying intermediary or other designated agent (in the case of shares held beneficially), or us or our transfer agent (in the case of shares held directly), with all the necessary documentation by the appropriate due date prior to payment of the dividend. However, some shareholders may be subject to withholding tax, which could adversely affect the price of our ordinary shares.

Dividends received by you could be subject to Irish income tax.

Dividends paid in respect of Johnson Controls ordinary shares generally are not subject to Irish income tax where the beneficial owner of these dividends is exempt from dividend withholding tax, unless the beneficial owner of the dividend has some connection with Ireland other than his or her shareholding in Johnson Controls.

Johnson Controls shareholders who receive their dividends subject to Irish dividend withholding tax generally will have no further liability to Irish income tax on the dividend unless the beneficial owner of the dividend has some connection with Ireland other than his or her shareholding in Johnson Controls.

General Risk Factors

General economic, political, credit and capital market conditions could adversely affect our financial performance, our ability to grow or sustain our businesses and our ability to access the capital markets.

We compete around the world in various geographic regions and product markets. Global economic and political conditions affect each of our primary businesses and the businesses of our customers and suppliers. Any future financial distress or disruption in the industries and/or markets where we compete could negatively affect our revenues and financial performance in future periods, result in future restructuring charges, and adversely impact our ability to grow or sustain our businesses. Further, negative economic conditions as a result of the COVID-19 pandemic in one or more countries or regions in which we operate could require changes to funding certain of our strategic growth investments.

The capital and credit markets provide us with liquidity to operate and grow our businesses beyond the liquidity that operating cash flows provide. A worldwide economic downturn and/or disruption of the credit markets, including the economic downturn and capital market volatility caused by the COVID-19 pandemic, could reduce our access to capital necessary for our operations and executing our strategic plan. If our access to capital were to become significantly constrained, or if costs of capital increased significantly due to lowered credit ratings, prevailing industry conditions, the volatility of the capital markets or other factors; then our financial condition, results of operations and cash flows could be adversely affected.

If we are unable to adequately react to negative economic impacts that decrease demand for our products and services and/or negative movements in capital markets our results of operations, financial condition or liquidity could be adversely affected.

The potential insolvency or financial distress of third parties could adversely impact our business and results of operations.

We are exposed to the risk that third parties to various arrangements who owe us money or goods and services, or who purchase goods and services from us, will not be able to perform their obligations or continue to place orders due to insolvency or financial distress. Notably, the global COVID-19 pandemic has created heightened risk that third parties may be unable to perform their obligations or suffer financial distress due to the global economic impact of the pandemic and the regulatory measures that have been enacted by governments to contain the spread of the virus, however, we are unable predict the impact that COVID-19 will have on any of our customers, suppliers, vendors, and other business partners, and each of their financial conditions or their ability to perform their obligations. If third parties fail to perform their obligations under arrangements with us, we may be forced to replace the underlying commitment at current or above market prices or on other terms that are less favorable to us. In such events, we may incur losses, or our results of operations, financial condition or liquidity could otherwise be adversely affected.

Legal proceedings in which we are, or may be, a party may adversely affect us.

We are currently, and may in the future, become subject to legal proceedings and commercial or contractual disputes. These are typically claims that arise in the normal course of business including, without limitation, commercial or contractual disputes with our suppliers or customers, intellectual property matters, third party liability, including product liability claims, and employment claims.

Our business success depends on attracting and retaining qualified personnel.

Our ability to sustain and grow our business requires us to hire, retain and develop a highly skilled and diverse management team and workforce. Failure to ensure that we have the leadership capacity with the necessary skill set and experience could impede our ability to deliver our growth objectives, execute our strategic plan and effectively transition our leadership. Organizational and reporting changes resulting from any future leadership transition or corporate initiatives could result in increased turnover. Additionally, any unplanned turnover or inability to attract and retain key employees could have a negative effect on our results of operations.

Volatility in commodity prices may adversely affect our results of operations.

Increases in commodity costs can negatively impact the profitability of orders in backlog as prices on such orders are typically fixed; therefore, in the short-term, our ability to adjust for changes in certain commodity prices is limited. In these cases, if we are not able to recover commodity cost increases through price increases to our customers on new orders, then such increases will have an adverse effect on our results of operations. In cases where commodity price risk cannot be naturally offset or hedged through supply based fixed-price contracts, we use commodity hedge contracts to minimize overall price risk associated with our anticipated commodity purchases. Unfavorability in our hedging programs during a period of declining commodity prices could result in lower margins as we reduce prices to match the market on a fixed commodity cost level. Additionally, to the extent we do not or are unable to hedge certain commodities and the commodity prices substantially increase, such increases will have an adverse effect on our results of operations.

Risks related to our defined benefit retirement plans may adversely impact our results of operations and cash flow.

Significant changes in actual investment return on defined benefit plan assets, discount rates, mortality assumptions and other factors could adversely affect our results of operations and the amounts of contributions we must make to our defined benefit plans in future periods. Because we mark-to-market our defined benefit plan assets and liabilities on an annual basis, large non-cash gains or losses could be recorded in the fourth quarter of each fiscal year or when a remeasurement event occurs. Generally accepted accounting principles in the U.S. require that we calculate income or expense for the plans using actuarial valuations. These valuations reflect assumptions about financial markets and interest rates, which may change based on economic conditions. Funding requirements for our defined benefit plans are dependent upon, among other factors, interest rates, underlying asset returns and the impact of legislative or regulatory changes related to defined benefit funding obligations. For a discussion regarding the significant assumptions used to determine net periodic benefit cost, refer to "Critical Accounting Estimates and Policies" included in Item 7, "Management’s Discussion and Analysis of Financial Condition and Results of Operations."

A downgrade in the ratings of our debt could restrict our ability to access the debt capital markets and increase our interest costs.

Unfavorable changes in the ratings that rating agencies assign to our debt may ultimately negatively impact our access to the debt capital markets and increase the costs we incur to borrow funds. If ratings for our debt fall below investment grade, our access to the debt capital markets would become restricted and the price we pay to issue debt could increase. Historically, we have relied on our ability to issue commercial paper rather than to draw on our credit facility to support our daily operations, which means that a downgrade in our ratings or volatility in the financial markets causing limitations to the debt capital markets could have an adverse effect on our business or our ability to meet our liquidity needs.

Additionally, several of our credit agreements generally include an increase in interest rates if the ratings for our debt are downgraded. Further, an increase in the level of our indebtedness may increase our vulnerability to adverse general economic and industry conditions and may affect our ability to obtain additional financing.

A variety of other factors could adversely affect the results of operations of our business.

Any of the following could materially and adversely impact the results of operations of our business: loss of, changes in, or failure to perform under guaranteed performance contracts with our major customers; cancellation of, or significant delays in, projects in our backlog; delays or difficulties in new product development; our ability to recognize the expected benefits of our restructuring actions, financial instability or market declines of our major component suppliers; the unavailability of raw materials (primarily steel, copper and electronic components) necessary for production of our products; price increases of limited-source components, products and services that we are unable to pass on to the market; unseasonable weather conditions in various parts of the world; changes in energy costs or governmental regulations that would decrease the incentive for customers to update or improve their building control systems; and natural or man-made disasters or losses that impact our ability to deliver products and services to our customers.

ITEM 1B UNRESOLVED STAFF COMMENTS

The Company has no unresolved written comments regarding its periodic or current reports from the staff of the SEC.

ITEM 2 PROPERTIES

The Company has properties in approximately 65 countries throughout the world, with its world headquarters located in Cork, Ireland and its North American operational headquarters located in Milwaukee, Wisconsin USA. The Company's wholly- and majority-owned facilities primarily consist of manufacturing, sales and service offices, research and development facilities, monitoring centers, and assembly and/or warehouse centers. At September 30, 2020, these properties totaled approximately 44 million square feet of floor space of which 18 million square feet are owned and 26 million square feet are leased. The Company considers its facilities to be suitable for their current uses and adequate for current needs. The majority of the facilities are operating at normal levels based on capacity. The Company does not anticipate difficulty in renewing existing leases as they expire or in finding alternative facilities.

ITEM 3 LEGAL PROCEEDINGS

Gumm v. Molinaroli, et al.

On August 16, 2016, a putative class action lawsuit, Gumm v. Molinaroli, et al., Case No. 16-cv-1093, was filed in the United States District Court for the Eastern District of Wisconsin, naming Johnson Controls, Inc., the individual members of its board of directors at the time of the merger with the Company's merger subsidiary and certain of its officers, the Company and the Company's merger subsidiary as defendants. The complaint asserted various causes of action under the federal securities laws, state law and the Taxpayer Bill of Rights, including that the individual defendants allegedly breached their fiduciary duties and unjustly enriched themselves by structuring the merger among the Company, Tyco and the merger subsidiary in a manner that would result in a United States federal income tax realization event for the putative class of certain Johnson Controls, Inc. shareholders and allegedly result in certain benefits to the defendants, as well as related claims regarding alleged misstatements in the proxy statement/prospectus distributed to the Johnson Controls, Inc. shareholders, conversion and breach of contract. The complaint also asserted that Johnson Controls, Inc., the Company and the Company's merger subsidiary aided and abetted the individual defendants in their breach of fiduciary duties and unjust enrichment. The complaint seeks, among other things, disgorgement of profits and damages. On September 30, 2016, approximately one month after the closing of the merger, plaintiffs filed a preliminary injunction motion seeking, among other items, to compel Johnson Controls, Inc. to make certain intercompany payments that plaintiffs contend will impact the United States federal income tax consequences of the merger to the putative class of certain Johnson Controls, Inc. shareholders and to enjoin Johnson Controls, Inc. from reporting to the Internal Revenue Service the capital gains taxes payable by this putative class as a result of the closing of the merger. The court held a hearing on the preliminary injunction motion on January 4, 2017, and on January 25, 2017, the judge denied the plaintiffs' motion. Plaintiffs filed an amended complaint on February 15, 2017, and the Company filed a motion to dismiss on April 3, 2017. On October 17, 2019, the court heard oral arguments on the motion to dismiss and took the matter under advisement. Although the Company believes it has substantial defenses to plaintiffs' claims, it is not able to predict the outcome of this action.

Refer to Note 22, "Commitments and Contingencies," of the notes to consolidated financial statements for discussion of environmental, asbestos, insurable liabilities and other litigation matters, which is incorporated by reference herein and is considered an integral part of Part I, Item 3, "Legal Proceedings."

ITEM 4 MINE SAFETY DISCLOSURES

Not applicable.

EXECUTIVE OFFICERS OF THE REGISTRANT

Pursuant to General Instruction G(3) of Form 10-K, the following list of executive officers of the Company as of November 16, 2020 is included as an unnumbered Item in Part I of this report in lieu of being included in the Company's Proxy Statement relating to the annual general meeting of shareholders to be held on March 10, 2021.

Tomas Brannemo, 49, has served as Vice President and President, Building Solutions, Europe, Middle East, Africa and Latin America since September 2019. He previously served as Senior Vice President and President, Water Infrastructure and Europe Commercial Team of Xylem Inc., a leading global water technology company. At Xylem, he also served as Senior Vice President and President, Transport and Treatment, from 2017 to 2019 and other roles from 2010 to 2017. Between 2006 and 2010, he held various marketing, sales and engineering positions at Volvo Construction Company.

John Donofrio, 58, has served as Executive Vice President and General Counsel of the Company since November 15, 2017. He previously served as Vice President, General Counsel and Secretary of Mars, Incorporated, a global food manufacturer from October 2013 to November 2017. Before joining Mars in October 2013, Mr. Donofrio was Executive Vice President, General Counsel and Secretary for The Shaw Group Inc., a global engineering and construction company, from October 2009 until February 2013. Prior to joining Shaw, Mr. Donofrio was Senior Vice President, General Counsel and Chief Compliance Officer at Visteon Corporation, a global automotive supplier, a position he held from 2005 until October 2009. Mr. Donofrio has been a Director of FARO Technologies, Inc., a designer, developer, manufacturer and marketer of software driven, 3D measurement, imaging and realization systems, since 2008.

Michael J. Ellis, 64, has served as Executive Vice President and Chief Customer & Digital Officer since October 2019. From May 2018 to October 2019, he served as a Managing Director at Accenture, a global provider of professional services in strategy, consulting, digital, technology and operations. He previously served as Chairman and CEO of ForgeRock, a global digital security software company, from 2012 to 2018. Prior to joining ForgeRock, from 2008 to 2012, he held various senior executive roles at SAP SE, a global provider of enterprise software solutions. Previously, he also served as Chief Executive Officer of Univa, a leading innovator in enterprise-grade workload management and optimization solutions, and as Senior Vice President Business Development at i2 Technologies, a provider of supply chain solutions.

Visal Leng, 50, has served as Vice President and President, Building Solutions, Asia Pacific since September 2018. He previously served as President Asia Pacific of Baker Hughes, the world's first and only full stream provider of integrated oilfield products, services and digital solutions, from July 2017 to September 2018. Prior to the merger of Baker Hughes with General Electric in 2017, he held a number of roles with increasing responsibility in General Electric from his hire in November 1996, including President of its Asia Pacific oil and gas operations from January 2014 to July 2017; and Asia Pacific Regional General Manager from October 2011 to December 2013.

Olivier Leonetti, 55, was elected Executive Vice President and Chief Financial Officer-Elect in September 2020 and will assume the role of Chief Financial Officer and Principal Financial Officer on the date immediately following the filing of this Annual Report on Form 10-K. Prior to joining Johnson Controls, Mr. Leonetti served as the Senior Vice President and Chief Financial Officer of Zebra Technologies, a provider of enterprise-level data capture and automatic identification solutions, a position he had held since November 2016. Prior to joining Zebra, Mr. Leonetti was the Executive Vice

President and Chief Financial Officer of Western Digital, a provider of data infrastructure solutions from 2014 to 2016. Prior to joining Western Digital, Mr. Leonetti served as Vice President of Finance – Global Commercial Organization at Amgen, Inc. from 2011 to 2014. From 1997 to 2011, Mr. Leonetti served in various senior finance positions with increasing responsibility at Dell Inc., including most recently as Vice President of Finance. Prior to joining Dell Inc., Mr. Leonetti served in various worldwide finance capacities with Lex Rac Service plc and the Gillette Company. Mr. Leonetti also serves as a director on the board of Eaton Corporation plc, a provider of power management technologies and services.

Nathan Manning, 44, was elected Vice President and President, Building Solutions, North America in October 2020. He previously served as Vice President and General Manager, Field Operations, from March 2020 to October 2020 and Vice President and General Manager, HVAC and Controls Building Solutions North America, from January 2019 to March 2020. Prior to joining Johnson Controls, he served in various roles at General Electric, a diversified industrial and technology company, where he held the position of General Manager, Operational Excellence for General Electric's GE Power segment from August 2017 until December 2018 and the position of General Manager, Services of GE Energy Connections, a division of GE Power, from November 2015 until August 2017. Prior to joining General Electric, Mr. Manning served as Vice President, General Manager of Eaton Aerospace, a segment of Eaton Corporation plc, a provider of power management technologies and services, from February 2014 until November 2015. Prior to joining Eaton, Mr. Manning served in a number of roles with increasing responsibility in General Electric from his hire in January 2000, including as President and Chief Executive Officer of Aviage Systems, a joint venture between General Electric and Aviation Industry Corporation of China, from July 2012 until February 2014.

Lynn Minella, 62, has served as Executive Vice President and Chief Human Resources Officer since June 2017. Prior to joining Johnson Controls, she served as Group Human Resources Director at BAE Systems Plc from June 2012 to June 2017. Prior to BAE Systems, she was with Air Products and Chemicals, Inc. from 2004 until 2012 where she was the Senior Vice President of Human Resources and Communications. Earlier in her career she also held a variety of human resources roles of increasing responsibility at International Business Machines Corporation.

George R. Oliver, 61, has served as Chief Executive Officer and Chairman of the Board since September 2017. He previously served as our President and Chief Operating Officer following the completion of the merger of Johnson Controls and Tyco in September 2016. Prior to that, Mr. Oliver was Tyco's Chief Executive Officer, a position he held since September 2012. He joined Tyco in July 2006, and served as President of a number of operating segments from 2007 through 2011. Before joining Tyco, he served in operational leadership roles of increasing responsibility at several General Electric divisions. Mr. Oliver also serves as a Director on the board of Raytheon Technologies, an aerospace and defense company.

Ganesh Ramaswamy, 52, has served as Vice President and President, Global Services for Johnson Controls since December 2019. From 2015 to 2019, Mr. Ramaswamy served in various executive leadership roles at Danaher Corporation, a diversified manufacturer of life sciences, diagnostics, and industrial products and services, including Senior Vice President, High Growth markets—Beckman Coulter, President, Videojet Technologies, and, most recently, as Danaher Vice President & Group Executive, Marking & Coding. From 2011 to 2015, Mr. Ramaswamy served in various executive roles at Pentax Medical, a provider of endoscopic imaging devices and solutions, including as President of Pentax Medical from 2013 to 2015. Earlier in his career, Mr. Ramaswamy served in various roles of increasing responsibility with the General Electric Company across product development, service operations, and general management.

Brian J. Stief, 64, has served as Vice Chairman and Chief Financial Officer since November 2019. He also serves as the Company's Principal Financial Officer. He was elected Executive Vice President and Chief Financial Officer following the completion of the Merger in September 2016 and served in that role until November 2019. Prior to the Merger, he was elected Executive Vice President and Chief Financial Officer of Johnson Controls, Inc. in September 2014. He previously served Johnson Controls, Inc. as Vice President and Corporate Controller from 2010 to 2014. Prior to joining Johnson Controls, Inc. in 2010, Mr. Stief was a partner with PricewaterhouseCoopers LLP (an audit and assurance, tax and consulting services provider), which he joined in 1979 and in which he became partner in 1989. As previously disclosed, Mr. Leonetti will succeed Mr. Stief as the Company's Chief Financial Officer and Principal Financial Officer on the date immediately following the filing of this Annual Report on Form 10-K.

Robert VanHimbergen, 44, has served as Vice President and Corporate Controller since December 2017. Mr. VanHimbergen joined Johnson Controls in 2007 as the Corporate Director of Global Accounting and has held various Corporate and Power Solutions positions of increasing responsibility. His most recent position was serving as the Chief

Financial Officer of Yanfeng Automotive Interiors, an Adient joint venture, formed in 2015. Mr. VanHimbergen began his career at PricewaterhouseCoopers in 1998.

Jeff M. Williams, 59, has served as Vice President and President, Global Products, Building Technologies and Solutions since July 2019. He previously served as Vice President and President, Building Solutions, Europe, Middle East, Africa and Latin America from March 2017 to July 2019. Prior thereto, he served as Vice President - Enterprise Operations - Engineering and Supply Chain from January 2015 through the Merger to March 2017. With respect to roles at Johnson Controls, Inc., he served as Vice President, Program Management Office from 2015 to 2016, as Group Vice President and General Manager Global Seating & Supply Chain from 2013 to 2014, and as Group Vice President and General Manager Customer Group Americas from 2010 to 2012. Mr. Williams joined Johnson Controls, Inc. in 1984.

There are no family relationships, as defined by the instructions to this item, among the Company's executive officers.

PART II

ITEM 5 MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

The shares of the Company's ordinary shares are traded on the New York Stock Exchange under the symbol "JCI."

Title of Class	Number of Record Holders as of October 31, 2020
Ordinary Shares, $0.01 par value	33,602

In March 2019, the Company's Board of Directors approved an $8.5 billion increase to its existing share repurchase authorization, subject to the completion of the previously announced sale of the Company's Power Solutions business, which closed on April 30, 2019. The share repurchase program does not have an expiration date and may be amended or terminated by the Board of Directors at any time without prior notice. During fiscal year 2020, the Company repurchased approximately $2.2 billion of its ordinary shares on an open market. As of September 30, 2020, approximately $2.4 billion remains available under the share repurchase program.

The following table presents information regarding the repurchase of the Company's ordinary shares by the Company as part of the publicly announced program during the three months ended September 30, 2020.

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of the Publicly Announced Program	Approximate Dollar Value of Shares that May Yet be Purchased under the Programs
7/1/20 - 7/31/20				
Purchases by Company	7,582,369	$ 35.74	7,582,369	$ 2,827,957,020
8/1/20 - 8/31/20				
Purchases by Company	4,606,669	39.62	4,606,669	2,645,430,057
9/1/20 - 9/30/20				
Purchases by Company	6,824,919	41.54	6,824,919	2,361,931,131

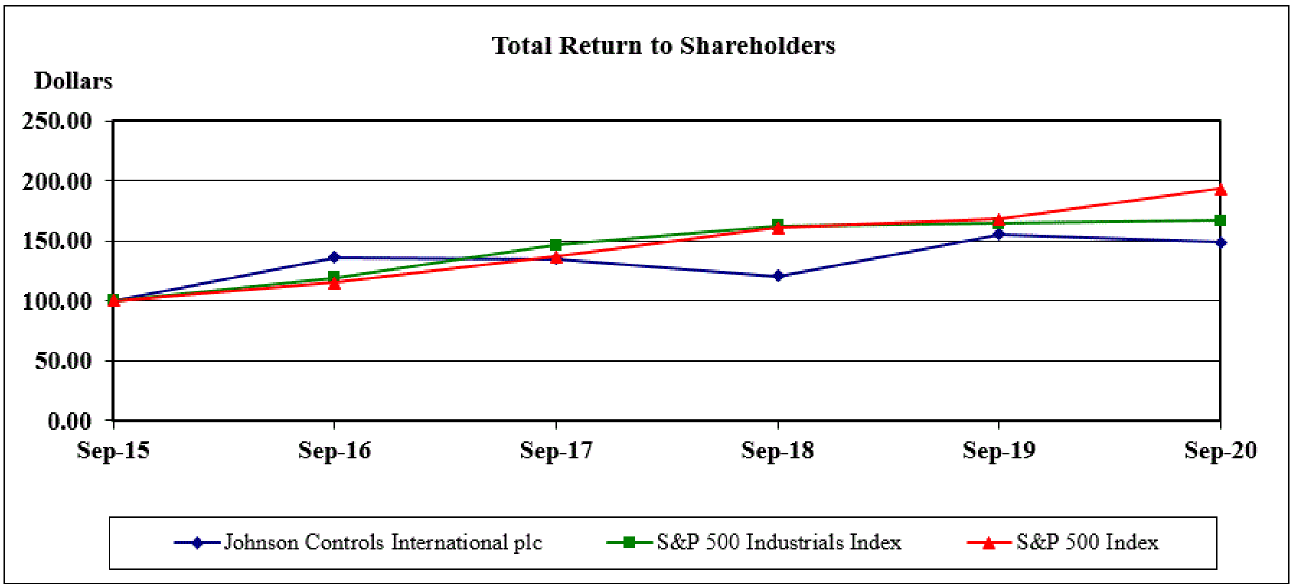
During the three months ended September 30, 2020, acquisitions of shares by the Company from certain employees in order to satisfy employee tax withholding requirements in connection with the vesting of restricted shares were not material.

Equity compensation plan information is incorporated by reference from Part III, Item 12, "Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters," of this document and should be considered an integral part of this Item 5.

The following information in Item 5 is not deemed to be "soliciting material" or to be "filed" with the SEC or subject to Regulation 14A or 14C under the Securities Exchange Act of 1934 ("Exchange Act") or to the liabilities of Section 18 of the Exchange Act, and will not be deemed to be incorporated by reference into any filing under the Securities Act of 1933 or the Exchange Act, except to the extent the Company specifically incorporates it by reference into such a filing.

The line graph below compares the cumulative total shareholder return on the Company's ordinary shares with the cumulative total return of companies on the Standard & Poor’s ("S&P’s") 500 Stock Index and the companies on the S&P 500 Industrials Index. This graph assumes the investment of $100 on September 30, 2015 and the reinvestment of all dividends since that date.

COMPANY/INDEX	Sep15	Sep16	Sep17	Sep18	Sep19	Sep20
Johnson Controls International plc	100.00	136.57	135.31	120.96	155.95	149.30
S&P 500 Industrials Index	100.00	119.70	146.45	162.79	164.99	167.12
S&P 500 Index	100.00	115.43	136.91	161.43	168.30	193.80



ITEM 6 SELECTED FINANCIAL DATA

The following selected financial data reflects the results of operations, financial position data and ordinary share information for the fiscal years ended September 30, 2016 through September 30, 2020 (dollars in millions, except per share data).

	Year ended September 30,				
	2020	2019	2018	2017	2016
OPERATING RESULTS					
Net sales	$ 22,317	$ 23,968	$ 23,400	$ 22,835	$ 14,184
Segment EBITA (1)	2,948	3,041	3,138	2,831	1,427
Income (loss) from continuing operations attributable to Johnson Controls (6)	631	1,100	1,175	672	(10)
Net income (loss) attributable to Johnson Controls	631	5,674	2,162	1,611	(868)
Earnings (loss) per share from continuing operations (6)					
Basic	$ 0.84	$ 1.26	$ 1.27	$ 0.72	$ (0.01)
Diluted	0.84	1.26	1.26	0.71	(0.01)
Return on average shareholders' equity attributable to Johnson Controls (2) (6)	3 %	5 %	6 %	3 %	— %
Capital expenditures	$ 443	$ 586	$ 645	$ 760	$ 491
Depreciation and amortization	822	825	824	919	382
Number of employees	97,000	104,000	122,000	121,000	209,000
FINANCIAL POSITION					
Working capital (as defined) (3)	$ 147	$ 975	$ 471	$ 449	$ (619)
Total assets	40,815	42,287	48,797	51,884	63,179
Long-term debt	7,526	6,708	9,623	11,885	10,966
Total debt	7,819	7,219	10,930	13,465	12,636
Shareholders' equity attributable to Johnson Controls	17,447	19,766	21,164	20,447	24,118
Total debt to capitalization (4)	31 %	27 %	34 %	40 %	34 %
Net book value per share (5)	$ 24.03	$ 25.42	$ 22.88	$ 22.03	$ 25.77
ORDINARY SHARE INFORMATION					
Dividends per share	$ 1.04	$ 1.04	$ 1.04	$ 1.00	$ 1.16
Market prices					
High	$ 44.82	$ 44.65	$ 42.60	$ 46.17	$ 48.97
Low	22.78	28.30	32.89	36.74	30.30
Weighted average shares (in millions)					
Basic	751.0	870.2	925.7	935.3	667.4
Diluted	753.6	874.3	931.7	944.6	672.6
Number of shareholders	33,776	35,367	37,836	40,260	41,299

(1) Segment earnings before interest, taxes and amortization ("EBITA") is calculated as income from continuing operations before income taxes and noncontrolling interests, excluding general corporate expenses, intangible asset amortization, net financing charges, restructuring and impairment costs, and net mark-to-market adjustments related to pension and postretirement plans and restricted asbestos investments. Refer to Note 19, "Segment Information," of the notes to consolidated financial statements for a reconciliation of segment EBITA to income from continuing operations before income taxes.

(2) Return on average shareholders' equity attributable to Johnson Controls represents income from continuing operations attributable to Johnson Controls divided by average shareholders' equity attributable to Johnson Controls.

(3) Working capital is defined as current assets less current liabilities, excluding cash, short-term debt, the current portion of long-term debt, and the current portions of assets and liabilities held for sale.

(4) Total debt to total capitalization represents total debt divided by the sum of total debt and shareholders' equity attributable to Johnson Controls.

(5) Net book value per share represents shareholders' equity attributable to Johnson Controls divided by the number of shares outstanding at the end of the period.

(6) Income (loss) from continuing operations attributable to Johnson Controls includes $783 million, $235 million, $255 million, $347 million and $222 million of significant restructuring and impairment costs in fiscal year 2020, 2019, 2018, 2017 and 2016, respectively. It also includes $274 million, $618 million, $(24) million, $(384) million and $341 million of net mark-to-market losses (gains) in fiscal year 2020, 2019, 2018, 2017 and 2016, respectively. The preceding amounts are stated on a pre-tax basis.

ITEM 7 MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

General

The Company engineers, manufactures and commissions building products and systems, including residential and commercial HVAC equipment, industrial refrigeration systems, controls, security systems, fire detection systems and fire suppression solutions. The Company further serves customers by providing technical services, including maintenance, repair, retrofit and replacement of equipment (in the HVAC, security and fire-protection space), energy-management consulting and data-driven "smart building" services and solutions powered by its digital platforms and capabilities.

This discussion summarizes the significant factors affecting the consolidated operating results, financial condition and liquidity of the Company for the fiscal year ended September 30, 2020. This discussion should be read in conjunction with Item 8, the consolidated financial statements and the notes to consolidated financial statements. A detailed discussion of the 2019 to 2018 year-over-year changes are not included herein and can be found in the Management's Discussion and Analysis section in the Company's 2019 Annual Report on Form 10-K filed November 21, 2019.

Impact of COVID-19 pandemic

The global outbreak of COVID-19 has severely restricted the level of economic activity around the world and has caused a significant contraction in the global economy. In response to this outbreak, the governments of many countries, states, cities and other geographic regions have taken preventative or protective actions, such as imposing restrictions on travel and business operations.

The Company's affiliates, employees, suppliers, customers and others have been and may continue to be restricted or prevented from conducting normal business activities, including as a result of shutdowns, travel restrictions and other actions that may be requested or mandated by governmental authorities. Such actions have and may in the future prevent the Company from accessing the facilities of its customers to deliver and install products, provide services and complete maintenance. In addition, some of the Company's customers have chosen to delay or abandon projects on which the Company provides products and/or services as a result of such actions. Although some governments have lifted shutdown orders and similar restrictions, a resurgence in the spread of COVID-19 could cause the reinstitution of such preventive or protective measures. While a substantial portion of the Company's businesses have been classified as an essential business in jurisdictions in which facility closures have been mandated, some of its facilities have nevertheless been ordered to close, and we can give no assurance that there will not be additional closures in the future or that our businesses will be classified as essential in each of the jurisdictions in which we operate.

In response to the challenges presented by COVID-19, the Company has focused its efforts on preserving the health and safety of its employees and customers, as well as maintaining the continuity of its operations. The Company has modified its business practices in response to the COVID-19 outbreak, including restricting non-essential employee travel, implementation of remote work protocols, and cancellation of physical participation in meetings, events and conferences. The Company has also instituted preventive measures at its facilities, including enhanced health and safety protocols, temperature screening, requiring face coverings for all employees and encouraging employees to follow similar protocols when away from work. The Company has adopted a multifaceted framework to guide its decision making when evaluating the readiness of its facilities to safely reopen and operate, and will continue to monitor and audit its facilities to ensure that they are in compliance with the Company's COVID-19 safety requirements.

In the second quarter of fiscal 2020, the Company experienced a temporary reduction of its manufacturing and operating capacity in China as a result of government-mandated actions to control the spread of COVID-19. In the third quarter of fiscal 2020, the Company experienced similar reductions as a result of government-mandated actions in India and Mexico. During the fourth quarter of fiscal 2020, the Company's facilities were generally able to operate at normal levels, though its manufacturing capacity in India continues to be reduced as a result of continued lockdowns in the region. The Company has experienced, and may continue to experience, disruptions or delays in its supply chain as a result of government-mandated actions, which has resulted in higher supply chain costs to the Company in order to maintain the supply of materials and components for its products.

In order to mitigate disruptions to its supply chain and manufacturing capacity, the Company took actions including redistributing its manufacturing capacity to facilities and regions unaffected by shutdown orders, accelerating the purchase and shipment of components from suppliers in identified hot spots, diversifying the Company's supplier base, conducting government outreach to support the Company's and its suppliers' designations as essential businesses, and expanded its existing supplier financing programs to support supplier viability and business continuity. While these actions have generally been successful in preserving the Company's supply chain and manufacturing capacity, the potential resurgence of COVID-19 in various jurisdictions could lead to further disruptions.

The Company experienced a decline in demand and volumes in its global businesses as a result of the impact of efforts to contain the spread of COVID-19. Specifically, the Company experienced lower demand due to restricted access to customer sites to perform service and installation work as well as reduced discretionary capital spending by the Company's customers. In response, the Company quickly moved to execute temporary and permanent cost mitigation actions to offset a portion of the impact of COVID-19 on the demand for its products and services, such as deferring or reducing capital expenditures, implementing cost structure changes, short-term furloughing of salaried employees and limiting discretionary spending including corporate expense. These measures were in addition to the Company's previously disclosed fiscal 2020 restructuring plan. Although the Company intends that the temporary cost mitigation actions initiated in fiscal 2020 will cease in fiscal 2021, the necessity of future cost mitigation actions will depend on the continued impact of COVID-19, which is highly uncertain.

The global pandemic has also provided the Company with the opportunity to help its customers prepare to re-open by delivering solutions and support that enhance the safety and increase the efficiency of their operations. The Company has seen an increase in demand for its products and solutions that promote building health and optimize customers' infrastructure, including thermal cameras, indoor air quality, location-based services for contact tracing and touchless access control.

During the second quarter of fiscal 2020, the Company determined that it had a triggering event requiring assessment of impairment for certain of its indefinite-lived intangible assets due to declines in revenue directly attributable to the COVID-19 pandemic. As a result, the Company recorded an impairment charge of $62 million related primarily to the Company's retail business indefinite-lived intangible assets within restructuring and impairment costs in the consolidated statements of income in the second quarter of fiscal 2020. During the third quarter of fiscal 2020, the Company determined that it had a triggering event requiring assessment of impairment for certain of its indefinite-lived intangible assets, long-lived assets and goodwill due to declines in revenue and further declines in forecasted cash flows in its North America Retail reporting unit directly attributable to the COVID-19 pandemic. As a result, the Company recorded an impairment charge of $424 million related to the Company's North America Retail reporting unit's goodwill within restructuring and impairment costs in the consolidated statements of income in the third quarter of fiscal 2020. There were no indefinite-lived intangibles or goodwill impairments resulting from the fiscal 2020 annual impairment tests performed in the fourth quarter of fiscal 2020. However, it is possible that future changes in such circumstances, including a more prolonged and/or severe COVID-19 pandemic, would require the Company to record additional non-cash impairment charges.

The Company continues to actively monitor its liquidity position and working capital needs. The Company believes that, following its implementation of liquidity and cost mitigation actions in fiscal 2020, it remains in a solid overall capital resources and liquidity position that is adequate to meet its projected needs. As a result, following a review of its liquidity position, the Company resumed its share repurchase program in July 2020, which had been suspended in March 2020. In September 2020, the Company issued $1.8 billion of senior notes. A portion of the proceeds, together with cash from operations, were used to repay short-term debt obligations incurred by the Company at the onset of the pandemic to preserve its near-term financial flexibility, as well as repay or redeem other near term-indebtedness.

The extent to which the COVID-19 outbreak continues to impact the Company's results of operations and financial condition will depend on future developments that are highly uncertain and cannot be predicted, including new information that may emerge concerning the severity and longevity of COVID-19, the resurgence of COVID-19 in regions that have begun to recover from the initial impact of the pandemic, the impact of COVID-19 on economic activity, and the actions to contain its impact on public health and the global economy. See Part I, Item 1A, Risk Factors, for an additional discussion of risks related to COVID-19.

FISCAL YEAR 2020 COMPARED TO FISCAL YEAR 2019

Net Sales

(in millions)	Year Ended September 30, 2020	2019	Change
Net sales	$ 22,317	$ 23,968	-7%

The decrease in net sales was due to lower organic sales ($1,543 million), the unfavorable impact of foreign currency translation ($150 million) and lower sales due to business divestitures ($11 million), partially offset by acquisitions ($53 million). Excluding the impact of foreign currency translation and business acquisitions and divestitures, consolidated net sales decreased 6% as compared to the prior year due to lower demand, primarily attributable to the COVID-19 pandemic. Refer to the "Segment Analysis" below within Item 7 for a discussion of net sales by segment.

Cost of Sales / Gross Profit

(in millions)	Year Ended September 30, 2020	2019	Change
Cost of sales	$ 14,906	$ 16,275	-8%
Gross profit	7,411	7,693	-4%
% of sales	33.2 %	32.1 %	

Cost of sales and gross profit both decreased and gross profit as a percentage of sales increased by 110 basis points. Gross profit decreased due to organic sales declines primarily due to the unfavorable impact of the COVID-19 pandemic, partially offset by cost mitigation actions. Net mark-to-market adjustments had a net favorable year-over-year impact on cost of sales of $40 million ($88 million loss in fiscal 2020 compared to a $128 million loss in fiscal 2019) primarily due to a more significant reduction in discount rates in the prior year. Foreign currency translation had a favorable impact on cost of sales of approximately $100 million. Refer to the "Segment Analysis" below within Item 7 for a discussion of segment earnings before interest, taxes and amortization ("EBITA") by segment.

Selling, General and Administrative Expenses

(in millions)	Year Ended September 30, 2020	2019	Change
Selling, general and administrative expenses	$ 5,665	$ 6,244	-9%
% of sales	25.4 %	26.1 %	

Selling, general and administrative expenses ("SG&A") decreased by $579 million, and SG&A as a percentage of sales decreased by 70 basis points. The decrease in SG&A included the favorable impact of cost mitigation actions and reductions in discretionary spend in the current year. The net mark-to-market adjustments had a net favorable year-over-year impact on SG&A of $304 million ($186 million loss in fiscal 2020 compared to a $490 million loss in fiscal 2019) primarily due to a more significant reduction in discount rates in the prior year. Additional favorable impacts included a prior year environmental charge ($140 million) and foreign currency translation ($30 million). These items were partially offset by a prior year tax indemnification reserve release ($226 million). Refer to the "Segment Analysis" below within Item 7 for a discussion of segment EBITA by segment.

Restructuring and Impairment Costs

(in millions)	Year Ended September 30, 2020	2019	Change
Restructuring and impairment costs	$ 783	$ 235	*

* Measure not meaningful

Refer to Note 7, "Goodwill and Other Intangible Assets," Note 16, "Significant Restructuring and Impairment Costs," and Note 17, "Impairment of Long-Lived Assets," of the notes to consolidated financial statements for further disclosure related to the Company's restructuring plans and impairment costs.

Net Financing Charges

(in millions)	Year Ended September 30, 2020	2019	Change
Net financing charges	$ 231	$ 350	-34%

Refer to Note 9, "Debt and Financing Arrangements," of the notes to consolidated financial statements for further disclosure related to the Company's net financing charges.

Equity Income

(in millions)	Year Ended September 30, 2020	2019	Change
Equity income	$ 171	$ 192	-11%

The decrease in equity income was primarily due to lower income at certain partially-owned affiliates of the Johnson Controls - Hitachi joint venture primarily due to the unfavorable impact of the COVID-19 pandemic. Foreign currency translation had an unfavorable impact on equity income of $3 million. Refer to the "Segment Analysis" below within Item 7 for a discussion of segment EBITA by segment.

Income Tax Provision

(in millions)	Year Ended September 30, 2020	2019	Change
Income tax provision (benefit)	$ 108	$ (233)	*
Effective tax rate	12%	-22%	

* Measure not meaningful

The statutory tax rate in Ireland of 12.5% is being used as a comparison since the Company is domiciled in Ireland.

For fiscal 2020, the effective tax rate for continuing operations was 12% and was lower than the statutory tax rate primarily due to tax audit reserve adjustments, the income tax effects of mark-to-market adjustments, valuation allowance adjustments and the benefits of continuing global tax planning initiatives, partially offset by a discrete tax charge related to the remeasurement of deferred tax assets and liabilities as a result of Swiss tax reform, the tax impact of an impairment charge and tax rate differentials.

For fiscal 2019, the effective rate for continuing operations was below the statutory rate primarily due to tax audit reserve adjustments, the income tax effects of mark-to-market adjustments, a tax indemnification reserve release, the tax benefits of an asset held for sale impairment charge and continuing global tax planning initiatives, partially offset by valuation allowance adjustments as a result of tax law changes, a discrete tax charge related to newly enacted regulations related to U.S. Tax Reform and tax rate differentials.

The fiscal 2020 effective tax rate increased as compared to fiscal 2019 primarily due to the discrete tax items. The fiscal year 2020 and 2019 global tax planning initiatives related primarily to changes in entity tax status, global financing structures and alignment of the Company's global business functions in a tax efficient manner. Refer to Note 18, "Income Taxes," of the notes to consolidated financial statements for further details.

Income From Discontinued Operations, Net of Tax

	Year Ended September 30,		
(in millions)	2020	2019	Change
Income from discontinued operations, net of tax	$ —	$ 4,598	*

* Measure not meaningful

Refer to Note 3, "Discontinued Operations," of the notes to consolidated financial statements for further information.

Income Attributable to Noncontrolling Interests

	Year Ended September 30,		
(in millions)	2020	2019	Change
Income from continuing operations attributable to noncontrolling interests	$ 164	$ 189	-13%
Income from discontinued operations attributable to noncontrolling interests	—	24	*

* Measure not meaningful

The decrease in income from continuing operations attributable to noncontrolling interests was primarily due to lower net income primarily due to the COVID-19 pandemic at certain partially-owned affiliates within the Global Products segment.

Refer to Note 3, "Discontinued Operations," of the notes to consolidated financial statements for further information regarding the Company's discontinued operations.

Net Income Attributable to Johnson Controls

	Year Ended September 30,		
(in millions)	2020	2019	Change
Net income attributable to Johnson Controls	$ 631	$ 5,674	-89%

The decrease in net income attributable to Johnson Controls was primarily due to the prior year income from discontinued operations, higher restructuring and impairment charges, higher income tax provision and the unfavorable impact of the COVID-19 pandemic, partially offset by lower SG&A and net financing charges. Fiscal 2020 diluted earnings per share attributable to Johnson Controls was $0.84 compared to $6.49 in fiscal 2019.

Comprehensive Income Attributable to Johnson Controls

	Year Ended September 30,		
(in millions)	2020	2019	Change
Comprehensive income attributable to Johnson Controls	$ 650	$ 5,350	-88%

The decrease in comprehensive income attributable to Johnson Controls was due to lower net income attributable to Johnson Controls ($5,043 million), partially offset by an increase in other comprehensive income attributable to Johnson Controls ($343 million) resulting primarily from foreign currency translation adjustments. The favorable foreign currency translation adjustments were primarily driven by weakening of the British pound and euro currencies against the U.S. dollar in the prior year.

SEGMENT ANALYSIS

Management evaluates the performance of its business units based primarily on segment EBITA, which represents income from continuing operations before income taxes and noncontrolling interests, excluding general corporate expenses, intangible asset amortization, net financing charges, restructuring and impairment costs, and net mark-to-market adjustments related to pension and postretirement plans and restricted asbestos investments.

	Net Sales for the Year Ended September 30,			Segment EBITA for the Year Ended September 30,		
(in millions)	2020	2019	Change	2020	2019	Change
Building Solutions North America	$ 8,605	$ 9,031	-5%	$ 1,157	$ 1,153	—%
Building Solutions EMEA/LA	3,440	3,655	-6%	338	368	-8%
Building Solutions Asia Pacific	2,403	2,658	-10%	319	341	-6%
Global Products	7,869	8,624	-9%	1,134	1,179	-4%
	$ 22,317	$ 23,968	-7%	$ 2,948	$ 3,041	-3%

Net Sales:

- The decrease in Building Solutions North America was due to lower volumes ($414 million) and the unfavorable impact of foreign currency translation ($12 million). The decrease in volumes was primarily attributable to the unfavorable impact of the COVID-19 pandemic.

- The decrease in Building Solutions EMEA/LA was primarily attributable to lower volumes ($151 million), the unfavorable impact of foreign currency translation ($96 million) and business divestitures ($6 million), partially offset by incremental sales related to business acquisitions ($38 million). The decrease in volumes was primarily attributable to the unfavorable impact of the COVID-19 pandemic.

- The decrease in Building Solutions Asia Pacific was due to lower volumes ($232 million) and the unfavorable impact of foreign currency translation ($31 million), partially offset by incremental sales related to a business acquisition ($8 million). The decrease in volumes was primarily attributable to the unfavorable impact of the COVID-19 pandemic.

- The decrease in Global Products was due to lower volumes ($746 million), the unfavorable impact of foreign currency translation ($11 million) and lower volumes related to business divestitures ($5 million), partially offset by incremental sales related to business acquisitions ($7 million). The decrease in volumes was primarily attributable to the unfavorable impact of the COVID-19 pandemic.

Segment EBITA:

- The increase in Building Solutions North America was due to prior year integration costs ($26 million), partially offset by current year integration costs ($11 million), unfavorable volumes, net of productivity savings and cost mitigation actions ($10 million), and the unfavorable impact of foreign currency translation ($1 million).

- The decrease in Building Solutions EMEA/LA was due to the unfavorable impact of foreign currency translation ($17 million), unfavorable volumes, net of productivity savings and cost mitigation actions ($14 million), lower equity income ($7 million), current year integration costs ($2 million) and lower income due to business divestitures ($1 million), partially offset by higher income due to business acquisitions ($7 million) and prior year integration costs ($4 million).

- The decrease in Building Solutions Asia Pacific was due to unfavorable volumes, net of productivity savings and cost mitigation actions ($18 million), and current year integration costs ($7 million), partially offset by prior year integration costs ($2 million) and higher income due to business acquisitions ($1 million).

- The decrease in Global Products was due to unfavorable volumes, net of favorable price/cost, productivity savings and cost mitigation actions ($143 million), a compensation charge related to a noncontrolling interest acquisition ($39 million), current year integration costs ($13 million), lower equity income driven primarily by the unfavorable impact of COVID-19 ($12 million), the unfavorable impact of foreign currency translation ($5 million), lower income due to business acquisitions ($2 million) and lower income due to business divestitures ($1 million), partially offset by a prior year environmental charge ($140 million) and prior year integration costs ($30 million).

LIQUIDITY AND CAPITAL RESOURCES

Working Capital

(in millions)	September 30, 2020	September 30, 2019	Change
Current assets	$ 10,053	$ 12,393	
Current liabilities	(8,248)	(9,070)	
	1,805	3,323	-46%
Less: Cash	(1,951)	(2,805)	
Add: Short-term debt	31	10	
Add: Current portion of long-term debt	262	501	
Less: Assets held for sale	—	(98)	
Add: Liabilities held for sale	—	44	
Working capital (as defined)	$ 147	$ 975	-85%
Accounts receivable	$ 5,294	$ 5,770	-8%
Inventories	1,773	1,814	-2%
Accounts payable	3,120	3,582	-13%

- The Company defines working capital as current assets less current liabilities, excluding cash, short-term debt, the current portion of long-term debt, and the current portions of assets and liabilities held for sale. Management believes that this measure of working capital, which excludes financing-related items and businesses to be divested, provides a more useful measurement of the Company's operating performance.

- The decrease in working capital at September 30, 2020 as compared to September 30, 2019, was primarily due to lower income tax assets, a decrease in accounts receivable, and the establishment of an operating lease liability on the balance sheet in the first quarter of fiscal 2020 as a result of the adoption of Accounting Standards Codification ("ASC") 842, partially offset by a decrease in accounts payable due to lower spending and a decrease in accrued compensation and benefits liabilities.

- The Company's days sales in accounts receivable at September 30, 2020 were 63, a decrease from 67 at September 30, 2019. There has been no significant adverse change in the level of overdue receivables or significant changes in revenue recognition methods.

- The Company's inventory turns for the year ended September 30, 2020 were higher than the comparable period ended September 30, 2019 primarily due to changes in inventory production levels.

- Days in accounts payable at September 30, 2020 were 69 days, a decrease from 72 days for the comparable period ended September 30, 2019.

Cash Flows From Continuing Operations

	Year Ended September 30,	
(in millions)	2020	2019
Cash provided by operating activities	$ 2,479	$ 1,743
Cash used by investing activities	(258)	(533)
Cash used by financing activities	(2,824)	(10,519)

- The increase in cash provided by operating activities was primarily due to the timing of income tax payments/refunds and favorable changes in accounts receivable, partially offset by unfavorable changes in accounts payable and accrued liabilities.

- The decrease in cash used by investing activities was primarily due to lower capital expenditures and higher cash proceeds from business divestitures and the sale of property, plant & equipment.

- The decrease in cash used by financing activities was primarily due to lower stock repurchases, higher long-term debt borrowings, net of repayments, and lower short-term debt repayments.

Capitalization

(in millions)	September 30, 2020	September 30, 2019	Change
Short-term debt	$ 31	$ 10	
Current portion of long-term debt	262	501	
Long-term debt	7,526	6,708	
Total debt	$ 7,819	$ 7,219	8%
Less: cash and cash equivalents	1,951	2,805	
Total net debt	$ 5,868	$ 4,414	33%
Shareholders' equity attributable to Johnson Controls ordinary shareholders	17,447	19,766	-12%
Total capitalization	$ 23,315	$ 24,180	-4%
Total net debt as a % of total capitalization	25.2 %	18.3 %	

- Net debt and net debt as a percentage of total capitalization are non-GAAP financial measures. The Company believes the percentage of total net debt to total capitalization is useful to understanding the Company's financial condition as it provides a review of the extent to which the Company relies on external debt financing for its funding and is a measure of risk to its shareholders.

- The Company believes its capital resources and liquidity position at September 30, 2020 are adequate to meet projected needs. The Company believes requirements for working capital, capital expenditures, dividends, stock repurchases, minimum pension contributions, debt maturities and any potential acquisitions in fiscal 2021 will continue to be funded from operations, supplemented by short- and long-term borrowings, if required. The Company currently manages its short-term debt position in the U.S. and euro commercial paper markets and bank loan markets. In the event the Company is unable to issue commercial paper, it would have the ability to draw on its $2.5 billion revolving credit facility which expires in December 2024 or its $0.5 billion revolving credit facility which expires in December 2020. There were no draws on the revolving credit facilities as of September 30, 2020 and 2019. The Company also selectively makes use of short-term credit lines other than its revolving credit facility. The Company, as of September 30, 2020, could borrow up to $3.0 billion based on committed credit lines. In addition, the Company held cash and cash equivalents of $2.0 billion as of September 30, 2020. As such, the Company believes it has sufficient financial resources to fund operations and meet its obligations for the foreseeable future.

- In September 2020, the Company issued $1.8 billion of senior notes, which includes $625 million of green bonds with an interest rate of 1.750% which are due in 2030, €500 million with an interest rate of 0.375% which are due in 2027 and €500 million with an interest rate of 1.000% which are due in 2032. Portions of the issuance proceeds were used to repay €750 million of notes which were due in December 2020 and debt which was issued in April 2020, including $675 million of European financing arrangements which were due in September 2020 and $275 million of bank term loans which were due in April 2021. In July 2020, the Company repaid $300 million of a bank term loan that was issued in April 2020. In March 2020, the Company retired $500 million in principal amount, plus accrued interest, of its 5.0% fixed rate notes that expired in March 2020.

- Financial covenants in the Company's revolving credit facilities requires a minimum consolidated shareholders' equity attributable to Johnson Controls of at least $3.5 billion at all times. The revolving credit facility also limits the amount of debt secured by liens that may be incurred to a maximum aggregated amount of 10% of consolidated shareholders' equity attributable to Johnson Controls for liens and pledges. For purposes of calculating these covenants, consolidated shareholders' equity attributable to Johnson Controls is calculated without giving effect to (i) the application of ASC 715-60, "Defined Benefit Plans - Other Postretirement," or (ii) the cumulative foreign currency translation adjustment. As of September 30, 2020, the Company was in compliance with all covenants and other requirements set forth in its credit agreements and the indentures, governing its notes, and expect to remain in compliance for the foreseeable future. None of the Company's debt agreements limit access to stated borrowing levels or require accelerated repayment in the event of a decrease in the Company's credit rating.

- The Company earns a significant amount of its income outside of the parent company. Outside basis differences in these subsidiaries are deemed to be permanently reinvested except in limited circumstances. However, in fiscal 2019, the Company provided income tax expense related to a change in the Company's assertion over the outside basis differences of the Company's investment in certain subsidiaries as a result of the planned divestiture of the Power Solutions business. Also, in fiscal 2018, due to U.S. Tax Reform, the Company provided income tax related to the change in the Company's assertion over the outside basis difference of certain non-U.S. subsidiaries owned directly or indirectly by U.S. subsidiaries. Under U.S. Tax Reform, the U.S. has enacted a tax system that provides an exemption for dividends received by U.S. corporations from 10% or more owned non-U.S. corporations. However, certain non-U.S., U.S. state and withholding taxes may still apply when closing an outside basis difference via distribution or other transactions. The Company currently does not intend nor foresee a need to repatriate undistributed earnings included in the outside basis differences other than in tax efficient manners. Except as noted, the Company's intent is to reduce basis differences only when it would be tax efficient. The Company expects existing U.S. cash and liquidity to continue to be sufficient to fund the Company's U.S. operating activities and cash commitments for investing and financing activities for at least the next twelve months and thereafter for the foreseeable future. In the U.S., should the Company require more capital than is generated by its operations, the Company could elect to raise capital in the U.S. through debt or equity issuances. The Company has borrowed funds in the U.S. and continues to have the ability to borrow funds in the U.S. at reasonable interest rates. In addition, the Company expects existing non-U.S. cash, cash equivalents, short-term investments and cash flows from operations to continue to be sufficient to fund the Company's non-U.S. operating activities and cash commitments for investing activities, such as material capital expenditures, for at least the next twelve months and thereafter for the foreseeable future. Should the Company require more capital at the Luxembourg and Ireland holding and financing entities, other than amounts that can be provided in tax efficient methods, the Company could also elect to raise capital through debt or equity issuances. These alternatives could result in increased interest expense or other dilution of the Company's earnings.

- To better align its resources with its growth strategies and reduce the cost structure of its global operations in certain underlying markets, the Company has committed to various restructuring plans. Restructuring plans generally result in charges for workforce reductions, plant closures and asset impairments which are reported as restructuring and impairment costs in the Company's consolidated statements of income. The Company expects the restructuring actions to reduce cost of sales and SG&A due to reduced employee-related costs, depreciation and amortization expense.

    – In fiscal 2020, the Company recorded $297 million of costs resulting from the 2020 restructuring plan. The Company currently estimates that upon completion of the restructuring action, the fiscal 2020 restructuring plans will reduce annual operating costs for continuing operations by approximately $430 million. The Company expects the annual benefit of these actions will be substantially realized in 2021. For fiscal 2020, the savings, net of execution costs, were approximately 30% of the expected annual operating cost reduction. The restructuring action is expected to be substantially complete in fiscal 2021. The Company has outstanding restructuring reserves of $108 million at September 30, 2020, all of which is expected to be paid in cash.

    – In fiscal 2018, the Company recorded $255 million of costs resulting from the 2018 restructuring plan. The Company currently estimates that upon completion of the restructuring action, the fiscal 2018 restructuring plan will reduce annual operating costs for continuing operations by approximately $300 million. The annual restructuring activities are substantially completed, and final payments are expected to be made in fiscal 2021. The Company has outstanding restructuring reserves of $30 million at September 30, 2020, all of which is expected to be paid in cash.

    – In fiscal 2017, the Company recorded $347 million of costs resulting from the 2017 restructuring plan. The Company currently estimates that upon completion of the restructuring action, the fiscal 2017 restructuring plan will reduce annual operating costs for continuing operations by approximately $260 million. The annual restructuring activities are substantially completed, and final payments are expected to be made in fiscal 2021. The Company has outstanding restructuring reserves of $6 million at September 30, 2020, all of which is expected to be paid in cash.

- Refer to Note 9, "Debt and Financing Arrangements," of the notes to consolidated financial statements for additional information on items impacting capitalization.

Co-Issued Securities: Summarized Financial Information

The following information is provided in compliance with Rule 13-01 of Regulation S-X under the Securities Exchange Act of 1934 with respect to the (i) $625 million aggregate principal amount of 1.750% Senior Notes due 2030 (the “2030 Notes”), (ii) €500 million aggregate principal amount of 0.375% Senior Notes due 2027 (the “2027 Notes”) and (iii) €500 million aggregate principal amount of 1.000% Senior Notes due 2032 (the “2032 Notes” and together with the 2030 Notes and the 2027 Notes, the “Notes”), each issued by Johnson Controls International plc ("Parent Company") and Tyco Fire & Security Finance S.C.A. (“TFSCA”), a corporate partnership limited by shares (*société en commandite par actions*) incorporated and organized under the laws of the Grand Duchy of Luxembourg (“Luxembourg”). Refer to Note 9, "Debt and Financing Arrangements," of the notes to consolidated financial statements for additional information.

TFSCA is a wholly-owned consolidated subsidiary of the Company that is 99.996% owned directly by the Parent Company and 0.004% owned by TFSCA’s sole general partner and manager, Tyco Fire & Security S.à r.l., which is itself wholly-owned by the Company. The Notes are the Parent Company’s and TFSCA’s unsecured, unsubordinated obligations. The Parent Company is incorporated and organized under the laws of Ireland and TFSCA is incorporated and organized under the laws of Luxembourg. The bankruptcy, insolvency, administrative, debtor relief and other laws of Luxembourg or Ireland, as applicable, may be materially different from, or in conflict with, those of the United States, including in the areas of rights of creditors, priority of governmental and other creditors, ability to obtain post-petition interest and duration of the proceeding. The application of these laws, or any conflict among them, could adversely affect noteholders’ ability to enforce their rights under the Notes in those jurisdictions or limit any amounts that they may receive.

The following tables set forth summarized financial information of the Parent Company and TFSCA (collectively, the “Obligor Group”) on a combined basis after intercompany transactions have been eliminated, including adjustments to remove the receivable and payable balances, investment in, and equity in earnings from, those subsidiaries of the Parent Company other than TFSCA (collectively, the "Non-Obligor Subsidiaries").

The following table presents summarized income statement information for the year ended September 30, 2020 (in millions):

	Year Ended September 30, 2020
Net sales	$ —
Gross profit	—
Loss from continuing operations	(450)
Net loss	(450)
Income attributable to noncontrolling interests	—
Net loss attributable to the entity	(450)

Excluded from the table above are the intercompany transactions between the Obligor Group and Non-Obligor Subsidiaries as follows (in millions):

	Year Ended September 30, 2020
Net sales	$ —
Gross profit	—
Income from continuing operations	702
Net income	702
Income attributable to noncontrolling interests	—
Net income attributable to the entity	702

The following table presents summarized balance sheet information as of September 30, 2020 (in millions):

	September 30, 2020
Current assets	$ 522
Noncurrent assets	318
Current liabilities	7,612
Noncurrent liabilities	7,258
Noncontrolling interests	—

Excluded from the table above are the intercompany balances between the Obligor Group and Non-Obligor Subsidiaries as follows (in millions):

	September 30, 2020
Current assets	$ 838
Noncurrent assets	7,338
Current liabilities	2,724
Noncurrent liabilities	3,406
Noncontrolling interests	—

The same accounting policies as described in Note 1, "Summary of Significant Accounting Policies," of the notes to consolidated financial statements are used by the Parent Company and each of its subsidiaries in connection with the summarized financial information presented above.

Contractual Obligations

A summary of the Company’s significant contractual obligations for continuing operations as of September 30, 2020 is as follows (in millions):

	Total	2021	2022 - 2023	2024 - 2025	2026 and Beyond
Contractual Obligations					
Long-term debt*	$ 7,822	$ 262	$ 1,505	$ 1,051	$ 5,004
Interest on long-term debt*	3,814	213	412	364	2,825
Operating leases**	1,291	352	470	234	235
Purchase obligations	1,087	911	102	63	11
Pension and postretirement contributions	388	49	67	70	202
Total contractual cash obligations	$ 14,402	$ 1,787	$ 2,556	$ 1,782	$ 8,277

* Refer to Note 9, "Debt and Financing Arrangements," of the notes to consolidated financial statements for information related to the Company's long-term debt.

** Refer to Note 8, "Leases," of the notes to consolidated financial statements for information related to the Company's leases.

CRITICAL ACCOUNTING ESTIMATES AND POLICIES

The Company prepares its consolidated financial statements in conformity with accounting principles generally accepted in the United States of America ("U.S. GAAP"). This requires management to make estimates and assumptions that affect reported amounts and related disclosures. Actual results could differ from those estimates. The following policies are considered by management to be the most critical in understanding the judgments that are involved in the preparation of the Company's consolidated financial statements and the uncertainties that could impact the Company's results of operations, financial position and cash flows.

Revenue Recognition

The Company recognizes revenue from certain long-term contracts to design, manufacture and install building products and systems as well as unscheduled repair or replacement services on an over time basis, with progress towards completion measured using a cost-to-cost input method based on the relationship between actual costs incurred and total estimated costs at completion. The cost-to-cost input method is used as it best depicts the transfer of control to the customer that occurs as the Company incurs costs. Changes to the original estimates may be required during the life of the contract and such estimates are reviewed monthly. If contract modifications result in additional goods or services that are distinct from those transferred before the modification, they are accounted for prospectively as if the Company entered into a new contract. If the goods or services in the modification are not distinct from those in the original contract, sales and gross profit are adjusted using the cumulative catch-up method for revisions in estimated total contract costs and contract values. Estimated losses are recorded when identified. The Company does not adjust the promised amount of consideration for the effects of a significant financing component as at contract inception the Company expects to receive the payment within twelve months of transfer of goods or services.

The Company enters into extended warranties and long-term service and maintenance agreements with certain customers. For these arrangements, revenue is recognized over time on a straight-line basis over the respective contract term.

The Company also sells certain HVAC and refrigeration products and services in bundled arrangements with multiple performance obligations, such as equipment, commissioning, service labor and extended warranties. Approximately four to twelve months separate the timing of the first deliverable until the last piece of equipment is delivered, and there may be extended warranty arrangements with duration of one to five years commencing upon the end of the standard warranty period. In addition, the Company sells security monitoring systems that may have multiple performance obligations, including equipment, installation, monitoring services and maintenance agreements. Revenues associated with the sale of equipment and related installations are recognized over time on a cost-to-cost input method, while the revenue for monitoring and maintenance services are recognized over time as services are rendered. The transaction price is allocated to each performance obligation based on the relative selling price method. In order to estimate relative selling price, market data and transfer price studies are utilized. If the standalone selling price is not directly observable, the Company estimates the standalone selling price using an adjusted market assessment approach or expected cost plus margin approach. For transactions in which the Company retains ownership of the subscriber system asset, fees for monitoring and maintenance services are recognized over time on a straight-line basis over the contract term. Non-refundable fees received in connection with the initiation of a monitoring contract, along with associated direct and incremental selling costs, are deferred and amortized over the estimated life of the contract.

In all other cases, the Company recognizes revenue at the point in time when control over the goods or services transfers to the customer.

The Company considers the contractual consideration payable by the customer and assesses variable consideration that may affect the total transaction price, including discounts, rebates, refunds, credits or other similar sources of variable consideration, when determining the transaction price of each contract. The Company includes variable consideration in the estimated transaction price when it is probable that significant reversal of revenue recognized would not occur when the uncertainty associated with variable consideration is subsequently resolved. These estimates are based on the amount of consideration that the Company expects to be entitled to.

Shipping and handling costs billed to customers are included in sales and the related costs are included in cost of sales when control transfers to the customer. The Company presents amounts collected from customers for sales and other taxes net of the related amounts remitted. Refer to Note 4, "Revenue Recognition," of the notes to consolidated financial statements for disclosure of the Company's revenue recognition activity.

Goodwill and Indefinite-Lived Intangible Assets

Goodwill reflects the cost of an acquisition in excess of the fair values assigned to identifiable net assets acquired. The Company reviews goodwill for impairment during the fourth fiscal quarter or more frequently if events or changes in circumstances indicate the asset might be impaired. The Company performs impairment reviews for its reporting units, which have been determined to be the Company's reportable segments or one level below the reportable segments in certain instances, using a fair value method based on management's judgments and assumptions or third party valuations. The fair value of a reporting unit refers to the price that would be received to sell the unit as a whole in an orderly transaction between market participants at the measurement date. In estimating the fair value, the Company uses multiples of earnings based on the average of published multiples of earnings of comparable entities with similar operations and economic characteristics and applies to the Company's average of historical and future financial results. In certain instances, the Company uses discounted cash flow analyses or estimated sales price to further support the fair value estimates. The inputs utilized in the analyses are classified as Level 3 inputs within the fair value hierarchy as defined in ASC 820, "Fair Value Measurement." The estimated fair value is then compared with the carrying amount of the reporting unit, including recorded goodwill. The Company is subject to financial statement risk to the extent that the carrying amount exceeds the estimated fair value. The assumptions included in the impairment tests require judgment, and changes to these inputs could impact the results of the calculations. The primary assumptions used in the impairment tests were management's projections of future cash flows. Although the Company's cash flow forecasts are based on assumptions that are considered reasonable by management and consistent with the plans and estimates management is using to operate the underlying businesses, there are significant judgments in determining the expected future cash flows attributable to a reporting unit. Refer to Note 7, "Goodwill and Other Intangible Assets," of the notes to consolidated financial statements for information regarding the goodwill impairment testing performed in fiscal years 2020, 2019 and 2018.

Indefinite-lived intangible assets are also subject to at least annual impairment testing. Indefinite-lived intangible assets primarily consist of trademarks and trade names and are tested for impairment using a relief-from-royalty method. A considerable amount of management judgment and assumptions are required in performing the impairment tests. The key assumptions used in the impairment tests were long-term revenue growth projections, discount rates and general industry, market and macro-economic conditions.

While the Company believes the judgments and assumptions used in the impairment tests are reasonable, different assumptions could change the estimated fair values and, therefore, future impairment charges could be required, which could be material to the consolidated financial statements.

Impairment of Long-Lived Assets

The Company reviews long-lived assets, including tangible assets and other intangible assets with definitive lives, for impairment whenever events or changes in circumstances indicate that the asset's carrying amount may not be recoverable. The Company conducts its long-lived asset impairment analyses in accordance with ASC 360-10-15, "Impairment or Disposal of Long-Lived Assets," ASC 350-30, "General Intangibles Other than Goodwill" and ASC 985-20, "Costs of Software to be Sold, Leased, or Marketed." ASC 360-10-15 requires the Company to group assets and liabilities at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities and evaluate the asset group against the sum of the undiscounted future cash flows. If the undiscounted cash flows do not indicate the carrying amount of the asset group is recoverable, an impairment charge is measured as the amount by which the carrying amount of the asset group exceeds its fair value based on discounted cash flow analysis or appraisals. ASC 350-30 requires intangible assets acquired in a business combination that are used in research and development activities be considered indefinite lived until the completion or abandonment of the associated research and development efforts. During the period that those assets are considered indefinite lived, they shall not be amortized but shall be tested for impairment annually and more frequently if events or changes in circumstances indicate that it is more likely than not that the asset is impaired. If the carrying amount of an intangible asset exceeds its fair value, an entity shall recognize an impairment loss in an amount equal to that excess. ASC 985-20 requires the unamortized capitalized costs of a computer software product be compared to the net realizable value of that product. The amount by which the unamortized capitalized costs of a computer software product exceed the net realizable value of that asset shall be written off. Refer to Note 17, "Impairment of Long-Lived Assets," of the notes to consolidated financial statements for information regarding the impairment testing performed in fiscal years 2020, 2019 and 2018.

Employee Benefit Plans

The Company provides a range of benefits to its employees and retired employees, including pensions and postretirement benefits. Plan assets and obligations are measured annually, or more frequently if there is a significant remeasurement event, based on the Company's measurement date utilizing various actuarial assumptions such as discount rates, assumed rates of return, compensation increases, turnover rates and health care cost trend rates as of that date. The Company reviews its actuarial assumptions on an annual basis and makes modifications to the assumptions based on current rates and trends when appropriate.

The Company utilizes a mark-to-market approach for recognizing pension and postretirement benefit expenses, including measuring the market related value of plan assets at fair value and recognizing actuarial gains and losses in the fourth quarter of each fiscal year or at the date of a remeasurement event. Refer to Note 15, "Retirement Plans," of the notes to consolidated financial statements for disclosure of the Company's pension and postretirement benefit plans.

U.S. GAAP requires that companies recognize in the statement of financial position a liability for defined benefit pension and postretirement plans that are underfunded or unfunded, or an asset for defined benefit pension and postretirement plans that are over funded. U.S. GAAP also requires that companies measure the benefit obligations and fair value of plan assets that determine a benefit plan’s funded status as of the date of the employer’s fiscal year end.

The Company considers the expected benefit payments on a plan-by-plan basis when setting assumed discount rates. As a result, the Company uses different discount rates for each plan depending on the plan jurisdiction, the demographics of participants and the expected timing of benefit payments. For the U.S. pension and postretirement plans, the Company uses a discount rate provided by an independent third party calculated based on an appropriate mix of high quality bonds. For the non-U.S. pension and postretirement plans, the Company consistently uses the relevant country specific benchmark indices for determining the various discount rates. The Company’s weighted average discount rate on U.S. pension plans was 2.25% and 2.95% at September 30, 2020 and 2019, respectively. The Company’s weighted average discount rate on postretirement plans was 1.90% and 2.65% at September 30, 2020 and 2019, respectively. The Company’s weighted average discount rate on non-U.S. pension plans was 1.35% and 1.50% at September 30, 2020 and 2019, respectively.

In estimating the expected return on plan assets, the Company considers the historical returns on plan assets, adjusted for forward-looking considerations, inflation assumptions and the impact of the active management of the plans’ invested assets. Reflecting the relatively long-term nature of the plans’ obligations, approximately 27% of the plans’ assets are invested in equity securities and 63% in fixed income securities, with the remainder primarily invested in alternative investments. For the years ending September 30, 2020 and 2019, the Company’s expected long-term return on U.S. pension plan assets used to determine net periodic benefit cost was 6.90% and 7.10%, respectively. The actual rate of return on U.S. pension plans was above 6.90% in fiscal year 2020 and above 7.10% in fiscal year 2019. For the years ending September 30, 2020 and 2019, the Company’s weighted average expected long-term return on non-U.S. pension plan assets was 5.20% and 5.20%, respectively. The actual rate of return on non-U.S. pension plans was below 5.20% in fiscal year 2020 and above 5.20% in fiscal year 2019. For the years ending September 30, 2020 and 2019, the Company’s weighted average expected long-term return on postretirement plan assets was 5.70% and 5.65%, respectively. The actual rate of return on postretirement plan assets was below 5.70% in fiscal year 2020 and below 5.65% in fiscal year 2019.

Beginning in fiscal 2021, the Company believes the long-term rate of return will approximate 6.50%, 4.90% and 5.30% for U.S. pension, non-U.S. pension and postretirement plans, respectively. Any differences between actual investment results and the expected long-term asset returns will be reflected in net periodic benefit costs in the fourth quarter of each fiscal year or at the date of a significant remeasurement event. If the Company’s actual returns on plan assets are less than the Company’s expectations, additional contributions may be required.

In fiscal 2020, total employer contributions for continuing operations to the defined benefit pension plans were $58 million, none of which were voluntary contributions made by the Company. The Company expects to contribute approximately $46 million in cash to its defined benefit pension plans in fiscal 2021. In fiscal 2020, total employer contributions for continuing operations to the postretirement plans were $3 million. The Company expects to contribute approximately $3 million in cash to its postretirement plans in fiscal 2021.

Based on information provided by its independent actuaries and other relevant sources, the Company believes that the assumptions used are reasonable; however, changes in these assumptions could impact the Company’s financial position, results of operations or cash flows.

Loss Contingencies

Accruals are recorded for various contingencies including legal proceedings, environmental matters, self-insurance and other claims that arise in the normal course of business. The accruals are based on judgment, the probability of losses and, where applicable, the consideration of opinions of internal and/or external legal counsel and actuarially determined estimates. Additionally, the Company records receivables from third party insurers when recovery has been determined to be probable.

The Company is subject to laws and regulations relating to protecting the environment. The Company provides for expenses associated with environmental remediation obligations when such amounts are probable and can be reasonably estimated. Refer to Note 22, "Commitments and Contingencies," of the notes to consolidated financial statements.

The Company records liabilities for its workers' compensation, product, general and auto liabilities. The determination of these liabilities and related expenses is dependent on claims experience. For most of these liabilities, claims incurred but not yet reported are estimated by utilizing actuarial valuations based upon historical claims experience. The Company records receivables from third party insurers when recovery has been determined to be probable. The Company maintains captive insurance companies to manage its insurable liabilities.

Asbestos-Related Contingencies and Insurance Receivables

The Company and certain of its subsidiaries along with numerous other companies are named as defendants in personal injury lawsuits based on alleged exposure to asbestos-containing materials. The Company's estimate of the liability and corresponding insurance recovery for pending and future claims and defense costs is based on the Company's historical claim experience, and estimates of the number and resolution cost of potential future claims that may be filed and is discounted to present value from 2068 (which is the Company's reasonable best estimate of the actuarially determined time period through which asbestos-related claims will be filed against Company affiliates). Asbestos-related defense costs are included in the asbestos liability. The Company's legal strategy for resolving claims also impacts these estimates. The Company considers various trends and developments in evaluating the period of time (the look-back period) over which historical claim and settlement experience is used to estimate and value claims reasonably projected to be made through 2068. Annually, the Company assesses the sufficiency of its estimated liability for pending and future claims and defense costs by evaluating actual experience regarding claims filed, settled and dismissed, and amounts paid in settlements. In addition to claims and settlement experience, the Company considers additional quantitative and qualitative factors such as changes in legislation, the legal environment, and the Company's defense strategy. The Company also evaluates the recoverability of its insurance receivable on an annual basis. The Company evaluates all of these factors and determines whether a change in the estimate of its liability for pending and future claims and defense costs or insurance receivable is warranted.

In connection with the recognition of liabilities for asbestos-related matters, the Company records asbestos-related insurance recoveries that are probable. The Company's estimate of asbestos-related insurance recoveries represents estimated amounts due to the Company for previously paid and settled claims and the probable reimbursements relating to its estimated liability for pending and future claims discounted to present value. In determining the amount of insurance recoverable, the Company considers available insurance, allocation methodologies, solvency and creditworthiness of the insurers. Refer to Note 22, "Commitments and Contingencies," of the notes to consolidated financial statements for a discussion on management's judgments applied in the recognition and measurement of asbestos-related assets and liabilities.

Income Taxes

The Company accounts for income taxes in accordance with ASC 740, "Income Taxes." Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between financial statement carrying amounts of existing assets and liabilities and their respective tax bases and operating loss and other loss carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The Company records a valuation allowance that primarily represents non-U.S. operating and other loss carryforwards for which realization is uncertain. Management judgment is required in determining the Company’s provision for income taxes, deferred tax assets and liabilities, and the valuation allowance recorded against the Company’s net deferred tax assets. In calculating the provision for income taxes on an interim basis, the Company uses an estimate of the annual effective tax rate based upon the facts and circumstances known at each interim period. On a quarterly basis, the actual effective tax rate is adjusted as appropriate based upon the actual results as compared to those forecasted at the beginning of the fiscal year.

The Company reviews the realizability of its deferred tax asset valuation allowances on a quarterly basis, or whenever events or changes in circumstances indicate that a review is required. In determining the requirement for a valuation allowance, the historical and projected financial results of the legal entity or consolidated group recording the net deferred tax asset are considered, along with any other positive or negative evidence. Since future financial results may differ from previous estimates, periodic adjustments to the Company’s valuation allowances may be necessary. At September 30, 2020, the Company had a valuation allowance of $5.5 billion for continuing operations, of which $5.3 billion relates to net operating loss carryforwards primarily in France, Germany, Ireland, Luxembourg, Spain, United Kingdom and the U.S. for which sustainable taxable income has not been demonstrated; and $0.2 billion for other deferred tax assets.

The Company's federal income tax returns and certain non-U.S. income tax returns for various fiscal years remain under various stages of audit by the IRS and respective non-U.S. tax authorities. Although the outcome of tax audits is always uncertain, management believes that it has appropriate support for the positions taken on its tax returns and that its annual tax provisions included amounts sufficient to pay assessments, if any, which may be proposed by the taxing authorities. At September 30, 2020, the Company had recorded a liability of $2.5 billion for its best estimate of the probable loss on certain of its tax positions, the majority of which is included in other noncurrent liabilities in the consolidated statements of financial position. Nonetheless, the amounts ultimately paid, if any, upon resolution of the issues raised by the taxing authorities may differ materially from the amounts accrued for each year.

The Company does not generally provide additional U.S. or non-U.S. income taxes on outside basis differences of consolidated subsidiaries included in shareholders' equity attributable to Johnson Controls International plc, except in limited circumstances including anticipated taxation on planned divestitures. The reduction of the outside basis differences via the sale or liquidation of these subsidiaries and/or distributions could create taxable income. The Company's intent is to reduce the outside basis differences only when it would be tax efficient. Refer to "Capitalization" within the "Liquidity and Capital Resources" section for discussion of U.S. and non-U.S. cash projections.

Refer to Note 18, "Income Taxes," of the notes to consolidated financial statements for the Company's income tax disclosures.

NEW ACCOUNTING PRONOUNCEMENTS

Refer to the "New Accounting Pronouncements" section within Note 1, "Summary of Significant Accounting Policies," of the notes to consolidated financial statements.

RISK MANAGEMENT

The Company selectively uses derivative instruments to reduce market risk associated with changes in foreign currency, commodities and stock-based compensation. All hedging transactions are authorized and executed pursuant to clearly defined policies and procedures, which strictly prohibit the use of financial instruments for speculative purposes. At the inception of the hedge, the Company assesses the effectiveness of the hedge instrument and designates the hedge instrument as either (1) a hedge of a recognized asset or liability or of a recognized firm commitment (a fair value hedge), (2) a hedge of a forecasted transaction or of the variability of cash flows to be received or paid related to an unrecognized asset or liability (a cash flow hedge) or (3) a hedge of a net investment in a non-U.S. operation (a net investment hedge). The Company performs hedge effectiveness testing on an ongoing basis depending on the type of hedging instrument used. All other derivatives not designated as hedging instruments under ASC 815, "Derivatives and Hedging," are revalued in the consolidated statements of income.

For all foreign currency derivative instruments designated as cash flow hedges, retrospective effectiveness is tested on a monthly basis using a cumulative dollar offset test. The fair value of the hedged exposures and the fair value of the hedge instruments are revalued, and the ratio of the cumulative sum of the periodic changes in the value of the hedge instruments to the cumulative sum of the periodic changes in the value of the hedge is calculated. The hedge is deemed as highly effective if the ratio is between 80% and 125%. For commodity derivative contracts designated as cash flow hedges, effectiveness is tested using a regression calculation. Ineffectiveness is minimal as the Company aligns most of the critical terms of its derivatives with the supply contracts.

For net investment hedges, the Company assesses its net investment positions in the non-U.S. operations and compares it with the outstanding net investment hedges on a quarterly basis. The hedge is deemed effective if the aggregate outstanding principal of the hedge instruments designated as the net investment hedge in a non-U.S. operation does not exceed the Company's net investment positions in the respective non-U.S. operation.

Equity swaps and any other derivative instruments not designated as hedging instruments under ASC 815 require no assessment of effectiveness.

A discussion of the Company's accounting policies for derivative financial instruments is included in Note 1, "Summary of Significant Accounting Policies," of the notes to consolidated financial statements, and further disclosure relating to derivatives and hedging activities is included in Note 10, "Derivative Instruments and Hedging Activities," and Note 11, "Fair Value Measurements," of the notes to consolidated financial statements.

Foreign Exchange

The Company has manufacturing, sales and distribution facilities around the world and thus makes investments and enters into transactions denominated in various foreign currencies. In order to maintain strict control and achieve the benefits of the Company’s global diversification, foreign exchange exposures for each currency are netted internally so that only its net foreign exchange exposures are, as appropriate, hedged with financial instruments.

The Company hedges 70% to 90% of the nominal amount of each of its known foreign exchange transactional exposures. The Company primarily enters into foreign currency exchange contracts to reduce the earnings and cash flow impact of the variation of non-functional currency denominated receivables and payables. Gains and losses resulting from hedging instruments offset the foreign exchange gains or losses on the underlying assets and liabilities being hedged. The maturities of the forward exchange contracts generally coincide with the settlement dates of the related transactions. Realized and unrealized gains and losses on these contracts are recognized in the same period as gains and losses on the hedged items. The Company also selectively hedges anticipated transactions that are subject to foreign exchange exposure, primarily with foreign currency exchange contracts, which are designated as cash flow hedges in accordance with ASC 815.

The Company has entered into foreign currency denominated debt obligations to selectively hedge portions of its net investment in non-U.S. subsidiaries. The currency effects of debt obligations are reflected in the accumulated other comprehensive income ("AOCI") account within shareholders’ equity attributable to Johnson Controls ordinary shareholders where they offset gains and losses recorded on the Company’s net investments globally.

At September 30, 2020 and 2019, the Company estimates that an unfavorable 10% change in the exchange rates would have decreased net unrealized gains by approximately $363 million and $358 million, respectively.

Interest Rates

Substantially all of the Company's outstanding debt has fixed interest rates. A 10% increase in the average cost of the Company’s variable rate debt would have had an immaterial impact on pre-tax interest expense for the year ended September 30, 2020 and 2019.

Commodities

The Company uses commodity hedge contracts in the financial derivatives market in cases where commodity price risk cannot be naturally offset or hedged through supply base fixed price contracts. Commodity risks are systematically managed pursuant to policy guidelines. As a cash flow hedge, gains and losses resulting from the hedging instruments offset the gains or losses on purchases of the underlying commodities that will be used in the business. The maturities of the commodity hedge contracts coincide with the expected purchase of the commodities.

ENVIRONMENTAL, HEALTH AND SAFETY AND OTHER MATTERS

The Company’s global operations are governed by environmental laws and worker safety laws. Under various circumstances, these laws impose civil and criminal penalties and fines, as well as injunctive and remedial relief, for noncompliance and require remediation at sites where Company-related substances have been released into the environment.

The Company has expended substantial resources globally, both financial and managerial, to comply with applicable environmental laws and worker safety laws and to protect the environment and workers. The Company believes it is in substantial compliance with such laws and maintains procedures designed to foster and ensure compliance. However, the Company has been, and in the future may become, the subject of formal or informal enforcement actions or proceedings regarding noncompliance with such laws or the remediation of Company-related substances released into the environment. Such matters typically are resolved with regulatory authorities through commitments to compliance, abatement or remediation programs and in some cases payment of penalties. Historically, neither such commitments nor penalties imposed on the Company have been material.

Refer to Note 22, "Commitments and Contingencies," of the notes to consolidated financial statements for additional information.

QUARTERLY FINANCIAL DATA

(in millions, except per share data) (quarterly amounts unaudited)	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Full Year
2020					
Net sales	$ 5,576	$ 5,444	$ 5,343	$ 5,954	$ 22,317
Gross profit	1,803	1,801	1,832	1,975	7,411
Net income (loss) (1)	191	236	(122)	490	795
Net income (loss) attributable to Johnson Controls	159	213	(182)	441	631
Earnings (loss) per share (2)					
Basic	0.21	0.28	(0.24)	0.60	0.84
Diluted	0.21	0.28	(0.24)	0.60	0.84
2019					
Net sales	$ 5,464	$ 5,779	$ 6,451	$ 6,274	$ 23,968
Gross profit	1,725	1,844	2,144	1,980	7,693
Net income (3)	399	558	4,276	654	5,887
Net income attributable to Johnson Controls	355	515	4,192	612	5,674
Earnings per share (2)					
Basic	0.39	0.57	4.81	0.78	6.52
Diluted	0.38	0.57	4.79	0.77	6.49

(1) The fiscal 2020 first quarter net income includes $39 million of integration costs, $10 million of mark-to-market gains, and $111 million of restructuring and impairment costs. The fiscal 2020 second quarter net income includes $38 million of integration costs, $32 million of mark-to-market losses, and $62 million of restructuring and impairment costs. The fiscal 2020 third quarter net income includes $30 million of integration costs, $132 million of mark-to-market losses, and $610 million of restructuring and impairment costs. The fiscal 2020 fourth quarter net income includes $28 million of integration costs, $120 million of mark-to-market losses, and $39 million of a compensation charge related to a noncontrolling interest acquisition. The preceding amounts are stated on a pre-tax and pre-noncontrolling interest impact basis.

(2) Due to the use of the weighted-average shares outstanding for each quarter for computing earnings per share, the sum of the quarterly per share amounts may not equal the per share amount for the year.

(3) The fiscal 2019 first quarter net income includes $50 million of transaction and integration costs and $21 million of mark-to-market losses. The fiscal 2019 second quarter net income includes $70 million of transaction and integration costs and $20 million of mark-to-market gains. The fiscal 2019 third quarter net income includes a $5.2 billion gain on sale of the Power Solutions business, net of transaction and other costs, $235 million of restructuring and impairment costs, $226 million of tax indemnification reserve release, $140 million of environmental charge, $86 million of transaction and integration costs, $60 million of loss on debt extinguishment and $9 million of mark-to-market gains. The fiscal 2019 fourth quarter net income includes $626 million of net mark-to-market losses and $111 million of transaction and integration costs. The preceding amounts are stated on a pre-tax and pre-noncontrolling interest impact basis and include both continuing and discontinued operations activity.

ITEM 7A QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

See "Risk Management" included in Item 7 - Management’s Discussion and Analysis of Financial Condition and Results of Operations.

ITEM 8 FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Index to Consolidated Financial Statements

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders of Johnson Controls International plc

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated statements of financial position of Johnson Controls International plc and its subsidiaries (the "Company") as of September 30, 2020 and 2019, and the related consolidated statements of income, of comprehensive income (loss), of shareholders' equity attributable to Johnson Controls ordinary shareholders, and of cash flows for each of the three years in the period ended September 30, 2020, including the related notes and financial statement schedule listed in the accompanying index (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of September 30, 2020, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of September 30, 2020 and 2019, and the results of its operations and its cash flows for each of the three years in the period ended September 30, 2020 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of September 30, 2020, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Change in Accounting Principle

As discussed in Note 1 to the consolidated financial statements, the Company changed the manner in which it accounts for leases as of October 1, 2019.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control Over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that (i) relate to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Goodwill Impairment Assessment

As described in Note 7 to the consolidated financial statements, the Company's consolidated goodwill balance was $17,932 million as of September 30, 2020. Management reviews goodwill for impairment during the fourth fiscal quarter or more frequently if events or changes in circumstances indicate the asset might be impaired. Management considered the ongoing deterioration in general economic and market conditions due to the COVID-19 pandemic and its impact on each of the Company's reporting units' performance. Due to further declines in cash flow projections of the North America Retail reporting unit in the third quarter of fiscal 2020 as a result of the COVID-19 pandemic, management concluded a triggering event occurred requiring assessment of impairment for its North America Retail reporting unit. As a result, management recorded a non-cash impairment charge of $424 million in the third quarter of fiscal 2020. Management reviewed the goodwill of all reporting units for the fiscal 2020 annual impairment test in the fourth quarter, and there were no additional impairments recorded. Management performs impairment reviews for its reporting units using a fair value method based on management's judgments and assumptions. The estimated fair value is then compared with the carrying amount of each reporting unit, including recorded goodwill. In estimating the fair value of the reporting units, management uses multiples of earnings based on the average of published multiples of earnings of comparable entities with similar operations and economic characteristics and applies the multiples to the Company's average of historical and future financial results for each reporting unit. In certain instances, management uses discounted cash flow analyses to further support the fair value estimates, whereby other than management's internal projections of future cash flows, the primary assumptions were the weighted-average cost of capital and long-term growth rates.

The principal considerations for our determination that performing procedures relating to the goodwill impairment assessment is a critical audit matter are the significant judgment by management when developing the fair value of each reporting unit; this, in turn, led to a high degree of auditor judgment, subjectivity, and effort in performing procedures and evaluating management's significant assumptions relating to (i) the multiples of earnings of comparable entities with similar operations and economic characteristics when using the multiples of earnings approach and (ii) the revenue growth rates included in the internal projections of future cash flows, discount rates used in the weighted-average cost of capital and long-term growth rates when using discounted cash flow analyses. In addition, the audit effort involved the use of professionals with specialized skill and knowledge.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's goodwill impairment assessment, including controls over the fair value of the Company's reporting units. These procedures also included, among others, (i) testing management's process for developing the fair value estimates, (ii) evaluating the appropriateness of the multiples of earnings model and the discounted cash flow model, as applicable, (iii) testing the completeness, accuracy, and relevance of underlying data used in the models, and (iv) evaluating the significant assumptions used by management related to the multiples of earnings of comparable entities with similar operations and economic characteristics, revenue growth rates, discount rates and long-term growth rates. In those instances where management used a multiples of earnings approach, evaluating management's assumption related to the identification of appropriate comparable entities with similar operations and economic characteristics used to determine the multiples of earnings of each reporting unit involved evaluating whether the assumption used by management was reasonable considering (i) current and past financial performance of the reporting units, (ii) external market, industry and macroeconomic data, and (iii) whether the assumption was consistent with evidence obtained in other areas of the audit. In those instances where management used discounted cash flow analyses, evaluating management's assumptions related to the revenue growth rates, discount rates and long-term growth rates involved evaluating whether the assumptions used by management were reasonable considering (i) current and past financial performance of the reporting units, (ii) external market, industry and macroeconomic data, and (iii) whether these assumptions were consistent with evidence obtained in other areas of the audit. Professionals with specialized skill and knowledge were used to assist in the evaluation of management's fair value models and management's significant assumptions related to the multiples of earnings of comparable entities with similar operations and economic characteristics, discount rates used in the weighted-average cost of capital, and long-term growth rates.

Uncertain Tax Positions

As described in Note 18 to the consolidated financial statements, the Company recorded uncertain tax position liabilities totaling $2,528 million, primarily as a non-current liability, as of September 30, 2020. The Company is subject to income taxes in the U.S. and numerous foreign jurisdictions. Judgment is required by management in determining the Company's worldwide provision for income taxes and recording the related income tax assets and liabilities. In the ordinary course of the Company's business, there are many transactions and calculations where the ultimate tax determination is uncertain. As disclosed by management, a liability for the best estimate of the probable loss on certain of the tax positions has been recorded by management. The Company's income tax filings are regularly under audit by tax authorities. The amounts ultimately paid, if any, upon resolution of the issues raised by the taxing authorities may differ materially from the amounts accrued for each year.

The principal considerations for our determination that performing procedures relating to uncertain tax positions is a critical audit matter are (i) the significant judgment by management in identifying and recording the estimated probable loss for each uncertain tax position; this, in turn, led to a high degree of auditor judgment, subjectivity, and effort in performing procedures to evaluate the timely identification and accurate measurement of uncertain tax positions, (ii) the evaluation of audit evidence available to support the tax liabilities for uncertain tax positions is complex and resulted in significant auditor judgment as the nature of the evidence is often highly subjective, and (iii) the audit effort involved the use of professionals with specialized skill and knowledge.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's assessment of uncertain tax positions, including controls over the identification and estimate of probable loss for uncertain tax positions. These procedures also included, among others, (i) for a sample of uncertain tax positions by jurisdiction, testing the information used in the calculation of the estimate of probable loss and testing the calculation of the estimate of probable loss, (ii) testing the completeness of management's assessment of the identification of uncertain tax positions, and (iii) evaluating the status and results of income tax audits with the relevant tax authorities, as applicable. Professionals with specialized skill and knowledge were used to assist in the evaluation of the completeness and measurement of the Company's uncertain tax positions, including evaluating the reasonableness of management's assessment of whether tax positions are more-likely-than-not of being sustained and the amount of potential benefit to be realized, and the application of relevant tax laws.

/s/ PricewaterhouseCoopers LLP
Milwaukee, Wisconsin
November 16, 2020

We have served as the Company's auditor since 1957.

Johnson Controls International plc
Consolidated Statements of Income

(in millions, except per share data)	Year Ended September 30, 2020	2019	2018
Net sales			
Products and systems	$ 16,253	$ 17,711	$ 17,332
Services	6,064	6,257	6,068
	22,317	23,968	23,400
Cost of sales			
Products and systems	11,401	12,577	12,315
Services	3,505	3,698	3,418
	14,906	16,275	15,733
Gross profit	7,411	7,693	7,667
Selling, general and administrative expenses	(5,665)	(6,244)	(5,642)
Restructuring and impairment costs	(783)	(235)	(255)
Net financing charges	(231)	(350)	(401)
Equity income	171	192	177
Income from continuing operations before income taxes	903	1,056	1,546
Income tax provision (benefit)	108	(233)	197
Income from continuing operations	795	1,289	1,349
Income from discontinued operations, net of tax (Note 3)	—	4,598	1,034
Net income	795	5,887	2,383
Income from continuing operations attributable to noncontrolling interests	164	189	174
Income from discontinued operations attributable to noncontrolling interests	—	24	47
Net income attributable to Johnson Controls	$ 631	$ 5,674	$ 2,162
Amounts attributable to Johnson Controls ordinary shareholders:			
Income from continuing operations	$ 631	$ 1,100	$ 1,175
Income from discontinued operations	—	4,574	987
Net income	$ 631	$ 5,674	$ 2,162
Basic earnings per share attributable to Johnson Controls			
Continuing operations	$ 0.84	$ 1.26	$ 1.27
Discontinued operations	—	5.26	1.07
Net income	$ 0.84	$ 6.52	$ 2.34
Diluted earnings per share attributable to Johnson Controls			
Continuing operations	$ 0.84	$ 1.26	$ 1.26
Discontinued operations	—	5.23	1.06
Net income	$ 0.84	$ 6.49	$ 2.32

The accompanying notes are an integral part of the consolidated financial statements.

Johnson Controls International plc
Consolidated Statements of Comprehensive Income (Loss)

(in millions)	Year Ended September 30, 2020	2019	2018
Net income	$ 795	$ 5,887	$ 2,383
Other comprehensive income (loss), net of tax:			
Foreign currency translation adjustments	25	(342)	(483)
Realized and unrealized gains (losses) on derivatives	8	6	(29)
Realized and unrealized gains on marketable securities	—	—	4
Pension and postretirement plans	8	(6)	—
Other comprehensive income (loss)	41	(342)	(508)
Total comprehensive income	836	5,545	1,875
Comprehensive income attributable to noncontrolling interests	186	195	186
Comprehensive income attributable to Johnson Controls	$ 650	$ 5,350	$ 1,689

The accompanying notes are an integral part of the consolidated financial statements.

Johnson Controls International plc
Consolidated Statements of Financial Position

(in millions, except par value and share data)	September 30, 2020	September 30, 2019
Assets		
Cash and cash equivalents	$ 1,951	$ 2,805
Accounts receivable, less allowance for doubtful accounts of $173 and $173, respectively	5,294	5,770
Inventories	1,773	1,814
Assets held for sale	—	98
Other current assets	1,035	1,906
Current assets	10,053	12,393
Property, plant and equipment - net	3,059	3,348
Goodwill	17,932	18,178
Other intangible assets - net	5,356	5,632
Investments in partially-owned affiliates	914	853
Noncurrent assets held for sale	147	60
Other noncurrent assets	3,354	1,823
Total assets	$ 40,815	$ 42,287
Liabilities and Equity		
Short-term debt	$ 31	$ 10
Current portion of long-term debt	262	501
Accounts payable	3,120	3,582
Accrued compensation and benefits	838	953
Deferred revenue	1,435	1,407
Liabilities held for sale	—	44
Other current liabilities	2,562	2,573
Current liabilities	8,248	9,070
Long-term debt	7,526	6,708
Pension and postretirement benefits	1,140	1,044
Other noncurrent liabilities	5,368	4,636
Long-term liabilities	14,034	12,388
Commitments and contingencies (Note 22)		
Ordinary shares (par value $0.01; 2.0 billion shares authorized; shares issued: 2020 - 753,907,315; 2019 - 804,495,430)	8	8
Ordinary A shares (par value €1.00; 40,000 shares authorized, none outstanding as of September 30, 2020 and 2019)	—	—
Preferred shares (par value $0.01; 200,000,000 shares authorized, none outstanding as of September 30, 2020 and 2019)	—	—
Ordinary shares held in treasury, at cost (shares held: 2020 - 27,684,632; 2019 - 26,864,793)	(1,119)	(1,086)
Capital in excess of par value	16,865	16,812
Retained earnings	2,469	4,827
Accumulated other comprehensive loss	(776)	(795)
Shareholders' equity attributable to Johnson Controls	17,447	19,766
Noncontrolling interests	1,086	1,063
Total equity	18,533	20,829
Total liabilities and equity	$ 40,815	$ 42,287

The accompanying notes are an integral part of the consolidated financial statements.

Johnson Controls International plc
Consolidated Statements of Cash Flows

(in millions)	Year Ended September 30, 2020	2019	2018
Operating Activities of Continuing Operations			
Net income from continuing operations attributable to Johnson Controls	$ 631	$ 1,100	$ 1,175
Income from continuing operations attributable to noncontrolling interests	164	189	174
Net income from continuing operations	795	1,289	1,349
Adjustments to reconcile net income from continuing operations to cash provided by operating activities:			
Depreciation and amortization	822	825	824
Pension and postretirement benefit expense (income)	118	515	(170)
Pension and postretirement contributions	(61)	(53)	(56)
Equity in earnings of partially-owned affiliates, net of dividends received	(36)	(34)	(128)
Deferred income taxes	(537)	612	(739)
Non-cash restructuring and impairment charges	582	235	36
Gain on Scott Safety business divestiture	—	—	(114)
Equity-based compensation	74	95	106
Other - net	(90)	29	(35)
Changes in assets and liabilities, excluding acquisitions and divestitures:			
Accounts receivable	534	(312)	(475)
Inventories	45	(72)	(103)
Other assets	(52)	(99)	(171)
Restructuring reserves	(29)	(121)	1
Accounts payable and accrued liabilities	(717)	56	340
Accrued income taxes	1,031	(1,222)	855
Cash provided by operating activities from continuing operations	2,479	1,743	1,520
Investing Activities of Continuing Operations			
Capital expenditures	(443)	(586)	(645)
Sale of property, plant and equipment	127	27	48
Acquisition of businesses, net of cash acquired	(77)	(25)	(21)
Business divestitures, net of cash divested	135	12	2,202
Changes in long-term investments	—	25	(1)
Proceeds (payments) for equity swap	—	14	(15)
Cash provided (used) by investing activities from continuing operations	(258)	(533)	1,568
Financing Activities of Continuing Operations			
Increase (decrease) in short-term debt - net	(33)	(1,296)	96
Increase in long-term debt	1,804	—	1,136
Repayment of long-term debt	(1,386)	(2,333)	(3,704)
Debt financing costs	(12)	—	(4)
Stock repurchases and retirements	(2,204)	(5,983)	(300)
Payment of cash dividends	(790)	(920)	(954)
Proceeds from the exercise of stock options	75	171	66
Dividends paid to noncontrolling interests	(114)	(132)	(43)
Cash received for prior divestitures	2	4	—
Employee equity-based compensation withholding	(34)	(31)	(42)
Cash paid to acquire a noncontrolling interest	(132)	—	—
Other - net	—	1	—
Cash used by financing activities from continuing operations	(2,824)	(10,519)	(3,749)
Discontinued Operations			
Cash provided (used) by operating activities	(260)	(541)	996
Cash provided (used) by investing activities	—	12,611	(372)
Cash used by financing activities	(113)	(35)	(3)
Cash provided (used) by discontinued operations	(373)	12,035	621
Effect of exchange rate changes on cash, cash equivalents and restricted cash	115	(120)	(106)
Change in cash, cash equivalents and restricted cash held for sale	—	15	14
Increase (decrease) in cash, cash equivalents and restricted cash	(861)	2,621	(132)
Cash, cash equivalents and restricted cash at beginning of period	2,821	200	332
Cash, cash equivalents and restricted cash at end of period	1,960	2,821	200
Less: Restricted cash	9	16	15
Cash and cash equivalents at end of period	$ 1,951	$ 2,805	$ 185

The accompanying notes are an integral part of the consolidated financial statements.

Johnson Controls International plc
Consolidated Statements of Shareholders' Equity Attributable to Johnson Controls Ordinary Shareholders

(in millions, except per share data)	Total	Ordinary Shares	Capital in Excess of Par Value	Retained Earnings	Treasury Stock, at Cost	Accumulated Other Comprehensive Income (Loss)
At September 30, 2017	$ 20,447	$ 9	$ 16,390	$ 5,231	$ (710)	$ (473)
Comprehensive income (loss)	1,689	—	—	2,162	—	(473)
Cash dividends Ordinary ($1.04 per share)	(968)	—	—	(968)	—	—
Repurchases of ordinary shares	(300)	—	—	—	(300)	—
Adoption of ASU 2016-09	179	—	—	179	—	—
Other, including options exercised	117	1	159	—	(43)	—
At September 30, 2018	21,164	10	16,549	6,604	(1,053)	(946)
Comprehensive income (loss)	5,350	—	—	5,674	—	(324)
Cash dividends Ordinary ($1.04 per share)	(887)	—	—	(887)	—	—
Repurchases and retirements of ordinary shares	(5,983)	(2)	—	(5,981)	—	—
Divestiture of Power Solutions	483	—	—	—	—	483
Adoption of ASC 606	(45)	—	—	(45)	—	—
Adoption of ASU 2016-01	—	—	—	8	—	(8)
Adoption of ASU 2016-16	(546)	—	—	(546)	—	—
Other, including options exercised	230	—	263	—	(33)	—
At September 30, 2019	19,766	8	16,812	4,827	(1,086)	(795)
Comprehensive income	650	—	—	631	—	19
Cash dividends Ordinary ($1.04 per share)	(780)	—	—	(780)	—	—
Repurchases and retirements of ordinary shares	(2,204)	—	—	(2,204)	—	—
Adoption of ASC 842	(5)	—	—	(5)	—	—
Change in noncontrolling interest share	(83)	—	(83)	—	—	—
Other, including options exercised	103	—	136	—	(33)	—
At September 30, 2020	**$ 17,447**	**$ 8**	**$ 16,865**	**$ 2,469**	**$ (1,119)**	**$ (776)**

The accompanying notes are an integral part of the consolidated financial statements.

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The consolidated financial statements include the consolidated accounts of Johnson Controls International plc, a corporation organized under the laws of Ireland, and its subsidiaries (Johnson Controls International plc and all its subsidiaries, hereinafter collectively referred to as the "Company," "Johnson Controls" or "JCI plc").

Nature of Operations

Johnson Controls International plc, headquartered in Cork, Ireland, is a global diversified technology and multi-industrial leader, serving a wide range of customers in more than 150 countries. The Company's products and solutions enable smart, energy efficient, sustainable buildings that work seamlessly together to advance the safety, comfort and intelligence of spaces to power its customers' mission. The Company is committed to helping its customers win and creating greater value for all of its stakeholders through its strategic focus on buildings.

In 2019, the Company sold its Power Solutions business to BCP Acquisitions LLC ("Purchaser"), an entity controlled by investment funds managed by Brookfield Capital Partners LLC, completing the Company's transformation into a pure-play building technologies and solutions provider. The transaction closed on April 30, 2019 with net cash proceeds of $11.6 billion after tax and transaction-related expenses. Refer to Note 3, "Discontinued Operations," of the notes to consolidated financial statements for further information.

The Company is a global leader in engineering, manufacturing and commissioning building products and systems, including residential and commercial heating, ventilating, air-conditioning ("HVAC") equipment, industrial refrigeration systems, controls, security systems, fire detection systems and fire suppression solutions. The Company further serves customers by providing technical services, including maintenance, repair, retrofit and replacement of equipment (in the HVAC, security and fire-protection space), energy-management consulting and data-driven “smart building” services and solutions powered by its digital platforms and capabilities.

Principles of Consolidation

The consolidated financial statements include the consolidated accounts of Johnson Controls International plc and its subsidiaries that are consolidated in conformity with accounting principles generally accepted in the United States of America ("U.S. GAAP"). All significant intercompany transactions have been eliminated. The results of companies acquired or disposed of during the year are included in the consolidated financial statements from the effective date of acquisition or up to the date of disposal. Investments in partially-owned affiliates are accounted for by the equity method when the Company's interest exceeds 20% and the Company does not have a controlling interest.

The Company consolidates variable interest entities ("VIE") in which the Company has the power to direct the significant activities of the entity and the obligation to absorb losses or receive benefits from the entity that may be significant. The Company did not have a significant variable interest in any consolidated or nonconsolidated VIEs in its continuing operations for the presented reporting periods.

Use of Estimates

The preparation of consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Fair Value of Financial Instruments

The fair values of cash and cash equivalents, accounts receivable, short-term debt and accounts payable approximate their carrying values. See Note 10, "Derivative Instruments and Hedging Activities," and Note 11, "Fair Value Measurements," of the notes to consolidated financial statements for fair value of financial instruments, including derivative instruments, hedging activities and long-term debt.

Assets and Liabilities Held for Sale

The Company classifies assets and liabilities (disposal groups) to be sold as held for sale in the period in which all of the following criteria are met: management, having the authority to approve the action, commits to a plan to sell the disposal group; the disposal group is available for immediate sale in its present condition subject only to terms that are usual and customary for sales of such disposal groups; an active program to locate a buyer and other actions required to complete the plan to sell the disposal group have been initiated; the sale of the disposal group is probable, and transfer of the disposal group is expected to qualify for recognition as a completed sale within one year, except if events or circumstances beyond the Company's control extend the period of time required to sell the disposal group beyond one year; the disposal group is being actively marketed for sale at a price that is reasonable in relation to its current fair value; and actions required to complete the plan indicate that it is unlikely that significant changes to the plan will be made or that the plan will be withdrawn.

In addition, the Company classifies disposal groups to be disposed of other than by sale (e.g. spin-off) as held for sale in the period the disposal occurs.

The Company initially measures a disposal group that is classified as held for sale at the lower of its carrying value or fair value less any costs to sell. Any loss resulting from this measurement is recognized in the period in which the held for sale criteria are met. Conversely, gains are not recognized on the sale of a disposal group until the date of sale. The Company assesses the fair value of a disposal group, less any costs to sell, each reporting period it remains classified as held for sale and reports any subsequent changes as an adjustment to the carrying value of the disposal group, as long as the new carrying value does not exceed the carrying value of the disposal group at the time it was initially classified as held for sale.

Upon determining that a disposal group meets the criteria to be classified as held for sale, the Company reports the assets and liabilities of the disposal group, if material, in the line items assets held for sale and liabilities held for sale in the consolidated statements of financial position. Refer to Note 3, "Discontinued Operations," of the notes to consolidated financial statements for further information.

Cash and Cash Equivalents

The Company considers all highly liquid investments with an original maturity of three months or less when purchased to be cash equivalents.

Restricted Cash

At September 30, 2020 and September 30, 2019, the Company held restricted cash of approximately $9 million and $16 million, respectively all of which was recorded within other current assets in the consolidated statements of financial position. These amounts related to cash restricted for payment of asbestos liabilities.

Receivables

Receivables consist of amounts billed and currently due from customers and unbilled costs and accrued profits related to revenues on long-term contracts that have been recognized for accounting purposes but not yet billed to customers. The Company extends credit to customers in the normal course of business and maintains an allowance for doubtful accounts resulting from the inability or unwillingness of customers to make required payments. The allowance for doubtful accounts is based on historical experience, existing economic conditions and any specific customer collection issues the Company has identified. The Company enters into supply chain financing programs to sell certain accounts receivable without recourse to third-party financial institutions. Sales of accounts receivable are reflected as a reduction of accounts receivable in the consolidated statements of financial position and the proceeds are included in cash flows from operating activities in the consolidated statements of cash flows.

Inventories

Inventories are stated at the lower of cost or market using the first-in, first-out ("FIFO") method. Finished goods and work-in-process inventories include material, labor and manufacturing overhead costs.

Property, Plant and Equipment

Property, plant and equipment are recorded at cost. Depreciation is provided over the estimated useful lives of the respective assets using the straight-line method for financial reporting purposes and accelerated methods for income tax purposes. The estimated useful lives generally range from 3 to 40 years for buildings and improvements, subscriber systems up to 15 years, and from 3 to 15 years for machinery and equipment. The Company capitalizes interest on borrowings during the active construction period of major capital projects. Capitalized interest is added to the cost of the underlying assets and is amortized over the useful lives of the assets.

Goodwill and Indefinite-Lived Intangible Assets

Goodwill reflects the cost of an acquisition in excess of the fair values assigned to identifiable net assets acquired. The Company reviews goodwill for impairment during the fourth fiscal quarter or more frequently if events or changes in circumstances indicate the asset might be impaired. The Company performs impairment reviews for its reporting units, which have been determined to be the Company’s reportable segments or one level below the reportable segments in certain instances, using a fair value method based on management’s judgments and assumptions or third party valuations. The fair value of a reporting unit refers to the price that would be received to sell the unit as a whole in an orderly transaction between market participants at the measurement date. In estimating the fair value, the Company uses multiples of earnings based on the average of published multiples of earnings of comparable entities with similar operations and economic characteristics and applies the multiples to the Company's average of historical and future financial results for each reporting unit. In certain instances, the Company uses discounted cash flow analyses or estimated sales price to further support the fair value estimates. The inputs utilized in the analyses are classified as Level 3 inputs within the fair value hierarchy as defined in ASC 820, "Fair Value Measurement." The estimated fair value is then compared with the carrying amount of the reporting unit, including recorded goodwill. The Company is subject to financial statement risk to the extent that the carrying amount exceeds the estimated fair value. Refer to Note 7, "Goodwill and Other Intangible Assets," of the notes to consolidated financial statements for information regarding the goodwill impairment testing performed in fiscal years 2020, 2019 and 2018.

Indefinite-lived intangible assets are also subject to at least annual impairment testing. Indefinite-lived intangible assets primarily consist of trademarks and trade names and are tested for impairment using a relief-from-royalty method. A considerable amount of management judgment and assumptions are required in performing the impairment tests.

Leases

Lessee arrangements

The Company leases certain administrative, production and other facilities, fleet vehicles, information technology equipment and other equipment under arrangements that are accounted for as operating leases. The Company determines whether an arrangement contains a lease at contract inception based on whether the arrangement involves the use of a physically distinct identified asset and whether the Company has the right to obtain substantially all of the economic benefits from the use of the asset throughout the period as well as the right to direct the use of the asset.

Right-of-use assets represent the Company’s right to use an underlying asset for the lease term and lease liabilities represent its obligation to make lease payments arising from the lease. Right-of-use assets and the corresponding lease liabilities are recognized at commencement date based on the present value of lease payments for all leases with terms longer than twelve months. As the majority of the Company's leases do not provide an implicit interest rate, to determine the present value of lease payments, the Company uses its incremental borrowing rate based on information available on the lease commencement date and uses the implicit rate when readily determinable. The Company determines its incremental borrowing rate based on a comparable market yield curve consistent with the Company's credit rating, term of the lease and relative economic environment. The Company has elected to combine lease and nonlease components for its leases.

Lessor arrangements

The Company's monitoring services and maintenance agreements within its security business that include subscriber system assets for which the Company retains ownership contain both lease and nonlease components. The Company has elected the practical expedient to combine lease and nonlease components for these arrangements where the timing and pattern of transfer of the lease and nonlease components are the same and the lease component would be classified as an operating lease if accounted for separately. The Company has concluded that in these arrangements the nonlease components are the predominant characteristic, and as a result, the combined component is accounted for under the revenue guidance.

Impairment of Long-Lived Assets

The Company reviews long-lived assets, including right-of-use assets under operating leases, other tangible assets and intangible assets with definitive lives, for impairment whenever events or changes in circumstances indicate that the asset’s carrying amount may not be recoverable. The Company conducts its long-lived asset impairment analyses in accordance with ASC 360-10-15, "Impairment or Disposal of Long-Lived Assets," ASC 350-30, "General Intangibles Other than Goodwill" and ASC 985-20, "Costs of Software to be Sold, Leased, or Marketed."

The Company groups assets and liabilities at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities and evaluates the asset group against the sum of the undiscounted future cash flows. If the undiscounted cash flows do not indicate the carrying amount of the asset group is recoverable, an impairment charge is measured as the amount by which the carrying amount of the asset group exceeds its fair value based on discounted cash flow analysis or appraisals. Intangible assets acquired in a business combination that are used in research and development activities are considered indefinite-lived until the completion or abandonment of the associated research and development efforts. During the period that those assets are considered indefinite lived, they are not amortized but are tested for impairment annually and more frequently if events or changes in circumstances indicate that it is more likely than not that the asset is impaired. If the carrying amount of an intangible asset exceeds its fair value, the Company recognizes an impairment loss in an amount equal to that excess. Unamortized capitalized costs of a computer software product are compared to the net realizable value of the product. The amount by which the unamortized capitalized costs of a computer software product exceed the net realizable value of that asset is written off. Refer to Note 17, "Impairment of Long-Lived Assets," of the notes to consolidated financial statements for information regarding the impairment testing performed in fiscal years 2020, 2019 and 2018.

Revenue Recognition

The Company recognizes revenue from certain long-term contracts to design, manufacture and install building products and systems as well as unscheduled repair or replacement services on an over time basis, with progress towards completion measured using a cost-to-cost input method based on the relationship between actual costs incurred and total estimated costs at completion. The cost-to-cost input method is used as it best depicts the transfer of control to the customer that occurs as the Company incurs costs. Changes to the original estimates may be required during the life of the contract and such estimates are reviewed monthly. If contract modifications result in additional goods or services that are distinct from those transferred before the modification, they are accounted for prospectively as if the Company entered into a new contract. If the goods or services in the modification are not distinct from those in the original contract, sales and gross profit are adjusted using the cumulative catch-up method for revisions in estimated total contract costs and contract values. Estimated losses are recorded when identified. The Company does not adjust the promised amount of consideration for the effects of a significant financing component as at contract inception the Company expects to receive the payment within twelve months of transfer of goods or services.

The Company enters into extended warranties and long-term service and maintenance agreements with certain customers. For these arrangements, revenue is recognized over time on a straight-line basis over the respective contract term.

The Company also sells certain HVAC and refrigeration products and services in bundled arrangements with multiple performance obligations, such as equipment, commissioning, service labor and extended warranties. Approximately four to twelve months separate the timing of the first deliverable until the last piece of equipment is delivered, and there may be extended warranty arrangements with duration of one to five years commencing upon the end of the standard warranty period. In addition, the Company sells security monitoring systems that may have multiple performance obligations, including equipment, installation, monitoring services and maintenance agreements. Revenues associated with sale of equipment and related installations are recognized over time on a cost-to-cost input method, while the revenue for monitoring and maintenance services are recognized over time as services are rendered. The transaction price is allocated to each performance obligation based on the relative selling price method. In order to estimate relative selling price, market data and transfer price studies are utilized. If the standalone selling price is not directly observable, the Company estimates the standalone selling price using an adjusted market assessment approach or expected cost plus margin approach. For transactions in which the Company retains ownership of the subscriber system asset, fees for monitoring and maintenance services are recognized over time on a straight-line basis over the contract term. Non-refundable fees received in connection with the initiation of a monitoring contract, along with associated direct and incremental selling costs, are deferred and amortized over the estimated life of the contract.

In all other cases, the Company recognizes revenue at the point in time when control over the goods or services transfers to the customer.

The Company considers the contractual consideration payable by the customer and assesses variable consideration that may affect the total transaction price, including discounts, rebates, refunds, credits or other similar sources of variable consideration, when determining the transaction price of each contract. The Company includes variable consideration in the estimated transaction price when it is probable that significant reversal of revenue recognized would not occur when the uncertainty associated with variable consideration is subsequently resolved. These estimates are based on the amount of consideration that the Company expects to be entitled to.

Shipping and handling costs billed to customers are included in sales and the related costs are included in cost of sales when control transfers to the customer. The Company presents amounts collected from customers for sales and other taxes net of the related amounts remitted.

Subscriber System Assets, Dealer Intangibles and Related Deferred Revenue Accounts

The Company considers assets related to the acquisition of new customers in its electronic security business in three asset categories: internally generated residential subscriber systems outside of North America, internally generated commercial subscriber systems (collectively referred to as subscriber system assets) and customer accounts acquired through the ADT dealer program, primarily outside of North America (referred to as dealer intangibles). Subscriber system assets include installed property, plant and equipment for which the Company retains ownership and deferred costs directly related to the customer acquisition and system installation. Subscriber system assets represent capitalized equipment (e.g. security control panels, touch pad, motion detectors, window sensors, and other equipment) and installation costs associated with electronic security monitoring arrangements under which the Company retains ownership of the security system assets in a customer's place of business, or outside of North America, residence. Installation costs represent costs incurred to prepare the asset for its intended use. The Company pays property taxes on the subscriber system assets and upon customer termination, may retrieve such assets. These assets embody a probable future economic benefit as they generate future monitoring revenue for the Company.

Costs related to the subscriber system equipment and installation are categorized as property, plant and equipment rather than deferred costs. Deferred costs associated with subscriber system assets represent direct and incremental selling expenses (such as commissions) related to acquiring the customer. Commissions related to up-front consideration paid by customers in connection with the establishment of the monitoring arrangement are determined based on a percentage of the up-front fees and do not exceed deferred revenue. Such deferred costs are recorded as other current and noncurrent assets within the consolidated statements of financial position.

Subscriber system assets and any deferred revenue resulting from the customer acquisition are accounted for over the expected life of the subscriber. In certain geographical areas where the Company has a large number of customers that behave in a similar manner over time, the Company accounts for subscriber system assets and related deferred revenue using pools, with separate pools for the components of subscriber system assets and any related deferred revenue based on the same month and year of acquisition. The Company depreciates its pooled subscriber system assets and related deferred revenue using a straight-line method with lives up to 12 years and considering customer attrition. The Company uses a straight-line method with a 15-year life for non-pooled subscriber system assets (primarily in Europe, Latin America and Asia) and related deferred revenue, with remaining balances written off upon customer termination.

Certain contracts and related customer relationships result from purchasing residential security monitoring contracts from an external network of independent dealers who operate under the ADT dealer program, primarily outside of North America. Acquired contracts and related customer relationships are recorded at their contractually determined purchase price.

During the first 6 months (12 months in certain circumstances) after the purchase of the customer contract, any cancellation of monitoring service, including those that result from customer payment delinquencies, results in a chargeback by the Company to the dealer for the full amount of the contract purchase price. The Company records the amount charged back to the dealer as a reduction of the previously recorded intangible asset.

Intangible assets arising from the ADT dealer program described above are amortized in pools determined by the same month and year of contract acquisition on a straight-line basis over the period of the customer relationship. The estimated useful life of dealer intangibles ranges from 12 to 15 years.

Research and Development Costs

Expenditures for research activities relating to product development and improvement are charged against income as incurred and included within selling, general and administrative expenses for continuing operations in the consolidated statements of income. Such expenditures for the years ended September 30, 2020, 2019 and 2018 were $274 million, $319 million and $310 million, respectively.

Earnings Per Share

The Company presents both basic and diluted earnings per share ("EPS") amounts. Basic EPS is calculated by dividing net income attributable to Johnson Controls by the weighted average number of common shares outstanding during the reporting period. Diluted EPS is calculated by dividing net income attributable to Johnson Controls by the weighted average number of common shares and common equivalent shares outstanding during the reporting period that are calculated using the treasury stock method for stock options, unvested restricted stock and unvested performance share awards. See Note 13, "Earnings per Share," of the notes to consolidated financial statements for the calculation of earnings per share.

Foreign Currency Translation

Substantially all of the Company's international operations use the respective local currency as the functional currency. Assets and liabilities of international entities have been translated at period-end exchange rates, and income and expenses have been translated using average exchange rates for the period. Monetary assets and liabilities denominated in non-functional currencies are adjusted to reflect period-end exchange rates. The aggregate transaction gains (losses), net of the impact of foreign currency hedges, included in income from continuing operations for the years ended September 30, 2020, 2019 and 2018 were $(32) million, $(10) million and $1 million, respectively.

Derivative Financial Instruments

The Company has written policies and procedures that place all financial instruments under the direction of Corporate treasury and restrict all derivative transactions to those intended for hedging purposes. The use of financial instruments for speculative purposes is strictly prohibited. The Company selectively uses financial instruments to manage the market risk from changes in foreign exchange rates, commodity prices, stock-based compensation liabilities and interest rates.

The fair values of all derivatives are recorded in the consolidated statements of financial position. The change in a derivative's fair value is recorded each period in current earnings or accumulated other comprehensive income ("AOCI"), depending on whether the derivative is designated as part of a hedge transaction and if so, the type of hedge transaction. See Note 10, "Derivative Instruments and Hedging Activities," and Note 11, "Fair Value Measurements," of the notes to consolidated financial statements for disclosure of the Company's derivative instruments and hedging activities.

Investments

The Company invests in debt and equity securities which are marked to market at the end of each accounting period. For fiscal 2020 and 2019, unrealized gains and losses on these securities are recognized in the Company's consolidated statements of income. For periods prior to fiscal 2019, the unrealized gains and losses on these securities, other than the deferred compensation plan assets, were recognized in AOCI within the consolidated statement of shareholders' equity unless an unrealized loss is deemed to be other than temporary, in which case such loss was charged to earnings. The deferred compensation plan assets are marked to market at the end of each accounting period and all unrealized gains and losses are recorded in the consolidated statements of income.

Pension and Postretirement Benefits

The Company utilizes a mark-to-market approach for recognizing pension and postretirement benefit expenses, including measuring the market related value of plan assets at fair value and recognizing actuarial gains and losses in the fourth quarter of each fiscal year or at the date of a remeasurement event. Refer to Note 15, "Retirement Plans," of the notes to consolidated financial statements for disclosure of the Company's pension and postretirement benefit plans.

Loss Contingencies

Accruals are recorded for various contingencies including legal proceedings, environmental matters, self-insurance and other claims that arise in the normal course of business. The accruals are based on judgment, the probability of losses and, where applicable, the consideration of opinions of internal and/or external legal counsel and actuarially determined estimates. Additionally, the Company records receivables from third party insurers when recovery has been determined to be probable.

The Company is subject to laws and regulations relating to protecting the environment. The Company provides for expenses associated with environmental remediation obligations when such amounts are probable and can be reasonably estimated. Refer to Note 22, "Commitments and Contingencies," of the notes to consolidated financial statements.

The Company records liabilities for its workers' compensation, product, general and auto liabilities. The determination of these liabilities and related expenses is dependent on claims experience. For most of these liabilities, claims incurred but not yet reported are estimated by utilizing actuarial valuations based upon historical claims experience. The Company records receivables from third party insurers when recovery has been determined to be probable. The Company maintains captive insurance companies to manage its insurable liabilities.

Asbestos-Related Contingencies and Insurance Receivables

The Company and certain of its subsidiaries along with numerous other companies are named as defendants in personal injury lawsuits based on alleged exposure to asbestos-containing materials. The Company's estimate of the liability and corresponding insurance recovery for pending and future claims and defense costs is based on the Company's historical claim experience, and estimates of the number and resolution cost of potential future claims that may be filed and is discounted to present value from 2068 (which is the Company's reasonable best estimate of the actuarially determined time period through which asbestos-related claims will be filed against Company affiliates). Asbestos-related defense costs are included in the asbestos liability. The Company's legal strategy for resolving claims also impacts these estimates. The Company considers various trends and developments in evaluating the period of time (the look-back period) over which historical claim and settlement experience is used to estimate and value claims reasonably projected to be made through 2068. Annually, the Company assesses the sufficiency of its estimated liability for pending and future claims and defense costs by evaluating actual experience regarding claims filed, settled and dismissed, and amounts paid in settlements. In addition to claims and settlement experience, the Company considers additional quantitative and qualitative factors such as changes in legislation, the legal environment, and the Company's defense strategy. The Company also evaluates the recoverability of its insurance receivable on an annual basis. The Company evaluates all of these factors and determines whether a change in the estimate of its liability for pending and future claims and defense costs or insurance receivable is warranted.

In connection with the recognition of liabilities for asbestos-related matters, the Company records asbestos-related insurance recoveries that are probable. The Company's estimate of asbestos-related insurance recoveries represents estimated amounts due to the Company for previously paid and settled claims and the probable reimbursements relating to its estimated liability for pending and future claims discounted to present value. In determining the amount of insurance recoverable, the Company considers available insurance, allocation methodologies, solvency and creditworthiness of the insurers. Refer to Note 22, "Commitments and Contingencies," of the notes to consolidated financial statements for a discussion on management's judgments applied in the recognition and measurement of asbestos-related assets and liabilities.

Income Taxes

Deferred tax liabilities and assets are recognized for the expected future tax consequences of events that have been reflected in the consolidated financial statements. Deferred tax liabilities and assets are determined based on the differences between the book and tax basis of particular assets and liabilities and operating loss carryforwards, using tax rates in effect for the years in which the differences are expected to reverse. A valuation allowance is provided to reduce the carrying or book value of deferred tax assets if, based upon the available evidence, including consideration of tax planning strategies, it is more-likely-than-not that some or all of the deferred tax assets will not be realized. Refer to Note 18, "Income Taxes," of the notes to consolidated financial statements.

Retrospective Changes

Certain amounts as of September 30, 2019 and 2018 have been revised to conform to the current year's presentation.

New Accounting Pronouncements

Recently Adopted Accounting Pronouncements

In February 2016, the FASB issued ASU No. 2016-02, "Leases (Topic 842)." ASU No. 2016-02 requires recognition of operating leases as lease assets and liabilities on the balance sheet, and disclosure of key information about leasing arrangements. The Company adopted Topic 842 and the related amendments using a modified-retrospective approach as of October 1, 2019 and applied the new guidance to all leases through a cumulative-effect adjustment to beginning retained earnings. The comparative periods have not been recast and continue to be reported under the previous lease accounting guidance. The Company has elected to apply the package of transitional practical expedients, under which the Company did not reassess prior conclusions about lease identification, lease classification, and initial direct costs of existing leases as of the date of adoption. The adoption of the new guidance resulted in recognition of a right-of-use asset and related lease liabilities of $1.1 billion, with an immaterial impact to retained earnings. Refer to Note 8, "Leases," for additional lease disclosures.

In May 2020, the SEC issued Final Rule Release No. 33-10786, which amends the financial statement requirements for acquisitions and dispositions of businesses and related pro forma financial information required under SEC Regulation S-X, Rule 3-05. Among other things, the final rule modifies the significance test required in SEC Regulation S-X, Rule 1-02(w) by changing the income test to use the lower measure of significance based on income from continuing operations before taxes or revenue. In accordance with Rules 3-09 or 4-08(g), the revised income test will apply to the evaluation of equity method investments for significance. The final rule is effective on January 1, 2021, however, voluntary early adoption is permitted as long as all amendments are adopted in their entirety. The Company early adopted all provisions of the final rule during the fourth quarter of fiscal 2020. As a result of the revised income test, none of the Company's non-consolidated partially-owned affiliates, either individually or in the aggregate, are considered significant subsidiaries which require disclosure in the Company's footnotes for fiscal 2020.

Recently issued accounting pronouncements are not expected to have a material impact on the Company's consolidated financial statements.

2. ACQUISITIONS AND DIVESTITURES

Fiscal Year 2020

During fiscal 2020, the Company completed certain acquisitions for a combined purchase price, net of cash acquired, of $82 million, of which $77 million was paid as of September 30, 2020. In connection with the acquisitions, the Company recorded goodwill of $35 million within the Building Solutions EMEA/LA segment and $21 million within the Global Products segment. The acquisitions were not material to the Company's consolidated financial statements.

Additionally, in the fourth quarter of fiscal 2020, the Company acquired additional ownership interest in one of its consolidated subsidiaries within the Global Products segment for a purchase price of $132 million, all of which was paid as of September 30, 2020. In connection with this transaction, the Company recorded a compensation charge of $39 million related to the cash settlement of equity awards.

In the fourth quarter of fiscal 2020, the Company completed certain divestitures within the Global Products and Building Solutions Asia Pacific segments. The combined selling price, net of cash divested, was $152 million, of which $135 million was received as of September 30, 2020. In connection with the divestitures, the Company reduced goodwill by $11 million within the Building Solutions Asia Pacific segment. The divestitures were not material to the Company's consolidated financial statements.

Fiscal Year 2019

On April 30, 2019, the Company completed the sale of its Power Solutions business to BCP Acquisitions LLC for a purchase price of $13.2 billion. The net cash proceeds after tax and transaction-related expenses were $11.6 billion. In connection with the sale, the Company recorded a gain, net of transaction and other costs, of $5.2 billion ($4.0 billion after tax), subject to post-closing working capital and net debt adjustments, within income from discontinued operations, net of tax, in the consolidated statements of income. Refer to Note 3, "Discontinued Operations," of the notes to consolidated financial statements for further disclosure related to the Company's discontinued operations.

During fiscal 2019, the Company completed certain divestitures within the Global Products and Building Solutions EMEA/LA segments. The combined selling price was $18 million, $16 million of which was received as of September 30, 2019. In connection with the sale, the Company reduced goodwill by $1 million within the Building Solutions EMEA/LA segment. The divestitures were not material to the Company's consolidated financial statements.

During fiscal 2019, the Company completed certain acquisitions for a combined purchase price of $32 million, $25 million of which was paid as of September 30, 2019. In connection with the acquisitions, the Company recorded goodwill of $11 million within the Global Products segment, $8 million within the Building Solutions Asia Pacific segment, and $6 million within the Building Solutions EMEA/LA segment. The acquisitions were not material to the Company's consolidated financial statements.

Fiscal Year 2018

During fiscal 2018, the Company completed certain acquisitions for a combined purchase price, net of cash acquired, of $21 million, all of which was paid as of September 30, 2018. In connection with the acquisitions, the Company recorded goodwill of $14 million within the Global Products segment and $1 million within the Building Solutions EMEA/LA segment. The acquisitions were not material to the Company’s consolidated financial statements.

In the first quarter of fiscal 2018, the Company completed the sale of its Scott Safety business to 3M Company. The selling price, net of cash divested, was $2.0 billion, all of which was received as of September 30, 2018. In connection with the sale, the Company recorded a pre-tax gain of $114 million within selling, general and administrative expenses in the consolidated statements of income and reduced goodwill in assets held for sale by $1.2 billion. The gain, net of tax, recorded was $84 million.

Also during fiscal 2018, the Company completed certain divestitures primarily within the Global Products segment. The combined selling price was $204 million, all of which was received as of September 30, 2018. In connection with the divestitures, the Company reduced goodwill by $35 million. The divestitures were not material to the Company's consolidated financial statements.

3. DISCONTINUED OPERATIONS

Power Solutions

During the first quarter of fiscal 2019, the Company determined that its Power Solutions business met the criteria to be classified as a discontinued operation and, as a result, its historical financial results are reflected in the Company's consolidated financial statements as a discontinued operation, and assets and liabilities were classified as assets and liabilities held for sale. The Company did not allocate any general corporate overhead to discontinued operations.

The following table summarizes the results of Power Solutions which are classified as discontinued operations for the fiscal years ended September 30, 2019 and 2018 (in millions). As the Power Solutions sale occurred on April 30, 2019, there are only seven months of results included in the fiscal year ended September 30, 2019.

	Year Ended September 30,	
	2019	2018
Net sales	$ 5,001	$ 8,000
Income from discontinued operations before income taxes	6,039	1,355
Provision for income taxes on discontinued operations	(1,441)	(321)
Income from discontinued operations attributable to noncontrolling interests, net of tax	(24)	(47)
Income from discontinued operations	$ 4,574	$ 987

For the fiscal year ended September 30, 2019, income from discontinued operations before income taxes included a gain on sale of the Power Solutions business, net of transaction and other costs, of $5.2 billion and a favorable impact of $117 million for ceasing depreciation and amortization expense as the business was held for sale.

For the fiscal year ended September 30, 2019, the effective tax rate was more than the Irish statutory rate of 12.5% primarily due to the tax impacts of the divestiture of the Power Solutions business and tax rate differentials. For the fiscal year ended September 30, 2018, the effective tax rate was more than the Irish statutory rate of 12.5% primarily due to legal entity restructuring associated with the Power Solutions business and tax rate differentials.

Assets and Liabilities Held for Sale

During the third quarter of fiscal 2020, the Company determined that certain assets of the Building Solutions Asia Pacific segment met the criteria to be classified as held for sale. The estimated fair value, less costs to sell, of these assets was $147 million at September 30, 2020.

During the third quarter of 2019, the Company determined that a business within its Global Products segment met the criteria to be classified as held for sale. This business was sold in the fourth quarter of fiscal 2020. The assets and liabilities of this business are presented as held for sale in the consolidated statements of financial position as of September 30, 2019. Assets and liabilities held for sale are recorded at the lower of carrying value or fair value less any costs to sell. The Company recorded impairment charges within restructuring and impairment costs in the consolidated statements of income of $15 million in the first quarter of fiscal 2020 and $235 million in the third quarter of fiscal 2019 to write down the carrying value of the assets held for sale to fair value less any costs to sell. Refer to Note 17, "Impairment of Long-Lived Assets" of the notes to consolidated financial statements for further information regarding the impairment charges. The business did not meet the criteria to be classified as a discontinued operation as the divestiture did not have a major effect on the Company’s operations and financial results.

4. REVENUE RECOGNITION

Disaggregated Revenue

The following table presents the Company's revenues disaggregated by segment and by products and systems versus services revenue for the years ended September 30, 2020 and 2019 (in millions):

	Year Ended September 30, 2020			Year Ended September 30, 2019		
	Products & Systems	Services	Total	Products & Systems	Services	Total
Building Solutions North America	$ 5,371	$ 3,234	$ 8,605	$ 5,745	$ 3,286	$ 9,031
Building Solutions EMEA/LA	1,644	1,796	3,440	1,767	1,888	3,655
Building Solutions Asia Pacific	1,369	1,034	2,403	1,575	1,083	2,658
Global Products	7,869	—	7,869	8,624	—	8,624
Total	$ 16,253	$ 6,064	$ 22,317	$ 17,711	$ 6,257	$ 23,968

The following table presents further disaggregation of Global Products segment revenues by product type for the years ended September 30, 2020 and 2019 (in millions):

	Year Ended September 30, 2020	Year Ended September 30, 2019
Building management systems	$ 1,205	$ 1,292
HVAC & refrigeration equipment	5,613	6,181
Specialty products	1,051	1,151
Total	$ 7,869	$ 8,624

Contract Balances

Contract assets relate to the Company’s right to consideration for performance obligations satisfied but not billed and consist of unbilled receivables and costs in excess of billings. Contract liabilities relate to customer payments received in advance of satisfaction of performance obligations under the contract. Contract liabilities consist of deferred revenue. Contract balances are classified as assets or liabilities on a contract-by-contract basis at the end of each reporting period.

The following table presents the location and amount of contract balances in the Company's consolidated statements of financial position (in millions):

	Location of contract balances	September 30, 2020	September 30, 2019
Contract assets - current	Accounts receivable - net	$ 1,395	$ 1,389
Contract assets - noncurrent	Other noncurrent assets	104	90
Contract liabilities - current	Deferred revenue	(1,435)	(1,407)
Contract liabilities - noncurrent	Other noncurrent liabilities	(245)	(228)
Total		$ (181)	$ (156)

For the year ended September 30, 2020, the Company recognized revenue of approximately $1.3 billion that was included in the beginning of period contract liability balance. For the year ended September 30, 2019, the Company recognized revenue of approximately $1.2 billion that was included in the beginning of period contract liability balance.

Performance Obligations

A performance obligation is a distinct good, service, or bundle of goods and services promised in a contract. A contract's transaction price is allocated to each distinct performance obligation and recognized as revenue when, or as, the performance obligation is satisfied. When contracts with customers require significant and complex integration, contain goods or services which are highly interdependent or interrelated, or are goods or services which significantly modify or customize other promises in the contracts and, therefore, are not distinct, then the entire contract is accounted for as a single performance obligation. For any contracts with multiple performance obligations, the contract's transaction price is allocated to each performance obligation based on the estimated relative standalone selling price of each distinct good or service in the contract. For product sales, each product sold to a customer typically represents a distinct performance obligation.

Performance obligations are satisfied as of a point in time or over time. The timing of satisfying the performance obligation is typically indicated by the terms of the contract. As of September 30, 2020, the aggregate amount of the transaction price allocated to remaining performance obligations was approximately $14.4 billion, of which approximately 60% is expected to be recognized as revenue over the next two years. The remaining performance obligations expected to be recognized in revenue beyond two years primarily relate to large, multi-purpose contracts to construct hospitals, schools and other governmental buildings, which include services to be performed over the building's lifetime, with initial contract terms of 25 to 35 years. Future contract modifications could affect both the timing and the amount of the remaining performance obligations. The Company excludes the value of remaining performance obligations for contracts with an original expected duration of one year or less.

Costs to Obtain or Fulfill a Contract

The Company recognizes the incremental costs incurred to obtain or fulfill a contract with a customer as an asset when these costs are recoverable. These costs consist primarily of sales commissions and bid/proposal costs. Costs to obtain or fulfill a contract are capitalized and amortized to revenue over the period of contract performance.

As of September 30, 2020, the Company recorded costs to obtain or fulfill a contract of $223 million, of which $119 million is recorded within other current assets and $104 million is recorded within other noncurrent assets in the consolidated statements of financial position. As of September 30, 2019, the Company recorded costs to obtain or fulfill a contract of $212 million, of which $110 million is recorded within other current assets and $102 million is recorded within other noncurrent assets in the consolidated statements of financial position.

During the year ended September 30, 2020, the Company recognized amortization expense of $162 million related to costs to obtain or fulfill a contract. There were no impairment losses recognized in the year ended September 30, 2020. During the year ended September 30, 2019, the Company recognized amortization expense of $157 million related to costs to obtain or fulfill a contract. There were no impairment losses recognized in the year ended September 30, 2019.

5. INVENTORIES

Inventories consisted of the following (in millions):

	September 30, 2020	September 30, 2019
Raw materials and supplies	$ 629	$ 588
Work-in-process	142	176
Finished goods	1,002	1,050
Inventories	$ 1,773	$ 1,814

6. PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment consisted of the following (in millions):

	September 30, 2020	September 30, 2019
Buildings and improvements	$ 1,351	$ 1,499
Subscriber systems	679	661
Machinery and equipment	3,332	2,969
Construction in progress	327	465
Land	241	250
Total property, plant and equipment	5,930	5,844
Less: accumulated depreciation	(2,871)	(2,496)
Property, plant and equipment - net	$ 3,059	$ 3,348

Interest costs capitalized during the fiscal years ended September 30, 2020, 2019 and 2018 were $1 million, $6 million and $17 million, respectively.

7. GOODWILL AND OTHER INTANGIBLE ASSETS

The changes in the carrying amount of goodwill in each of the Company's reportable segments for the fiscal years ended September 30, 2020 and 2019 were as follows (in millions):

	September 30, 2018	Business Acquisitions	Business Divestitures	Impairments	Currency Translation and Other	September 30, 2019
Building Solutions North America	$ 9,603	$ —	$ —	$ —	$ (15)	$ 9,588
Building Solutions EMEA/LA	1,950	6	(1)	—	(106)	1,849
Building Solutions Asia Pacific	1,235	8	—	—	(49)	1,194
Global Products	5,593	11	(22)	—	(35)	5,547
Total	$ 18,381	$ 25	$ (23)	$ —	$ (205)	$ 18,178

	September 30, 2019	Business Acquisitions	Business Divestitures	Impairments	Currency Translation and Other	September 30, 2020
Building Solutions North America	$ 9,588	$ —	$ —	$ (424)	$ (4)	$ 9,160
Building Solutions EMEA/LA	1,849	35	—	—	83	1,967
Building Solutions Asia Pacific	1,194	—	(11)	—	43	1,226
Global Products	5,547	21	—	—	11	5,579
Total	$ 18,178	$ 56	$ (11)	$ (424)	$ 133	$ 17,932

The fiscal 2019 Global Products business divestiture amount includes $22 million of goodwill transferred to noncurrent assets held for sale in the consolidated statements of financial position related to the fiscal 2020 disposal of a business within the Global Products segment.

At September 30, 2018, accumulated goodwill impairment charges included $47 million related to the Building Solutions EMEA/LA - Latin America reporting unit.

The Company reviews goodwill for impairment during the fourth fiscal quarter or more frequently if events or changes in circumstances indicate the asset might be impaired. The Company considered the ongoing deterioration in general economic and market conditions due to the COVID-19 pandemic and its impact on each of the Company's reporting units' performance. Due to further declines in cash flow projections of the North America Retail reporting unit in the third quarter of fiscal 2020 as a result of the COVID-19 pandemic, the Company concluded a triggering event occurred requiring assessment of impairment for its North America Retail reporting unit. As a result, the Company recorded a non-cash impairment charge of $424 million within restructuring and impairment costs in the consolidated statements of income in the third quarter of fiscal 2020, which was determined by comparing the carrying amount of a reporting unit to its fair value in accordance with ASU No. 2017-04, "Intangible - Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment," which the Company early adopted. The North America Retail reporting unit has a remaining goodwill balance of $230 million at September 30, 2020. The Company used a discounted cash flow model to estimate the fair value of the reporting unit. Other than management's internal projections of future cash flows, the primary assumptions used in the model were the weighted-average cost of capital and long-term growth rates, which are classified as Level 3 inputs within the fair value hierarchy as defined in ASC 820, "Fair Value Measurement." Although the Company's cash flow forecasts are based on assumptions that are considered reasonable by management and consistent with the plans and estimates management is using to operate the underlying business, there was significant judgment in determining the expected future cash flows attributable to the North America Retail reporting unit.

There were no goodwill impairments resulting from the fiscal 2020 and 2019 annual impairment tests. With the exception of the North America Retail reporting unit that had a recent goodwill impairment and is recorded at fair value, no reporting unit was determined to be at risk of failing the goodwill impairment test. The estimated fair value for North America Retail reporting unit exceeded its carrying value by 6%. The Company performs impairment reviews for its reporting units, which have been determined to be the Company's reportable segments or one level below the reportable segments in certain instances, using a fair value method based on management's judgments and assumptions or third party valuations. The fair value of a reporting unit refers to the price that would be received to sell the unit as a whole in an orderly transaction between market participants at the measurement date. In estimating the fair value, the Company uses multiples of earnings based on the average of published multiples of earnings of comparable entities with similar operations and economic characteristics and applies the multiples to the Company's average of historical and future financial results for each reporting unit. In certain instances, the Company uses discounted cash flow analyses or estimated sales price to further support the fair value estimates. The inputs utilized in the analyses are classified as Level 3 inputs within the fair value hierarchy as defined in ASC 820, "Fair Value Measurement." The estimated fair value is then compared with the carrying amount of the reporting unit, including recorded goodwill. The Company is subject to financial statement risk to the extent that the carrying amount exceeds the estimated fair value.

The assumptions included in the impairment tests require judgment, and changes to these inputs could impact the results of the calculations. The primary assumptions used in the impairment tests were management's projections of future cash flows. Although the Company's cash flow forecasts are based on assumptions that are considered reasonable by management and consistent with the plans and estimates management is using to operate the underlying businesses, there are significant judgments in determining the expected future cash flows attributable to a reporting unit.

The Company continuously monitors for events and circumstances that could negatively impact the key assumptions in determining fair value, including long-term revenue growth projections, profitability, discount rates, recent market valuations from transactions by comparable companies, volatility in the Company's market capitalization, and general industry, market and macro-economic conditions. It is possible that future changes in such circumstances, including a more prolonged and/or severe COVID-19 pandemic, or future changes in the variables associated with the judgments, assumptions and estimates used in assessing the fair value of the reporting unit, would require the Company to record additional non-cash impairment charges.

The Company's other intangible assets, primarily from business acquisitions valued based on independent appraisals, consisted of (in millions):

	September 30, 2020			September 30, 2019		
	Gross Carrying Amount	Accumulated Amortization	Net	Gross Carrying Amount	Accumulated Amortization	Net
Amortized intangible assets						
Technology	$ 1,332	$ (497)	$ 835	$ 1,307	$ (370)	$ 937
Customer relationships	2,773	(969)	1,804	2,722	(759)	1,963
Miscellaneous	657	(268)	389	584	(224)	360
Total amortized intangible assets	4,762	(1,734)	3,028	4,613	(1,353)	3,260
Unamortized intangible assets						
Trademarks/tradenames	2,248	—	2,248	2,282	—	2,282
Miscellaneous	80	—	80	90	—	90
	2,328	—	2,328	2,372	—	2,372
Total intangible assets	$ 7,090	$ (1,734)	$ 5,356	$ 6,985	$ (1,353)	$ 5,632

The Company reviews indefinite-lived intangible assets for impairment during the fourth fiscal quarter or more frequently if events or changes in circumstances indicate the asset might be impaired. Indefinite-lived intangible assets primarily consist of trademarks and tradenames and are tested for impairment using a relief-from-royalty method. During the second and third quarters of fiscal 2020, the Company determined that it had a triggering event at each reporting period end requiring assessment of impairment for certain of its indefinite-lived intangible assets due to declines in revenue directly attributable to the COVID-19 pandemic. As a result, the Company recorded an impairment charge of $62 million related primarily to the Company's retail business indefinite-lived intangible assets within restructuring and impairment costs in the consolidated statements of income in the second quarter of fiscal 2020. No further impairment was required to be recorded in the third quarter of fiscal 2020 as a result of the completed impairment assessment.

There were no indefinite-lived intangible asset impairments resulting from fiscal 2020 and 2019 annual impairment tests. The estimated fair values of all indefinite-lived intangibles substantially exceeded their carrying values, with the exception of the indefinite-lived trademarks related to the Company's security and Asia Pacific subscriber businesses. The estimated fair value for the security and Asia Pacific indefinite-lived trademarks exceeded their carrying value by 4% and 2%, respectively. The carrying amount of the security and Asia Pacific indefinite-lived trademarks as of September 30, 2020 was $299 million and $37 million, respectively.

The Company continuously monitors for events and circumstances that could negatively impact the key assumptions in determining fair value, including long-term revenue growth projections, discount rates and general industry, market and macro-economic conditions. It is possible that future changes in such circumstances, including a more prolonged and/or severe COVID-19 pandemic, or future changes in the variables associated with the judgments, assumptions and estimates used in assessing the fair value of the indefinite-lived intangible assets, would require the Company to record an additional non-cash impairment charge.

Amortization of other intangible assets included within continuing operations for the fiscal years ended September 30, 2020, 2019 and 2018 was $386 million, $377 million and $376 million, respectively. Excluding the impact of any future acquisitions, the Company anticipates amortization for fiscal 2021, 2022, 2023, 2024 and 2025 will be approximately $404 million, $403 million, $402 million, $383 million and $365 million, respectively.

8. LEASES

Most leases contain options to renew or terminate the lease. Right-of-use assets and lease liabilities reflect only the options which the Company is reasonably certain to exercise. Lease expense is recognized on a straight-line basis over the lease term.

The Company has certain real estate leases that contain variable lease payments which are based on changes in the Consumer Price Index (CPI). Additionally, the Company's leases generally require it to pay for fuel, maintenance, repair, insurance and taxes. These payments are not included in the right-of-use asset or lease liability and are expensed as incurred.

The following table presents the Company's lease costs for the fiscal year ended September 30, 2020 (in millions):

	Year Ended September 30, 2020	
Operating lease cost	$	399
Variable lease cost		145
Total lease costs	$	544

Total rental expense for continuing operations for the fiscal years ended September 30, 2019 and 2018 was $452 million and $408 million, respectively.

The following table presents supplemental consolidated statement of financial position information as of September 30, 2020 (in millions):

	Location of lease balances	September 30, 2020	
Operating lease right-of-use assets	Other noncurrent assets	$	1,190
Operating lease liabilities - current	Other current liabilities		332
Operating lease liabilities - noncurrent	Other noncurrent liabilities		875
Weighted-average remaining lease term			6 years
Weighted-average discount rate			2.2 %

The following table presents supplemental cash flow information related to operating leases for the fiscal year ended September 30, 2020 (in millions):

	Year Ended September 30, 2020	
Cash paid for amounts included in the measurement of lease liability:		
Operating cash outflows from operating leases	$	397
Noncash operating lease activity:		
Right-of-use assets obtained in exchange for operating lease liabilities		467

The following table presents maturities of operating lease liabilities as of September 30, 2020 (in millions):

	September 30, 2020	
2021	$	352
2022		279
2023		191
2024		143
2025		91
After 2025		235
Total operating lease payments		1,291
Less: interest		(84)
Present value of lease payments	$	1,207

As previously disclosed in the Company's Annual Report on Form 10-K for the year ended September 30, 2019 and accounted for under the previous lease accounting guidance, future minimum operating lease payments for long-term noncancellable operating leases as of September 30, 2019 were as follows (in millions):

	September 30, 2019
2020	$ 352
2021	287
2022	200
2023	111
2024	71
After 2024	172
Total minimum lease payments	$ 1,193

9. DEBT AND FINANCING ARRANGEMENTS

Short-term debt consisted of the following (in millions):

	September 30,	
	2020	2019
Bank borrowings	$ 31	$ 10
Weighted average interest rate on short-term debt outstanding	3.4 %	2.0 %

The Company had no commercial paper outstanding as of September 30, 2020 and 2019.

In December 2019, the Company entered into a syndicated $2.5 billion committed revolving credit facility, which is scheduled to expire in December 2024, and a syndicated $500 million committed revolving credit facility, which is scheduled to expire in December 2020. Additionally, the Company terminated its syndicated 5-year $2 billion committed revolving credit facility and four 364-day revolving credit facilities with total committed capacity of $750 million. As of September 30, 2020, there were no draws on the revolving credit facilities.

Long-term debt consisted of the following (in millions; due dates by fiscal year):

	September 30, 2020	September 30, 2019
Unsecured notes		
JCI plc - 5.00% due in 2020 ($453 million par value)	$ —	$ 453
JCI Inc. - 5.00% due in 2020 ($47 million par value)	—	47
JCI plc - 0.00% due in 2021 (€750 million par value)	—	818
JCI plc - 4.25% due in 2021 ($204 million par value)	204	204
JCI Inc. - 4.25% due in 2021 ($53 million par value)	53	53
JCI plc - 3.75% due in 2022 ($171 million par value)	171	171
JCI Inc. - 3.75% due in 2022 ($22 million par value)	22	22
JCI plc - 4.625% due in 2023 ($25 million par value)	26	26
Tyco International Finance S.A. ("TIFSA") - 4.625% due in 2023 ($7 million par value)	7	7
JCI plc - 1.00% due in 2023 (€888 million par value)	1,039	967
JCI plc - 3.625% due in 2024 ($453 million par value)	453	453
JCI Inc. - 3.625% due in 2024 ($31 million par value)	31	31
JCI plc - 1.375% due in 2025 (€423 million par value)	503	471
TIFSA - 1.375% due in 2025 (€54 million par value)	64	60
JCI plc - 3.90% due in 2026 ($487 million par value)	516	521
TIFSA - 3.90% due in 2026 ($51 million par value)	51	51
JCI plc and Tyco Fire & Security Finance S.C.A. ("TFSCA") - 0.375% due in 2027 (€500 million par value)	583	—
JCI plc and TFSCA - 1.75% due in 2030 ($625 million par value)	623	—
JCI plc and TFSCA - 1.00% due in 2032 (€500 million par value)	584	—
JCI plc - 6.00% due in 2036 ($342 million par value)	339	339
JCI Inc. - 6.00% due in 2036 ($8 million par value)	8	8
JCI plc - 5.70% due in 2041 ($190 million par value)	189	189
JCI Inc. - 5.70% due in 2041 ($30 million par value)	30	30
JCI plc - 5.25% due in 2042 ($155 million par value)	155	155
JCI Inc. - 5.25% due in 2042 ($6 million par value)	6	6
JCI plc - 4.625% due in 2044 ($444 million par value)	441	441
JCI Inc. - 4.625% due in 2044 ($6 million par value)	6	6
JCI plc - 5.125% due in 2045 ($477 million par value)	564	567
TIFSA - 5.125% due in 2045 ($23 million par value)	22	22
JCI plc - 6.95% due in 2046 ($32 million par value)	32	32
JCI Inc. - 6.95% due in 2046 ($4 million par value)	4	4
JCI plc - 4.50% due in 2047 ($500 million par value)	496	496
JCI plc - 4.95% due in 2064 ($341 million par value)	340	340
JCI Inc. - 4.95% due in 2064 ($15 million par value)	15	15
JCI plc - Term Loan - ¥25 billion; LIBOR JPY plus 0.40% due in 2022	237	232
Other	8	3
Gross long-term debt	7,822	7,240
Less: current portion	262	501
Less: debt issuance costs	34	31
Net long-term debt	$ 7,526	$ 6,708

The installments of long-term debt maturing in subsequent fiscal years are: 2021 - $262 million; 2022 - $432 million; 2023 - $1,073 million; 2024 - $484 million; 2025 - $567 million; 2026 and thereafter - $5,004 million. The Company's long-term debt includes various financial covenants, none of which are expected to restrict future operations.

Total interest paid on both short and long-term debt for continuing operations for the fiscal years ended September 30, 2020, 2019 and 2018 was $247 million, $369 million and $401 million, respectively.

Financing Arrangements

In September 2020, the Company and its wholly owned subsidiary, TFSCA issued €500 million aggregate principal amount of their 0.375% Senior Notes due 2027 and €500 million aggregate principal amount of their 1.000% Senior Notes due 2032. A portion of the proceeds were used to repay €750 million of notes which were due in December 2020 and the short-term debt which was issued in April 2020, including $675 million of European financing arrangements which were due in September 2020 and $275 million of bank term loans which were due in April 2021. The remainder of the proceeds is to be used for general corporate purposes. In July 2020, the Company repaid $300 million of a bank term loan that was issued in April 2020.

In September 2020, the Company and its wholly owned subsidiary, TFSCA issued $625 million of green bonds with an interest rate of 1.750% which are due in 2030. The net proceeds are being used to support projects that focus on sustainability and support the Company's 2025 sustainability goals.

In March 2020, the Company retired $500 million in principal amount, plus accrued interest, of its 5.0% fixed rate notes that expired in March 2020.

Net Financing Charges

The Company's net financing charges line item in the consolidated statements of income for the years ended September 30, 2020, 2019 and 2018 contained the following components (in millions):

	Year Ended September 30,		
	2020	2019	2018
Interest expense, net of capitalized interest costs	$ 240	$ 335	$ 409
Banking fees and bond cost amortization	26	28	30
Loss on debt extinguishment	—	60	—
Interest income	(23)	(61)	(13)
Net foreign exchange results for financing activities	(12)	(12)	(25)
Net financing charges	$ 231	$ 350	$ 401

10. DERIVATIVE INSTRUMENTS AND HEDGING ACTIVITIES

The Company selectively uses derivative instruments to reduce market risk associated with changes in foreign currency, commodities, stock-based compensation liabilities and interest rates. Under Company policy, the use of derivatives is restricted to those intended for hedging purposes; the use of any derivative instrument for speculative purposes is strictly prohibited. A description of each type of derivative utilized by the Company to manage risk is included in the following paragraphs. In addition, refer to Note 11, "Fair Value Measurements," of the notes to consolidated financial statements for information related to the fair value measurements and valuation methods utilized by the Company for each derivative type.

Cash Flow Hedges

The Company has global operations and participates in foreign exchange markets to minimize its risk of loss from fluctuations in foreign currency exchange rates. The Company selectively hedges anticipated transactions that are subject to foreign exchange rate risk primarily using foreign currency exchange hedge contracts. The Company hedges 70% to 90% of the notional amount of each of its known foreign exchange transactional exposures.

The Company selectively hedges anticipated transactions that are subject to commodity price risk, primarily using commodity hedge contracts, to minimize overall price risk associated with the Company's purchases of copper and aluminum in cases where commodity price risk cannot be naturally offset or hedged through supply base fixed price contracts. Commodity risks are systematically managed pursuant to policy guidelines. The maturities of the commodity hedge contracts coincide with the expected purchase of the commodities.

As cash flow hedges under ASC 815, "Derivatives and Hedging," the hedge gains or losses due to changes in fair value are initially recorded as a component of AOCI and are subsequently reclassified into earnings when the hedged transactions occur and affect earnings. These contracts were highly effective in hedging the variability in future cash flows attributable to changes in currency exchange rates during the fiscal years ended September 30, 2020 and 2019.

The Company had the following outstanding contracts to hedge forecasted commodity purchases (in metric tons):

	Volume Outstanding as of	
Commodity	September 30, 2020	September 30, 2019
Copper	2,497	3,561
Aluminum	3,036	2,967

Net Investment Hedges

The Company enters into foreign currency denominated debt obligations to selectively hedge portions of its net investment in non-U.S. subsidiaries. The currency effects of the debt obligations are reflected in the AOCI account within shareholders' equity attributable to Johnson Controls ordinary shareholders where they offset currency gains and losses recorded on the Company's net investments globally. At September 30, 2020, the Company had 888 million euro, 500 million euro, 500 million euro, 423 million euro and 54 million euro in bonds designated as net investment hedges in the Company's net investment in Europe and 25 billion yen of foreign denominated debt designated as net investment hedge in the Company's net investment in Japan. At September 30, 2019, the Company had 888 million euro, 750 million euro, 423 million euro and 54 million euro in bonds designated as net investment hedges in the Company's net investment in Europe and 25 billion yen of foreign denominated debt designated as net investment hedge in the Company's net investment in Japan.

Derivatives Not Designated as Hedging Instruments

The Company selectively uses equity swaps to reduce market risk associated with certain of its stock-based compensation plans, such as its deferred compensation plans. These equity compensation liabilities increase as the Company's stock price increases and decrease as the Company's stock price decreases. In contrast, the value of the swap agreement moves in the opposite direction of these liabilities, allowing the Company to fix a portion of the liabilities at a stated amount. As of September 30, 2020 and 2019, the Company hedged approximately 1.4 million of its ordinary shares, which have a cost basis of $60 million.

The Company also holds certain foreign currency forward contracts for which hedge accounting treatment was not elected. The change in fair value of foreign currency exchange derivatives not designated as hedging instruments under ASC 815 are recorded in the consolidated statements of income.

Fair Value of Derivative Instruments

The following table presents the location and fair values of derivative instruments and hedging activities included in the Company’s consolidated statements of financial position (in millions):

	Derivatives and Hedging Activities Designated as Hedging Instruments under ASC 815		Derivatives and Hedging Activities Not Designated as Hedging Instruments under ASC 815	
	September 30, 2020	September 30, 2019	September 30, 2020	September 30, 2019
Other current assets				
Foreign currency exchange derivatives	$ 10	$ 16	$ 17	$ 19
Commodity derivatives	2	—	—	—
Other noncurrent assets				
Equity swap	—	—	58	62
Total assets	$ 12	$ 16	$ 75	$ 81
Other current liabilities				
Foreign currency exchange derivatives	$ 10	$ 23	$ —	$ —
Commodity derivatives	—	1	—	—
Long-term debt				
Foreign currency denominated debt	3,010	2,544	—	—
Total liabilities	$ 3,020	$ 2,568	$ —	$ —

Counterparty Credit Risk

The use of derivative financial instruments exposes the Company to counterparty credit risk. The Company has established policies and procedures to limit the potential for counterparty credit risk, including establishing limits for credit exposure and continually assessing the creditworthiness of counterparties. As a matter of practice, the Company deals with major banks worldwide having strong investment grade long-term credit ratings. To further reduce the risk of loss, the Company generally enters into International Swaps and Derivatives Association ("ISDA") master netting agreements with substantially all of its counterparties. The Company enters into ISDA master netting agreements with counterparties that permit the net settlement of amounts owed under the derivative contracts. The master netting agreements generally provide for net settlement of all outstanding contracts with a counterparty in the case of an event of default or a termination event. The Company has not elected to offset the fair value positions of the derivative contracts recorded in the consolidated statements of financial position.

The Company's derivative contracts do not contain any credit risk related contingent features and do not require collateral or other security to be furnished by the Company or the counterparties. The Company's exposure to credit risk associated with its derivative instruments is measured on an individual counterparty basis, as well as by groups of counterparties that share similar attributes. The Company does not anticipate any non-performance by any of its counterparties, and the concentration of risk with financial institutions does not present significant credit risk to the Company.

The gross and net amounts of derivative assets and liabilities were as follows (in millions):

	Fair Value of Assets		Fair Value of Liabilities	
	September 30, 2020	September 30, 2019	September 30, 2020	September 30, 2019
Gross amount recognized	$ 87	$ 97	$ 3,020	$ 2,568
Gross amount eligible for offsetting	(10)	(11)	(10)	(11)
Net amount	$ 77	$ 86	$ 3,010	$ 2,557

Derivatives Impact on the Statements of Income and Statements of Comprehensive Income

The following table presents the pre-tax gains (losses) recorded in other comprehensive income (loss) related to cash flow hedges for the fiscal years ended September 30, 2020, 2019 and 2018 (in millions):

Derivatives in ASC 815 Cash Flow Hedging Relationships	Year Ended September 30, 2020	2019	2018
Foreign currency exchange derivatives	$ 1	$ 2	$ 2
Commodity derivatives	6	(4)	(14)
Total	$ 7	$ (2)	$ (12)

The following table presents the location and amount of the pre-tax gains (losses) on cash flow hedges reclassified from AOCI into the Company's consolidated statements of income for the fiscal years ended September 30, 2020, 2019 and 2018 (in millions):

Derivatives in ASC 815 Cash Flow Hedging Relationships	Location of Gain (Loss) Reclassified from AOCI into Income	Year Ended September 30, 2020	2019	2018
Foreign currency exchange derivatives	Cost of sales	$ (5)	$ 4	$ 2
Foreign currency exchange derivatives	Income from discontinued operations	—	—	2
Commodity derivatives	Cost of sales	2	(4)	5
Commodity derivatives	Income from discontinued operations	—	(10)	7
Total		$ (3)	$ (10)	$ 16

The following table presents the location and amount of pre-tax gains (losses) on derivatives not designated as hedging instruments recognized in the Company's consolidated statements of income for the fiscal years ended September 30, 2020, 2019 and 2018 (in millions):

Derivatives Not Designated as Hedging Instruments under ASC 815	Location of Gain (Loss) Recognized in Income on Derivative	Year Ended September 30, 2020	2019	2018
Foreign currency exchange derivatives	Cost of sales	$ (1)	$ (8)	$ 4
Foreign currency exchange derivatives	Net financing charges	87	(60)	42
Foreign currency exchange derivatives	Income tax provision	—	(1)	(4)
Foreign currency exchange derivatives	Income from discontinued operations	—	52	(7)
Equity swap	Selling, general and administrative	(4)	14	(8)
Total		$ 82	$ (3)	$ 27

The pre-tax gains (losses) recorded in foreign currency translation adjustment ("CTA") within other comprehensive income (loss) related to net investment hedges were $(172) million, $145 million and $45 million for the years ended September 30, 2020, 2019 and 2018, respectively. For the years ended September 30, 2020, 2019 and 2018, no gains or losses were reclassified from CTA into income for the Company's outstanding net investment hedges.

11. FAIR VALUE MEASUREMENTS

ASC 820, "Fair Value Measurement," defines fair value as 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. ASC 820 also establishes a three-level fair value hierarchy that prioritizes information used in developing assumptions when pricing an asset or liability as follows:

Level 1: Observable inputs such as quoted prices in active markets for identical assets or liabilities;

Level 2: Quoted prices in active markets for similar assets or liabilities, quoted prices for identical or similar assets or liabilities in markets that are not active, or inputs, other than quoted prices in active markets, that are observable either directly or indirectly; and

Level 3: Unobservable inputs where there is little or no market data, which requires the reporting entity to develop its own assumptions.

ASC 820 requires the use of observable market data, when available, in making fair value measurements. When inputs used to measure fair value fall within different levels of the hierarchy, the level within which the fair value measurement is categorized is based on the lowest level input that is significant to the fair value measurement.

Recurring Fair Value Measurements

The following tables present the Company's fair value hierarchy for those assets and liabilities measured at fair value as of September 30, 2020 and 2019 (in millions):

	Fair Value Measurements Using:			
	Total as of September 30, 2020	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Other current assets				
Foreign currency exchange derivatives	$ 27	$ —	$ 27	$ —
Exchange traded funds (fixed income)[1]	19	19	—	—
Commodity derivatives	2	—	2	—
Other noncurrent assets				
Deferred compensation plan assets	63	63	—	—
Exchange traded funds (fixed income)[1]	143	143	—	—
Exchange traded funds (equity)[1]	129	129	—	—
Equity swap	58	—	58	—
Total assets	$ 441	$ 354	$ 87	$ —
Other current liabilities				
Foreign currency exchange derivatives	$ 10	$ —	$ 10	$ —
Total liabilities	$ 10	$ —	$ 10	$ —

	Fair Value Measurements Using:			
	Total as of September 30, 2019	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Other current assets				
Foreign currency exchange derivatives	$ 35	$ —	$ 35	$ —
Exchange traded funds (fixed income)[1]	19	19	—	—
Other noncurrent assets				
Deferred compensation plan assets	71	71	—	—
Exchange traded funds (fixed income)[1]	138	138	—	—
Exchange traded funds (equity)[1]	116	116	—	—
Equity swap	62	—	62	—
Total assets	$ 441	$ 344	$ 97	$ —
Other current liabilities				
Foreign currency exchange derivatives	$ 23	$ —	$ 23	$ —
Commodity derivatives	1	—	1	—
Total liabilities	$ 24	$ —	$ 24	$ —

[1]Classified as restricted investments for payment of asbestos liabilities. See Note 22, "Commitments and Contingencies" of the notes to consolidated financial statements for further details.

Valuation Methods

Foreign currency exchange derivatives: The foreign currency exchange derivatives are valued under a market approach using publicized spot and forward prices.

Commodity derivatives: The commodity derivatives are valued under a market approach using publicized prices, where available, or dealer quotes.

Equity swaps: The equity swaps are valued under a market approach as the fair value of the swaps is equal to the Company's stock price at the reporting period date.

Deferred compensation plan assets: Assets held in the deferred compensation plans will be used to pay benefits under certain of the Company's non-qualified deferred compensation plans. The investments primarily consist of mutual funds which are publicly traded on stock exchanges and are valued using a market approach based on the quoted market prices. Unrealized gains (losses) on the deferred compensation plan assets are recognized in the consolidated statements of income where they offset unrealized gains and losses on the related deferred compensation plan liability.

Investments in exchange traded funds: Investments in exchange traded funds are valued using a market approach based on the quoted market prices, where available, or broker/dealer quotes of identical or comparable instruments. Refer to Note 22, "Commitments and Contingencies," of the notes to consolidated financial statements for further information.

The following table presents the portion of unrealized gains (losses) recognized in the consolidated statements of income for the years ended September 30, 2020 and 2019 that relate to equity securities still held at September 30, 2020 and 2019 (in millions):

	Year Ended September 30,	
	2020	2019
Deferred compensation plan assets	$ 1	$ (2)
Investments in exchange traded funds	21	12

All of the gains and losses on investments in exchange traded funds related to restricted investments.

The fair values of cash and cash equivalents, accounts receivable, short-term debt and accounts payable approximate their carrying values. At September 30, 2020, the fair value of long-term debt was $8.6 billion, including public debt of $8.4 billion and other long-term debt of $0.2 billion. At September 30, 2019, the fair value of long-term debt was $7.6 billion, including public debt of $7.4 billion and other long-term debt of $0.2 billion. The fair value of public debt was determined primarily using market quotes which are classified as Level 1 inputs within the ASC 820 fair value hierarchy. The fair value of other long-term debt was determined using quoted market prices for similar instruments and are classified as Level 2 inputs within the ASC 820 fair value hierarchy.

12. STOCK-BASED COMPENSATION

The Johnson Controls International plc 2012 Share and Incentive Plan (the "Plan"), as amended in September 2016, authorizes stock options, stock appreciation rights, restricted (non-vested) stock/units, performance shares, performance units and other stock-based awards. The Compensation Committee of the Company's Board of Directors determines the types of awards to be granted to individual participants and the terms and conditions of the awards. As of September 30, 2020, there were 76 million shares of the Company's common stock reserved and 27 million shares available for issuance under the Plan.

The Company has four share-based compensation plans, which are described below. For the fiscal years ended September 30, 2020, 2019 and 2018, compensation cost charged against income for continuing operations, excluding the offsetting impact of outstanding equity swaps, for those plans was approximately $66 million, $103 million and $89 million, respectively, all of which was recorded in selling, general and administrative expenses.

The total income tax benefit recognized for continuing operations in the consolidated statements of income for share-based compensation arrangements was approximately $16 million, $26 million and $22 million for the fiscal years ended September 30, 2020, 2019 and 2018, respectively. The tax impact from the exercise and vesting of equity settled awards was less than $1 million of tax benefit, $6 million of tax expense and $3 million of tax expense for the fiscal years ended September 30, 2020, 2019 and 2018, respectively. The Company does not settle stock options granted under share-based payment arrangements to cash.

Stock Options

Stock options are granted with an exercise price equal to the market price of the Company’s stock at the date of grant. Stock option awards typically vest between two and three years after the grant date and expire ten years from the grant date.

The fair value of each option is estimated on the date of grant using a Black-Scholes option valuation model that uses the assumptions noted in the following table. The expected life of options represents the period of time that options granted are expected to be outstanding, assessed separately for executives and non-executives. The risk-free interest rate for periods during the contractual life of the option is based on the U.S. Treasury yield curve in effect at the time of grant. Expected volatility is based on the historical volatility of the Company's stock since October 2016 blended with the historical volatility of certain peer companies' stock prior to October 2016 over the most recent period corresponding to the expected life as of the grant date. The expected dividend yield is based on the expected annual dividend as a percentage of the market value of the Company’s ordinary shares as of the grant date. The Company uses historical data to estimate option exercises and employee terminations within the valuation model.

	Year Ended September 30,		
	2020	2019	2018
Expected life of option (years)	6.5	6.4	6.5
Risk-free interest rate	1.67%	2.77%	2.28%
Expected volatility of the Company’s stock	22.40%	21.80%	23.70%
Expected dividend yield on the Company’s stock	2.49%	3.29%	2.78%

A summary of stock option activity at September 30, 2020, and changes for the year then ended, is presented below:

	Weighted Average Option Price	Shares Subject to Option	Weighted Average Remaining Contractual Life (years)	Aggregate Intrinsic Value (in millions)
Outstanding, September 30, 2019	$ 35.07	12,369,749		
Granted	41.67	1,347,310		
Exercised	28.80	(2,504,516)		
Forfeited or expired	38.30	(1,097,638)		
Outstanding, September 30, 2020	$ 37.14	10,114,905	4.9	$ 46
Exercisable, September 30, 2020	$ 36.98	7,473,203	3.6	$ 36

The weighted-average grant-date fair value of options granted during the fiscal years ended September 30, 2020, 2019 and 2018 was $7.29, $5.56 and $7.04, respectively.

The total intrinsic value of options exercised during the fiscal years ended September 30, 2020, 2019 and 2018 was approximately $30 million, $73 million and $38 million, respectively.

In conjunction with the exercise of stock options, the Company received cash payments for the fiscal years ended September 30, 2020, 2019 and 2018 of approximately $75 million, $171 million and $66 million, respectively.

At September 30, 2020, the Company had approximately $9 million of total unrecognized compensation cost related to non-vested stock options granted for continuing operations which is expected to be recognized over a weighted-average period of 1.8 years.

Stock Appreciation Rights ("SARs")

SARs vest under the same terms and conditions as stock option awards; however, they are settled in cash for the difference between the market price on the date of exercise and the exercise price. As a result, SARs are recorded in the Company’s consolidated statements of financial position as a liability until the date of exercise.

The fair value of each SAR award is estimated using a similar method described for stock options. The fair value of each SAR award is recalculated at the end of each reporting period and the liability and expense are adjusted based on the new fair value.

The assumptions used to determine the fair value of the SAR awards at September 30, 2020 were as follows:

Expected life of SAR (years)	0.4 - 2.5
Risk-free interest rate	0.11% - 0.18%
Expected volatility of the Company's stock	22.40%
Expected dividend yield on the Company's stock	2.49%

A summary of SAR activity at September 30, 2020, and changes for the year then ended, is presented below:

	Weighted Average SAR Price	Shares Subject to SAR	Weighted Average Remaining Contractual Life (years)	Aggregate Intrinsic Value (in millions)
Outstanding, September 30, 2019	$ 28.67	368,009		
Exercised	26.88	(129,277)		
Forfeited or expired	25.47	(26,095)		
Outstanding, September 30, 2020	$ 30.14	212,637	1.8	$ 2
Exercisable, September 30, 2020	$ 30.14	212,637	1.8	$ 2

In conjunction with the exercise of SARs granted, the Company made payments of $2 million, $3 million and $3 million during the fiscal years ended September 30, 2020, 2019 and 2018, respectively.

Restricted (Non-vested) Stock / Units

Restricted stock or restricted stock units are typically share settled unless the employee is a non-U.S. employee or elects to defer settlement until retirement at which point the award would be settled in cash. Restricted awards typically vest over a period of three years from the grant date. The Plan allows for different vesting terms on specific grants with approval by the Board of Directors. The fair value of each share-settled restricted award is based on the closing market value of the Company's ordinary shares on the date of grant. The fair value of each cash-settled restricted award is recalculated at the end of each reporting period based on the closing market value of the Company's ordinary shares at the end of the reporting period, and the liability and expense are adjusted based on the new fair value.

A summary of non-vested restricted stock awards at September 30, 2020, and changes for the fiscal year then ended, is presented below:

	Weighted Average Price	Shares/Units Subject to Restriction
Non-vested, September 30, 2019	$ 35.98	3,333,076
Granted	41.38	2,053,292
Vested	37.39	(1,634,306)
Forfeited	37.47	(522,183)
Non-vested, September 30, 2020	$ 38.58	3,229,879

At September 30, 2020, the Company had approximately $81 million of total unrecognized compensation cost related to non-vested restricted stock arrangements granted for continuing operations which is expected to be recognized over a weighted-average period of 2.1 years.

Performance Share Awards

Performance-based share unit ("PSU") awards are generally contingent on the achievement of predetermined performance goals over a performance period of three years as well as on the award holder's continuous employment until the vesting date. The PSUs are also indexed to the achievement of specified levels of total shareholder return versus a peer group over the performance period. Each PSU that is earned is settled with shares of the Company's ordinary shares following the completion of the performance period, unless the award holder elected to defer a portion or all of the award until retirement which would then be settled in cash.

The fair value of each PSU is estimated on the date of grant using a Monte Carlo simulation that uses the assumptions noted in the following table. The risk-free interest rate for periods during the contractual life of the PSU is based on the U.S. Treasury yield curve in effect at the time of grant. For fiscal 2020, the expected volatility is based on the historical volatility of the Company's stock over the most recent three-year period as of the grant date. For fiscal 2019 and 2018, the expected volatility is based on the historical volatility of the Company's stock since October 2016 blended with the historical volatility of certain peer companies' stock prior to October 2016 over the most recent three-year period as of the grant date.

	Year Ended September 30,		
	2020	2019	2018
Risk-free interest rate	1.60%	2.76%	1.92%
Expected volatility of the Company’s stock	21.80%	22.90%	21.70%

A summary of the status of the Company’s non-vested PSUs at September 30, 2020, and changes for the fiscal year then ended, is presented below:

	Weighted Average Price	Shares/Units Subject to PSU
Non-vested, September 30, 2019	$ 39.82	1,825,519
Granted	42.48	476,939
Vested	44.98	(515,975)
Forfeited	38.87	(168,539)
Non-vested, September 30, 2020	$ 39.06	1,617,944

At September 30, 2020, the Company had approximately $25 million of total unrecognized compensation cost related to non-vested performance-based share unit awards granted for continuing operations which is expected to be recognized over a weighted-average period of 1.8 years.

13. EARNINGS PER SHARE

The Company presents both basic and diluted EPS amounts. Basic EPS is calculated by dividing net income attributable to Johnson Controls by the weighted average number of ordinary shares outstanding during the reporting period. Diluted EPS is calculated by dividing net income attributable to Johnson Controls by the weighted average number of ordinary shares and ordinary equivalent shares outstanding during the reporting period that are calculated using the treasury stock method for stock options, unvested restricted stock and unvested performance share awards. The treasury stock method assumes that the Company uses the proceeds from the exercise of stock option awards to repurchase ordinary shares at the average market price during the period. The assumed proceeds under the treasury stock method include the purchase price that the grantee will pay in the future and compensation cost for future service that the Company has not yet recognized. For unvested restricted stock and unvested performance share awards, assumed proceeds under the treasury stock method include unamortized compensation cost.

The following table reconciles the numerators and denominators used to calculate basic and diluted earnings per share (in millions):

	Year Ended September 30,		
	2020	2019	2018
Income Available to Ordinary Shareholders			
Income from continuing operations	$ 631	$ 1,100	$ 1,175
Income from discontinued operations	—	4,574	987
Basic and diluted income available to shareholders	$ 631	$ 5,674	$ 2,162
Weighted Average Shares Outstanding			
Basic weighted average shares outstanding	751.0	870.2	925.7
Effect of dilutive securities:			
Stock options, unvested restricted stock and unvested performance share awards	2.6	4.1	6.0
Diluted weighted average shares outstanding	753.6	874.3	931.7
Antidilutive Securities			
Options to purchase shares	1.4	1.4	1.5

14. EQUITY AND NONCONTROLLING INTERESTS

Dividends

The authority to declare and pay dividends is vested in the Board of Directors. The timing, declaration and payment of future dividends to holders of the Company's ordinary shares is determined by the Company's Board of Directors and depends upon many factors, including the Company's financial condition and results of operations, the capital requirements of the Company's businesses, industry practice and any other relevant factors.

Under Irish law, dividends may only be paid (and share repurchases and redemptions must generally be funded) out of "distributable reserves." The creation of distributable reserves was accomplished by way of a capital reduction, which the Irish High Court approved on December 18, 2014 and as acquired in conjunction with the Merger.

Share Repurchase Program

In March 2019, the Company's Board of Directors approved an $8.5 billion increase to its existing share repurchase authorization, subject to the completion of the previously announced sale of the Company's Power Solutions business, which closed on April 30, 2019. The share repurchase program does not have an expiration date and may be amended or terminated by the Board of Directors at any time without prior notice. As of September 30, 2020, approximately $2.4 billion remains available under the share repurchase program.

During fiscal year 2020, the Company repurchased and retired approximately $2,204 million of its ordinary shares. During fiscal year 2019, the Company repurchased approximately $5,983 million of its ordinary shares, of which $4,035 million of its ordinary shares were purchased through a publicly announced "modified Dutch auction" tender offer and immediately retired, and $1,948 million of its ordinary shares were purchased on an open market and retired in the fourth quarter of fiscal 2019. During fiscal year 2018, the Company repurchased approximately $300 million of its ordinary shares.

Other comprehensive income includes activity relating to discontinued operations. The following schedules present changes in consolidated equity attributable to Johnson Controls and noncontrolling interests (in millions, net of tax):

	Equity Attributable to Johnson Controls International plc	Equity Attributable to Noncontrolling Interests	Total Equity
At September 30, 2017	$ 20,447	$ 920	$ 21,367
Total comprehensive income (loss):			
Net income	2,162	186	2,348
Foreign currency translation adjustments	(458)	(22)	(480)
Realized and unrealized losses on derivatives	(19)	(1)	(20)
Realized and unrealized gains on marketable securities	4	—	4
Other comprehensive loss	(473)	(23)	(496)
Comprehensive income	1,689	163	1,852
Other changes in equity:			
Cash dividends - ordinary shares ($1.04 per share)	(968)	—	(968)
Dividends attributable to noncontrolling interests	—	(43)	(43)
Repurchases of ordinary shares	(300)	—	(300)
Change in noncontrolling interest share	—	23	23
Adoption of ASU 2016-09	179	—	179
Reclassification from redeemable noncontrolling interest	—	231	231
Other, including options exercised	117	—	117
At September 30, 2018	21,164	1,294	22,458
Total comprehensive income (loss):			
Net income	5,674	213	5,887
Foreign currency translation adjustments	(325)	(17)	(342)
Realized and unrealized gains (losses) on derivatives	7	(1)	6
Pension and postretirement plans	(6)	—	(6)
Other comprehensive loss	(324)	(18)	(342)
Comprehensive income	5,350	195	5,545
Other changes in equity:			
Cash dividends - ordinary shares ($1.04 per share)	(887)	—	(887)
Dividends attributable to noncontrolling interests	—	(132)	(132)
Repurchases and retirements of ordinary shares	(5,983)	—	(5,983)
Divestiture of Power Solutions	483	(295)	188
Adoption of ASC 606	(45)	—	(45)
Adoption of ASU 2016-16	(546)	—	(546)
Other, including options exercised	230	1	231
At September 30, 2019	19,766	1,063	20,829
Total comprehensive income:			
Net income	631	164	795
Foreign currency translation adjustments	7	18	25
Realized and unrealized gains on derivatives	4	4	8
Pension and postretirement plans	8	—	8
Other comprehensive income	19	22	41
Comprehensive income	650	186	836
Other changes in equity:			
Cash dividends - ordinary shares ($1.04 per share)	(780)	—	(780)
Dividends attributable to noncontrolling interests	—	(114)	(114)
Repurchases and retirements of ordinary shares	(2,204)	—	(2,204)
Change in noncontrolling interest share	(83)	(49)	(132)
Adoption of ASC 842	(5)	—	(5)
Other, including options exercised	103	—	103
At September 30, 2020	$ 17,447	$ 1,086	$ 18,533

The Company adopted ASC 606, "Revenue from Contracts with Customers" effective October 1, 2018. As a result, the Company recorded $45 million to beginning retained earnings, which relates primarily to deferred revenue recorded for the Power Solutions business for certain battery core returns that represent a material right provided to customers.

The Company adopted ASU 2016-16, "Accounting for Income Taxes: Intra-Entity Asset Transfers of Assets Other Than Inventory" effective October 1, 2018. As a result, the Company recognized deferred taxes of $546 million related to the tax effects of all intra-entity sales of assets other than inventory on a modified retrospective basis through a cumulative-effect adjustment to retained earnings as of October 1, 2018.

The Company adopted ASU No. 2016-09, "Compensation - Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting" effective October 1, 2017. As a result, the Company recognized deferred tax assets of $179 million related to certain operating loss carryforwards resulting from the exercise of employee stock options and restricted stock vesting on a modified retrospective basis through a cumulative-effect adjustment to retained earnings as of October 1, 2017.

The Company consolidates certain subsidiaries in which the noncontrolling interest party has within their control the right to require the Company to redeem all or a portion of its interest in the subsidiary. The redeemable noncontrolling interests are reported at their estimated redemption value. Any adjustment to the redemption value impacts retained earnings but does not impact net income. Redeemable noncontrolling interests which are redeemable only upon future events, the occurrence of which is not currently probable, are recorded at carrying value. As of September 30, 2020 and 2019, the Company does not have any subsidiaries for which the noncontrolling interest party has within their control the right to require the Company to redeem any portion of its interests.

The following schedules present changes in the redeemable noncontrolling interests (in millions):

	Year Ended September 30, 2018
Beginning balance, September 30	$ 211
Net income	35
Foreign currency translation adjustments	(3)
Realized and unrealized losses on derivatives	(9)
Dividends	(3)
Reclassification to noncontrolling interest	(231)
Ending balance, September 30	$ —

The following schedules present changes in AOCI attributable to Johnson Controls (in millions, net of tax):

	Year Ended September 30,		
	2020	2019	2018
Foreign currency translation adjustments			
Balance at beginning of period	$ (785)	$ (939)	$ (481)
Divestiture of Power Solutions	—	479	—
Aggregate adjustment for the period (net of tax effect of $1, $0 and $(3)) (1)	7	(325)	(458)
Balance at end of period	(778)	(785)	(939)
Realized and unrealized gains (losses) on derivatives			
Balance at beginning of period	(2)	(13)	6
Divestiture of Power Solutions (net of tax effect of $0, $1 and $0)	—	4	—
Current period changes in fair value (net of tax effect of $1, $(1) and $(4))	3	(1)	(8)
Reclassification to income (net of tax effect of $0, $2 and $(5)) (2)	1	8	(11)
Balance at end of period	2	(2)	(13)
Realized and unrealized gains (losses) on marketable securities			
Balance at beginning of period	—	8	4
Adoption of ASU 2016-01 (3)	—	(8)	—
Current period changes in fair value (net of tax effect of $0, $0 and $1)	—	—	5
Reclassification to income (net of tax effect of $0, $0 and $(1)) (4)	—	—	(1)
Balance at end of period	—	—	8
Pension and postretirement plans			
Balance at beginning of period	(8)	(2)	(2)
Reclassification to income (net of tax effect of $(1), $0 and $0)	(1)	—	—
Other changes (net of tax effect of $4, $0 and $0)	9	(6)	—
Balance at end of period	—	(8)	(2)
Accumulated other comprehensive loss, end of period	$ (776)	$ (795)	$ (946)

(1) During fiscal 2018, $12 million of cumulative CTA was recognized as part of the divestiture-related gain recognized as part of the divestiture of Scott Safety.

(2) Refer to Note 10, "Derivative Instruments and Hedging Activities," of the notes to consolidated financial statements for disclosure of the line items in the consolidated statements of income affected by reclassifications from AOCI into income related to derivatives.

(3) The Company adopted ASU 2016-01, "Financial Instruments - Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities" effective October 1, 2018 and, as a result, reclassified $8 million of unrealized gains on marketable securities to retained earnings.

(4) During fiscal 2018, the Company sold certain marketable common stock for approximately $3 million. As a result, the Company recorded $2 million of realized gains within selling, general and administrative expenses.

15. RETIREMENT PLANS

Pension Benefits

The Company has non-contributory defined benefit pension plans covering certain U.S. and non-U.S. employees. The benefits provided are primarily based on years of service and average compensation or a monthly retirement benefit amount. Certain of the Company's U.S. pension plans have been amended to prohibit new participants from entering the plans and no longer accrue benefits. Funding for U.S. pension plans equals or exceeds the minimum requirements of the Employee Retirement Income Security Act of 1974. Funding for non-U.S. plans observes the local legal and regulatory limits. Also, the Company makes contributions to union-trusteed pension funds for construction and service personnel.

For pension plans with accumulated benefit obligations ("ABO") that exceed plan assets for continuing and discontinued operations, the projected benefit obligation ("PBO"), ABO and fair value of plan assets of those plans were $5,598 million, $5,539 million and $4,528 million, respectively, as of September 30, 2020 and $5,450 million, $5,388 million and $4,484 million, respectively, as of September 30, 2019.

In fiscal 2020, total employer contributions to the defined benefit pension plans were $58 million, none of which were voluntary contributions made by the Company. The Company expects to contribute approximately $46 million in cash to its defined benefit pension plans in fiscal 2021. Projected benefit payments from the plans as of September 30, 2020 are estimated as follows (in millions):

2021	$	323
2022		301
2023		307
2024		309
2025		309
2026 - 2030		1,516

Postretirement Benefits

The Company provides certain health care and life insurance benefits for eligible retirees and their dependents primarily in the U.S. and Canada. Most non-U.S. employees are covered by government sponsored programs, and the cost to the Company is not significant.

Eligibility for coverage is based on meeting certain years of service and retirement age qualifications. These benefits may be subject to deductibles, co-payment provisions and other limitations, and the Company has reserved the right to modify these benefits.

The health care cost trend assumption does not have a significant effect on the amounts reported.

In fiscal 2020, total employer contributions to the postretirement plans were $3 million. The Company expects to contribute approximately $3 million in cash to its postretirement plans in fiscal 2021 for continuing operations. Projected benefit payments from the plans as of September 30, 2020 are estimated as follows (in millions):

2021	$	13
2022		12
2023		12
2024		12
2025		11
2026 - 2030		45

The Medicare Prescription Drug, Improvement and Modernization Act of 2003 ("Act") includes a prescription drug benefit under Medicare as well as a federal subsidy to sponsors of retiree health care benefit plans providing a benefit that is at least actuarially equivalent to Medicare Part D.1. Under the Act, the Medicare subsidy amount is received directly by the plan sponsor and not the related plan. Further, the plan sponsor is not required to use the subsidy amount to fund postretirement benefits and may use the subsidy for any valid business purpose. Projected subsidy receipts are estimated to be less than $1 million per year over the next ten years.

Defined Contribution Plans

The Company sponsors various defined contribution savings plans that allow employees to contribute a portion of their pre-tax and/or after-tax income in accordance with plan specified guidelines. Under specified conditions, the Company will contribute to certain savings plans based on predetermined percentages of compensation earned by the employee and/or will match a percentage of the employee contributions up to certain limits. The Company temporarily suspended contributions in fiscal 2020 in response to the COVID-19 pandemic. Defined contribution plan contributions charged to expense for continuing and discontinued operations amounted to $104 million, $198 million and $205 million for the fiscal years ended 2020, 2019 and 2018, respectively.

Multiemployer Benefit Plans

The Company contributes to multiemployer benefit plans based on obligations arising from collective bargaining agreements related to certain of its hourly employees in the U.S. These plans provide retirement benefits to participants based on their service to contributing employers. The benefits are paid from assets held in trust for that purpose. The trustees typically are responsible for determining the level of benefits to be provided to participants as well as for such matters as the investment of the assets and the administration of the plans.

The risks of participating in these multiemployer benefit plans are different from single-employer benefit plans in the following aspects:

- Assets contributed to the multiemployer benefit plan by one employer may be used to provide benefits to employees of other participating employers.

- If a participating employer stops contributing to the multiemployer benefit plan, the unfunded obligations of the plan may be borne by the remaining participating employers.

- If the Company stops participating in some of its multiemployer benefit plans, the Company may be required to pay those plans an amount based on its allocable share of the underfunded status of the plan, referred to as a withdrawal liability.

The Company participates in approximately 280 multiemployer benefit plans, none of which are individually significant to the Company. The number of employees covered by the Company’s multiemployer benefit plans has remained consistent over the past three years, and there have been no significant changes that affect the comparability of fiscal 2020, 2019 and 2018 contributions. The Company recognizes expense for the contractually-required contribution for each period. The Company contributed $66 million, $69 million and $68 million to multiemployer benefit plans in fiscal 2020, 2019 and 2018, respectively.

Based on the most recent information available, the Company believes that the present value of actuarial accrued liabilities in certain of these multiemployer benefit plans may exceed the value of the assets held in trust to pay benefits. Currently, the Company is not aware of any significant multiemployer benefits plans for which it is probable or reasonably possible that the Company will be obligated to make up any shortfall in funds. Moreover, if the Company were to exit certain markets or otherwise cease making contributions to these funds, the Company could trigger a withdrawal liability. Currently, the Company is not aware of any multiemployer benefit plans for which it is probable or reasonably possible that the Company will have a significant withdrawal liability. Any accrual for a shortfall or withdrawal liability will be recorded when it is probable that a liability exists and it can be reasonably estimated.

Plan Assets

The Company’s investment policies employ an approach whereby a mix of equities, fixed income and alternative investments are used to maximize the long-term return of plan assets for a prudent level of risk. The investment portfolio primarily contains a diversified blend of equity and fixed income investments. Equity investments are diversified across U.S. and non-U.S. stocks, as well as growth, value and small to large capitalizations. Fixed income investments include corporate and government issues, with short-, mid- and long-term maturities, with a focus on investment grade when purchased and a target duration close to that of the plan liability. Investment and market risks are measured and monitored on an ongoing basis through regular investment portfolio reviews, annual liability measurements and periodic asset/liability studies. The majority of the real estate component of the portfolio is invested in a diversified portfolio of high-quality, operating properties with cash yields greater than the targeted appreciation. Investments in other alternative asset classes, including hedge funds and commodities, diversify the expected investment returns relative to the equity and fixed income investments. As a result of the Company's diversification strategies, there are no significant concentrations of risk within the portfolio of investments.

The Company's actual asset allocations are in line with target allocations. The Company rebalances asset allocations as appropriate, in order to stay within a range of allocation for each asset category.

The expected return on plan assets is based on the Company's expectation of the long-term average rate of return of the capital markets in which the plans invest. The average market returns are adjusted, where appropriate, for active asset management returns. The expected return reflects the investment policy target asset mix and considers the historical returns earned for each asset category.

The Company's plan assets at September 30, 2020 and 2019, by asset category, are as follows (in millions):

		Fair Value Measurements Using:		
Asset Category	Total as of September 30, 2020	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
U.S. Pension				
Cash and Cash Equivalents	$ 36	$ —	$ 36	$ —
Equity Securities				
Large-Cap	198	198	—	—
Small-Cap	255	255	—	—
International - Developed	220	220	—	—
International - Emerging	33	33	—	—
Fixed Income Securities				
Government	382	159	223	—
Corporate/Other	1,386	1,386	—	—
Total Investments in the Fair Value Hierarchy	2,510	$ 2,251	$ 259	$ —
Investments Measured at Net Asset Value, as Practical Expedient:				
Real Estate Investments Measured at Net Asset Value*	276			
Due to Broker	(80)			
Total Plan Assets	$ 2,706			
Non-U.S. Pension				
Cash and Cash Equivalents	$ 178	$ 178	$ —	$ —
Equity Securities				
Large-Cap	357	23	334	—
International - Developed	226	52	174	—
International - Emerging	4	—	4	—
Fixed Income Securities				
Government	704	64	640	—
Corporate/Other	652	321	331	—
Hedge Fund	49	—	49	—
Real Estate	27	27	—	—
Total Investments in the Fair Value Hierarchy	2,197	$ 665	$ 1,532	$ —
Investments Measured at Net Asset Value, as Practical Expedient:				
Real Estate Investments Measured at Net Asset Value*	16			
Total Plan Assets	$ 2,213			
Postretirement				
Cash and Cash Equivalents	$ 5	$ 5	$ —	$ —
Equity Securities				
Large-Cap	23	—	23	—
Small-Cap	7	—	7	—
International - Developed	16	—	16	—
International - Emerging	10	—	10	—
Fixed Income Securities				
Government	19	—	19	—
Corporate/Other	53	—	53	—
Commodities	12	—	12	—
Real Estate	8	—	8	—
Total Plan Assets	$ 153	$ 5	$ 148	$ —

Asset Category	Total as of September 30, 2019	Fair Value Measurements Using: Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
U.S. Pension				
Cash and Cash Equivalents	$ 55	$ 24	$ 31	$ —
Equity Securities				
Large-Cap	276	276	—	—
Small-Cap	232	232	—	—
International - Developed	266	233	33	—
International - Emerging	52	42	10	—
Fixed Income Securities				
Government	332	47	285	—
Corporate/Other	1,266	1,266	—	—
Real Estate	55	55	—	—
Total Investments in the Fair Value Hierarchy	2,534	$ 2,175	$ 359	$ —
Investments Measured at Net Asset Value, as Practical Expedient:				
Real Estate Investments Measured at Net Asset Value*	202			
Total Plan Assets	$ 2,736			
Non-U.S. Pension				
Cash and Cash Equivalents	$ 174	$ 174	$ —	$ —
Large-Cap	214	23	191	—
International - Developed	289	54	235	—
International - Emerging	12	1	11	—
Fixed Income Securities				
Government	778	69	709	—
Corporate/Other	517	289	228	—
Hedge Fund	69	—	69	—
Real Estate	31	31	—	—
Total Investments in the Fair Value Hierarchy	2,084	$ 641	$ 1,443	$ —
Investments Measured at Net Asset Value, as Practical Expedient:				
Real Estate Investments Measured at Net Asset Value*	14			
Total Plan Assets	$ 2,098			
Postretirement				
Cash and Cash Equivalents	$ 6	$ 6	$ —	$ —
Equity Securities				
Large-Cap	22	—	22	—
Small-Cap	8	—	8	—
International - Developed	19	—	19	—
International - Emerging	9	—	9	—
Fixed Income Securities				
Government	20	—	20	—
Corporate/Other	55	—	55	—
Commodities	13	—	13	—
Real Estate	11	—	11	—
Total Plan Assets	$ 163	$ 6	$ 157	$ —

* The fair value of certain investments in real estate do not have a readily determinable fair value and requires the fund managers to independently arrive at fair value by calculating net asset value ("NAV") per share. In order to calculate NAV per share, the fund managers value the real estate investments using any one, or a combination of, the following methods: independent third party appraisals, discounted cash flow analysis of net cash flows projected to be generated by the investment and recent sales of comparable investments. Assumptions used to revalue the properties are updated every quarter. Due to the fact that the fund managers calculate NAV per share, the Company utilizes a practical expedient for measuring the fair value of its real-estate investments, as provided for under ASC 820, "Fair Value Measurement." In applying the practical expedient, the Company is not required to further adjust the NAV provided by the fund manager in order to determine the fair value of its investment as the NAV per share is calculated in a manner consistent with the measurement principles of ASC 946, "Financial Services - Investment Companies," and as of the Company's measurement date. The Company believes this is an appropriate methodology to obtain the fair value of these assets. For the component of the real estate portfolio under development, the investments are carried at cost until they are completed and valued by a third party appraiser. In accordance with ASU No. 2015-07, "Disclosures for Investments in Certain Entities That Calculate Net Asset Value per Share (or Its Equivalent)," investments for which fair value is measured using the net asset value per share practical expedient should be disclosed separate from the fair value hierarchy. The fair value amounts presented in this table are intended to permit reconciliation of total plan assets to the amounts presented in the notes to consolidated financial statements.

The following is a description of the valuation methodologies used for assets measured at fair value. Certain assets are held within commingled funds which are valued at the unitized NAV or percentage of the net asset value as determined by the manager of the fund. These values are based on the fair value of the underlying net assets owned by the fund.

Cash and Cash Equivalents: The fair value of cash is valued at cost.

Equity Securities: The fair value of equity securities is determined by direct quoted market prices. The underlying holdings are direct quoted market prices on regulated financial exchanges.

Fixed Income Securities: The fair value of fixed income securities is determined by direct or indirect quoted market prices. If indirect quoted market prices are utilized, the value of assets held in separate accounts is not published, but the investment managers report daily the underlying holdings. The underlying holdings are direct quoted market prices on regulated financial exchanges.

Commodities: The fair value of the commodities is determined by quoted market prices of the underlying holdings on regulated financial exchanges.

Hedge Funds: The fair value of hedge funds is accounted for by the custodian. The custodian obtains valuations from underlying managers based on market quotes for the most liquid assets and alternative methods for assets that do not have sufficient trading activity to derive prices. The Company and custodian review the methods used by the underlying managers to value the assets. The Company believes this is an appropriate methodology to obtain the fair value of these assets.

Real Estate: The fair value of real estate is determined by quoted market prices of the underlying Real Estate Investment Trusts ("REITs"), which are securities traded on an open exchange.

The methods described above may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. Furthermore, while the Company believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different fair value measurement at the reporting date.

There were no Level 3 assets as of September 30, 2020 or 2019 or any Level 3 asset activity during fiscal 2020 or 2019.

Funded Status

The table that follows contains the ABO and reconciliations of the changes in the PBO, the changes in plan assets and the funded status (in millions):

	Pension Benefits				Postretirement Benefits	
	U.S. Plans		Non-U.S. Plans			
September 30,	2020	2019	2020	2019	2020	2019
Accumulated Benefit Obligation	$ 3,217	$ 3,115	$ 2,627	$ 2,549	$ —	$ —
Change in Projected Benefit Obligation						
Projected benefit obligation at beginning of year	$ 3,115	$ 3,191	$ 2,652	$ 2,542	$ 174	$ 196
Service cost	—	8	25	22	1	1
Interest cost	67	108	36	54	4	6
Plan participant contributions	—	—	3	2	4	6
Power Solutions divestiture	—	(390)	—	(86)	—	(9)
Other divestitures	—	—	(2)	(8)	—	—
Actuarial (gain) loss	298	441	7	337	(3)	15
Amendments made during the year	—	—	—	26	(13)	(19)
Benefits and settlements paid	(263)	(243)	(109)	(126)	(21)	(23)
Estimated subsidy received	—	—	—	—	1	1
Curtailment	—	—	(8)	—	—	—
Other	—	—	4	(2)	—	—
Currency translation adjustment	—	—	118	(109)	(1)	—
Projected benefit obligation at end of year	$ 3,217	$ 3,115	$ 2,726	$ 2,652	$ 146	$ 174
Change in Plan Assets						
Fair value of plan assets at beginning of year	$ 2,736	$ 3,046	$ 2,098	$ 2,117	$ 163	$ 174
Actual return on plan assets	228	266	75	203	4	7
Power Solutions divestiture	—	(371)	—	(45)	—	(4)
Other divestitures	—	—	—	(4)	—	—
Employer and employee contributions	5	38	56	50	7	9
Benefits paid	(112)	(136)	(73)	(76)	(21)	(23)
Settlement payments	(151)	(107)	(36)	(50)	—	—
Other	—	—	—	(2)	—	—
Currency translation adjustment	—	—	93	(95)	—	—
Fair value of plan assets at end of year	$ 2,706	$ 2,736	$ 2,213	$ 2,098	$ 153	$ 163
Funded status	$ (511)	$ (379)	$ (513)	$ (554)	$ 7	$ (11)
Amounts recognized in the statement of financial position consist of:						
Prepaid benefit cost	$ 32	$ 30	$ 29	$ 25	$ 78	$ 66
Accrued benefit liability	(543)	(409)	(542)	(579)	(71)	(77)
Net amount recognized	$ (511)	$ (379)	$ (513)	$ (554)	$ 7	$ (11)
Weighted Average Assumptions (1)						
Discount rate (2)	2.25 %	2.95 %	1.35 %	1.50 %	1.90 %	2.65 %
Rate of compensation increase	N/A	N/A	2.75 %	2.80 %	N/A	N/A

(1) Plan assets and obligations are determined based on a September 30 measurement date at September 30, 2020 and 2019.

(2) The Company considers the expected benefit payments on a plan-by-plan basis when setting assumed discount rates. As a result, the Company uses different discount rates for each plan depending on the plan jurisdiction, the demographics of participants and the expected timing of benefit payments. For the U.S. pension and postretirement plans, the Company uses a discount rate provided by an independent third party calculated based on an appropriate mix of high quality bonds. For the non-U.S. pension and postretirement plans, the Company consistently uses the relevant country specific benchmark indices for determining the various discount rates. The Company has elected to utilize a full yield curve approach in the estimation of service and interest components of net periodic benefit cost (credit) for pension and other postretirement for plans that utilize a yield curve approach. The full yield curve approach applies the specific spot rates along the yield curve used in the determination of the benefit obligation to the relevant projected cash flows.

Accumulated Other Comprehensive Income

The amounts in AOCI in the consolidated statements of financial position, exclusive of tax impacts, that have not yet been recognized as components of net periodic benefit cost (credit) at September 30, 2020 and 2019 related to pension and postretirement benefits are $(5) million and $6 million, respectively.

The amounts in AOCI expected to be recognized as components of net periodic benefit cost (credit) over the next fiscal year related to pension and postretirement benefits are not significant.

Net Periodic Benefit Cost

The table that follows contains the components of net periodic benefit costs, which are primarily recorded in selling, general and administrative expenses in the consolidated statements of income (in millions):

	Pension Benefits								
	U.S. Plans			Non-U.S. Plans			Postretirement Benefits		
Year ended September 30,	2020	2019	2018	2020	2019	2018	2020	2019	2018
Components of Net Periodic Benefit Cost (Credit):									
Service cost	$ —	$ 8	$ 15	$ 25	$ 22	$ 23	$ 1	$ 1	$ 2
Interest cost	67	108	105	36	54	57	4	6	7
Expected return on plan assets	(180)	(199)	(229)	(111)	(105)	(114)	(9)	(9)	(10)
Net actuarial (gain) loss	244	361	7	43	236	(22)	2	17	5
Amortization of prior service cost (credit)	—	—	—	1	—	—	(3)	—	—
Curtailment gain	—	—	—	(8)	—	(2)	—	—	—
Settlement loss	6	13	—	—	4	—	—	—	—
Net periodic benefit cost (credit)	137	291	(102)	(14)	211	(58)	(5)	15	4
Net periodic benefit cost related to discontinued operations	—	(2)	(5)	—	—	(7)	—	—	(2)
Net periodic benefit cost (credit) included in continuing operations	$ 137	$ 289	$(107)	$ (14)	$ 211	$ (65)	$ (5)	$ 15	$ 2
Expense Assumptions:									
Discount rate	2.95 %	4.10 %	3.80 %	1.50 %	2.45 %	2.40 %	2.65 %	3.80 %	3.70 %
Expected return on plan assets	6.90 %	7.10 %	7.50 %	5.20 %	5.20 %	5.35 %	5.70 %	5.65 %	5.65 %
Rate of compensation increase	N/A	3.50 %	3.20 %	2.80 %	2.95 %	2.90 %	N/A	N/A	N/A

16. SIGNIFICANT RESTRUCTURING AND IMPAIRMENT COSTS

To better align its resources with its growth strategies and reduce the cost structure of its global operations in certain underlying markets, the Company has committed to various restructuring plans in its Building Technologies & Solutions business and its corporate operations. Restructuring plans generally result in charges for workforce reductions, plant closures and asset impairments which are reported as restructuring and impairment costs in the Company's consolidated statements of income. The Company expects the restructuring actions to reduce cost of sales and SG&A due to reduced employee-related costs, depreciation and amortization expense.

In fiscal 2020, the Company committed to a significant restructuring plan ("2020 Plan") and recorded $297 million of restructuring and impairment costs in the consolidated statements of income. This is the total amount incurred to date and the total amount expected to be incurred for this restructuring plan. Of the restructuring and impairment costs recorded, $136 million related to the Global Products segment, $64 million related to the Building Solutions North America segment, $49 million related to the Building Solutions Asia Pacific segment, $43 million related to the Building Solutions EMEA/LA segment and $5 million related to Corporate. The restructuring actions are expected to be substantially complete in fiscal 2021.

The following table summarizes the changes in the Company's 2020 Plan reserve, included within other current liabilities in the consolidated statements of financial position (in millions):

	Employee Severance and Termination Benefits	Long-Lived Asset Impairments	Other	Total
Original reserve	$ 196	$ 96	$ 5	$ 297
Utilized—cash	(92)	—	(3)	(95)
Utilized—noncash	—	(96)	—	(96)
Currency translation	2	—	—	2
Balance at September 30, 2020	$ 106	$ —	$ 2	$ 108

Also included in restructuring and impairment costs in the consolidated statements of income in fiscal 2020 are goodwill impairment related to the North America Retail reporting unit of $424 million and indefinite-lived intangible asset impairments of $62 million. Refer to Note 7, "Goodwill and Other Intangible Assets," of the notes to consolidated financial statements for further information regarding these impairments.

In fiscal 2018, the Company committed to a significant restructuring plan ("2018 Plan") and recorded $255 million of restructuring and impairment costs for continuing operations in the consolidated statements of income. This was the total amount incurred to date and the total amount expected to be incurred for this restructuring plan. Of the restructuring and impairment costs recorded, $113 million related to the Global Products segment, $56 million related to the Building Solutions EMEA/LA segment, $50 million related to Corporate, $20 million related to the Building Solutions North America segment and $16 million related to the Building Solutions Asia Pacific segment. The restructuring actions were substantially complete in 2020.

Additionally, the Company recorded $8 million of restructuring and impairment costs related to Power Solutions in fiscal 2018. This is reported within discontinued operations.

The following table summarizes the changes in the Company's 2018 Plan reserve, included within other current liabilities in the consolidated statements of financial position (in millions):

	Employee Severance and Termination Benefits	Long-Lived Asset Impairments	Other	Total
Original reserve	$ 209	$ 42	$ 12	$ 263
Utilized—cash	(45)	—	(2)	(47)
Utilized—noncash	—	(42)	—	(42)
Balance at September 30, 2018	$ 164	$ —	$ 10	$ 174
Utilized—cash	(61)	—	(6)	(67)
Transfer to liabilities held for sale	(4)	—	—	(4)
Currency translation	(1)	—	—	(1)
Balance at September 30, 2019	$ 98	$ —	$ 4	$ 102
Utilized—cash	(69)	—	—	(69)
Adoption of ASC 842 (1)	—	—	(4)	(4)
Currency translation	1	—	—	1
Balance at September 30, 2020	$ 30	$ —	$ —	$ 30

(1) Represents liability for facility closings recorded as an offset to right-of-use asset upon adoption of ASC 842.

In fiscal 2017, the Company committed to a significant restructuring plan ("2017 Plan") and recorded $347 million of restructuring and impairment costs for continuing operations in the consolidated statements of income. This was the total amount incurred to date and the total amount expected to be incurred for this restructuring plan. Of the restructuring and impairment costs recorded, $166 million related to Corporate, $74 million related to the Building Solutions EMEA/LA segment, $59 million related to the Building Solutions North America segment, $32 million related to the Global Products segment and $16 million related to the Building Solutions Asia Pacific segment. The restructuring actions were substantially complete in fiscal 2020.

Additionally, the Company recorded $20 million of restructuring and impairment costs related to Power Solutions in fiscal 2017. This is reported within discontinued operations.

The following table summarizes the changes in the Company's 2017 Plan reserve, included within other current liabilities in the consolidated statements of financial position (in millions):

	Employee Severance and Termination Benefits	Long-Lived Asset Impairments	Other	Total
Original Reserve	$ 276	$ 77	$ 14	$ 367
Utilized—cash	(75)	—	—	(75)
Utilized—noncash	—	(77)	(1)	(78)
Adjustment to restructuring reserves	25	—	—	25
Balance at September 30, 2017	$ 226	$ —	$ 13	$ 239
Utilized—cash	(152)	—	(6)	(158)
Currency translation	(1)	—	—	(1)
Balance at September 30, 2018	$ 73	$ —	$ 7	$ 80
Utilized—cash	(11)	—	(2)	(13)
Transfer to liabilities held for sale	(3)	—	—	(3)
Currency translation	(3)	—	—	(3)
Balance at September 30, 2019	$ 56	$ —	$ 5	$ 61
Utilized—cash	(50)	—	—	(50)
Adoption of ASC 842 (1)	—	—	(5)	(5)
Balance at September 30, 2020	$ 6	$ —	$ —	$ 6

(1) Represents liability for facility closings recorded as an offset to right-of-use asset upon adoption of ASC 842.

The Company's fiscal 2020, 2018 and 2017 restructuring plans included workforce reductions of approximately 16,400 employees. Restructuring charges associated with employee severance and termination benefits are paid over the severance period granted to each employee or on a lump sum basis in accordance with individual severance agreements. As of September 30, 2020, approximately 12,700 of the employees have been separated from the Company pursuant to the restructuring plans. In addition, the restructuring plans included nine plant closures. As of September 30, 2020, eight of the nine plants have been closed.

Company management closely monitors its overall cost structure and continually analyzes each of its businesses for opportunities to consolidate current operations, improve operating efficiencies and locate facilities in close proximity to customers. This ongoing analysis includes a review of its manufacturing, engineering and purchasing operations, as well as the overall global footprint for all its businesses.

17. IMPAIRMENT OF LONG-LIVED ASSETS

In fiscal 2020, the Company concluded it had triggering events requiring assessment of impairment for certain of its long-lived assets caused by the economic impacts of the COVID-19 pandemic on the North America Retail asset group. The Company performed a quantitative impairment analysis and determined there was no impairment of long-lived assets as of September 30, 2020.

In fiscal 2020, the Company concluded it had a triggering event requiring assessment of impairment for certain of its long-lived assets in conjunction with its restructuring actions announced in fiscal 2020. As a result, the Company reviewed the long-lived assets for impairment and recorded $81 million of asset impairment charges within restructuring and impairment costs in the consolidated statements of income. Of these impairment charges, $42 million related to the Global Products segment, $24 million related to the Building Solutions Asia Pacific segment and $15 million related to the Building Solutions North America segment. The impairments were primarily measured under a market approach utilizing an appraisal to determine fair values of the impaired assets. This method is consistent with the methods the Company employed in prior periods to value other long-lived assets. The inputs utilized in the analyses are classified as Level 3 inputs within the fair value hierarchy as defined in ASC 820, "Fair Value Measurement."

In fiscal 2019 and again in 2020, the Company concluded it had a triggering event requiring assessment of impairment for certain of its long-lived assets in conjunction with the plans to dispose of a business within its Global Products segment that met the criteria to be classified as held for sale. Assets and liabilities held for sale are required to be recorded at the lower of carrying value or fair value less any costs to sell. Accordingly, the Company recorded impairment charges of $250 million, including $15 million in fiscal 2020 and $235 million in fiscal 2019, within restructuring and impairment costs in the consolidated statements of income to write down the carrying value of the assets held for sale to fair value less any costs to sell. The inputs utilized in the analyses are classified as Level 3 inputs within the fair value hierarchy as defined in ASC 820, "Fair Value Measurement."

In fiscal 2018, the Company concluded it had a triggering event requiring assessment of impairment for certain of its long-lived assets in conjunction with its restructuring actions announced in fiscal 2018. As a result, the Company reviewed the long-lived assets for impairment and recorded $36 million of asset impairment charges within restructuring and impairment costs in the consolidated statements of income. Of the total impairment charges, $31 million related to the Global Products segment and $5 million related to Corporate assets. In addition, the Company recorded $6 million of asset impairments within discontinued operations related to the Power Solutions segment in fiscal 2018.

Refer to Note 16, "Significant Restructuring and Impairment Costs," of the notes to consolidated financial statements for additional information. The impairments were measured under a market approach utilizing an appraisal to determine fair values of the impaired assets. This method is consistent with the methods the Company employed in prior periods to value other long-lived assets. The inputs utilized in the analyses are classified as Level 3 inputs within the fair value hierarchy as defined in ASC 820, "Fair Value Measurement."

During September 30, 2020, 2019 and 2018, the Company concluded it did not have any other triggering events requiring assessment of impairment of its long-lived assets. Refer to Note 1, "Summary of Significant Accounting Policies," and Note 7, "Goodwill and Other Intangible Assets," of the notes to consolidated financial statements for discussion of the Company's goodwill impairment testing.

18. INCOME TAXES

The more significant components of the Company's income tax provision from continuing operations are as follows (in millions):

	Year Ended September 30,		
	2020	2019	2018
Tax expense at Ireland statutory rate	$ 113	$ 132	$ 193
U.S. state income tax, net of federal benefit	8	15	15
Income subject to the U.S. federal tax rate	(92)	(110)	39
Income subject to rates different than the statutory rate	99	38	(201)
Reserve and valuation allowance adjustments	(70)	(284)	31
Impact of acquisitions and divestitures	—	—	16
U.S. Tax Reform discrete items	—	—	108
Restructuring and impairment costs	50	(24)	(4)
Income tax provision (benefit)	$ 108	$ (233)	$ 197

The statutory tax rate in Ireland of 12.5% is being used as a comparison since the Company is domiciled in Ireland.

For fiscal 2020, the effective tax rate for continuing operations was 12% and was lower than the statutory tax rate primarily due to tax audit reserve adjustments, the income tax effects of mark-to-market adjustments, valuation allowance adjustments and the benefits of continuing global tax planning initiatives, partially offset by a discrete tax charge related to the remeasurement of deferred tax assets and liabilities as a result of Swiss tax reform, the tax impact of an impairment charge and tax rate differentials.

For fiscal 2019, the effective rate for continuing operations was below the statutory rate primarily due to tax audit reserve adjustments, the income tax effects of mark-to-market adjustments, a tax indemnification reserve release, the tax benefits of an asset held for sale impairment charge and continuing global tax planning initiatives, partially offset by valuation allowance adjustments as a result of tax law changes, a discrete tax charge related to newly enacted regulations related to U.S. Tax Reform and tax rate differentials.

For fiscal 2018, the effective rate for continuing operations was above the statutory rate primarily due to the discrete net impacts of U.S. Tax Reform, the final income tax effects of the completed divestiture of the Scott Safety business, and valuation allowance adjustments, partially offset by tax audit closures, tax benefits due to changes in entity tax status, the benefits of continuing global tax planning initiatives and tax rate differentials.

Valuation Allowances

The Company reviews the realizability of its deferred tax asset valuation allowances on a quarterly basis, or whenever events or changes in circumstances indicate that a review is required. In determining the requirement for a valuation allowance, the historical and projected financial results of the legal entity or consolidated group recording the net deferred tax asset are considered, along with any other positive or negative evidence. Since future financial results may differ from previous estimates, periodic adjustments to the Company's valuation allowances may be necessary.

In the fourth quarter of fiscal 2020, the Company performed an analysis related to the realizability of its worldwide deferred tax assets. As a result, and after considering feasible tax planning initiatives and other positive and negative evidence, the Company determined that it was more likely than not that certain deferred tax assets primarily within the U.S. would not be realized, and it is more likely than not that certain deferred tax assets of Canada would be realized. The valuation allowance adjustments resulted in a $26 million net benefit to income tax expense in the three month period ended September 30, 2020.

In the fourth quarter of fiscal 2019, the Company performed an analysis related to the realizability of its worldwide deferred tax assets. As a result, and after considering feasible tax planning initiatives and other positive and negative evidence, the Company determined that it was more likely than not that certain deferred tax assets primarily within the U.S., Belgium, Japan and the United Kingdom would not be realized, and it is more likely than not that certain deferred tax assets of the U.S. and France will be realized. The valuation allowance adjustments resulted in an immaterial net impact to income tax expense for the three-month period ended September 30, 2019.

In the first quarter of fiscal 2019, as a result of changes to U.S. tax law, the Company recorded a discrete tax charge of $76 million related to valuation allowances on certain U.S. deferred tax assets.

In the fourth quarter of fiscal 2018, the Company performed an analysis related to the realizability of its worldwide deferred tax assets. As a result, and after considering feasible tax planning initiatives and other positive and negative evidence, the Company determined that it was more likely than not that certain deferred tax assets primarily within Germany would not be realized. Therefore, the Company recorded $56 million of valuation allowances as income tax expense in the three-month period ended September 30, 2018.

Uncertain Tax Positions

The Company is subject to income taxes in the U.S. and numerous foreign jurisdictions. Judgment is required in determining its worldwide provision for income taxes and recording the related assets and liabilities. In the ordinary course of the Company's business, there are many transactions and calculations where the ultimate tax determination is uncertain. The Company is regularly under audit by tax authorities.

At September 30, 2020, the Company had gross tax effected unrecognized tax benefits for continuing operations of $2,528 million of which $2,132 million, if recognized, would impact the effective tax rate. Total net accrued interest at September 30, 2020 was approximately $205 million (net of tax benefit).

At September 30, 2019, the Company had gross tax effected unrecognized tax benefits for continuing operations of $2,451 million of which $2,121 million, if recognized, would impact the effective tax rate. Total net accrued interest at September 30, 2019 was approximately $181 million (net of tax benefit).

At September 30, 2018, the Company had gross tax effected unrecognized tax benefits for continuing operations of $2,358 million of which $2,225 million, if recognized, would impact the effective tax rate. Total net accrued interest at September 30, 2018 was approximately $119 million (net of tax benefit).

A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows (in millions):

	Year Ended September 30,		
	2020	2019	2018
Beginning balance, October 1	$ 2,451	$ 2,358	$ 2,161
Additions for tax positions related to the current year	128	433	435
Additions for tax positions of prior years	129	347	7
Reductions for tax positions of prior years	(27)	(88)	(201)
Settlements with taxing authorities	(54)	—	(19)
Statute closings and audit resolutions	(99)	(599)	(25)
Ending balance, September 30	$ 2,528	$ 2,451	$ 2,358

During fiscal 2020, tax audit resolutions resulted in a $44 million net benefit to income tax expense.

During fiscal 2019, the Company settled tax examinations impacting fiscal years 2015 to 2016 and adjusted various tax audit reserves which resulted in a $586 million net benefit to income tax expense in the fourth quarter. In the third quarter of fiscal 2019, the Company recorded a discrete charge related to newly enacted regulations related to U.S. Tax Reform and a discrete charge related to non-U.S. tax examinations which impacted the Company’s reserves for uncertain tax positions resulting in a $226 million net charge to income tax expense.

During fiscal 2018, the Company settled tax examinations impacting fiscal years 2010 to fiscal 2012 which resulted in a $25 million net benefit to income tax expense.

In the U.S., fiscal years 2017 through 2018 are currently under exam by the Internal Revenue Service (“IRS”) for certain legal entities. Additionally, the Company is currently under exam in the following major non-U.S. jurisdictions for continuing operations:

Tax Jurisdiction	Tax Years Covered
Belgium	2015 - 2019
China	2019
Germany	2007 - 2018
Luxembourg	2017 - 2018
Mexico	2016 - 2017, 2019
Taiwan	2019
United Kingdom	2014 - 2015, 2017

It is reasonably possible that certain tax examinations and/or tax litigation will conclude within the next twelve months, which could impact tax expense.

Other Tax Matters

During fiscal 2020, the Company incurred charges for restructuring and impairment costs for continuing operations of $783 million. Refer to Note 7, "Goodwill and Other Intangible Assets," Note 16, "Significant Restructuring and Impairment Costs," and Note 17, "Impairment of Long-Lived Assets," of the notes to consolidated financial statements for additional information. These costs generated tax benefits of $48 million, which reflects the Company’s current tax position in these jurisdictions.

During fiscal 2020, 2019, and 2018, the Company recorded transaction and integration costs for continuing operations of $135 million, $317 million and $226 million, respectively. These costs generated tax benefits of $18 million, $35 million and $27 million, respectively, which reflects the Company’s current tax position in these jurisdictions.

During fiscal 2020, 2019 and 2018, the Company recorded mark-to-market gains (losses) of $(274) million, $(618) million and $24 million, respectively. These gains (losses) generated tax expense (benefit) of $(65) million, $(130) million and $1 million, respectively, which reflects the Company’s current tax position in these jurisdictions.

During fiscal 2019, the Company recorded a $235 million impairment charge related to assets held for sale. Refer to Note 17, "Impairment of Long-Lived Assets," of the notes to consolidated financial statements for further information regarding the impairment charge. The impairment charge generated a $53 million tax benefit. Also during fiscal 2019, the Company released a $226 million tax indemnification reserve, which was recorded within selling, general and administrative expenses in the consolidated statements of income. The reserve release generated no income tax expense.

During fiscal 2018, the Company incurred charges for restructuring and impairment costs for continuing operations of $255 million. Refer to Note 16, "Significant Restructuring and Impairment Costs," of the notes to consolidated financial statements for additional information. These costs generated tax benefits of $36 million, which reflects the Company's current tax position in these jurisdictions.

In the fourth quarter of fiscal 2018, the Company recorded a tax benefit of $139 million due to changes in entity tax status.

In the first quarter of fiscal 2018, the Company completed the sale of its Scott Safety business to 3M Company. In connection with the sale, the Company recorded a pre-tax gain of $114 million and income tax expense of $30 million. Refer to Note 2, "Acquisitions and Divestitures," of the notes to consolidated financial statements for additional information.

Impacts of Tax Legislation and Change in Statutory Tax Rates

On March 27, 2020, in response to the COVID-19 pandemic, the "Coronavirus Aid, Relief and Economic Security Act" ("CARES") was signed into law by the President of the United States. The CARES Act includes, among other things, U.S. corporate income tax provisions related to net operating loss carryback periods, alternative minimum tax credits, modifications to interest deduction limitations and technical corrections on tax depreciation methods for qualified improvement property. A majority of non-U.S. countries have also introduced various COVID-19 related corporate income tax relief provisions. The Company does not expect either the U.S. or non-U.S. corporate income tax provisions to have a material effect on its financial statements.

In the first quarter of fiscal 2020, the Company recorded a noncash discrete tax charge of $30 million due to the remeasurement of deferred tax assets and liabilities related to Switzerland and the canton of Schaffhausen. On September 28, 2018, the Swiss Parliament approved the Federal Act on Tax Reform and AHV Financing ("TRAF"), which was subsequently approved by the Swiss electorate on May 19, 2019. During the fourth quarter of fiscal 2019, the Swiss Federal Council enacted TRAF which became effective for the Company on January 1, 2020. The impacts of the federal enactment did not have a material impact to the Company's financial statements. TRAF also provides for parameters which enable the Swiss cantons to adjust tax rates and establish new regulations for companies. As of September 30, 2019, the canton of Schaffhausen had not concluded its public referendum; however, the enactment did occur during the first quarter of fiscal 2020.

On December 22, 2017, the "Tax Cuts and Jobs Act" (H.R. 1) was enacted and significantly revised U.S. corporate income tax by, among other things, lowering corporate income tax rates, imposing a one-time transition tax on deemed repatriated earnings of non-U.S. subsidiaries, and implementing a territorial tax system and various base erosion minimum tax provisions.

In connection with the Company's analysis of the impact of the U.S. tax law changes, the Company recorded a provisional net tax charge of $108 million during fiscal 2018 consistent with guidance prescribed by Staff Accounting Bulletin 118. This provisional net tax charge arises from a benefit of $108 million due to the remeasurement of U.S. deferred tax assets and liabilities, offset by the Company's tax charge relating to the one-time transition tax on deemed repatriated earnings, inclusive of all relevant taxes, of $216 million. The Company's estimated benefit of the remeasurement of U.S. deferred tax assets and liabilities increased from $101 million as of December 31, 2017 to $108 million as of September 30, 2018 due to calculation refinement of the Company's estimated impact. The Company remeasured certain deferred tax assets and liabilities based on the rates at which they are expected to reverse in the future, which is generally 21% or the blended fiscal 2018 rate of 24.5%. The Company's tax charge for transition tax decreased from $305 million as of December 31, 2017 to $216 million as of September 30, 2018 due to further analysis of the Company's post-1986 non-U.S. earnings and profits ("E&P") previously deferred from U.S. federal taxation and refinement of the estimated impact of tax law changes. During fiscal 2019, the Company completed its analysis of all enactment-date income tax effects of the U.S. tax law change with no further adjustment to the provisional amounts recorded as of September 30, 2018.

During the fiscal years ended 2020, 2019 and 2018, other tax legislation was adopted in various jurisdictions. These law changes did not have a material impact on the Company's consolidated financial statements.

Continuing Operations

Components of the provision (benefit) for income taxes on continuing operations were as follows (in millions):

	Year Ended September 30,		
	2020	2019	2018
Current			
U.S. federal	$ 309	$ (1,025)	$ 476
U.S. state	72	(33)	26
Non-U.S.	264	213	434
	645	(845)	936
Deferred			
U.S. federal	(382)	412	(372)
U.S. state	(43)	84	(10)
Non-U.S.	(112)	116	(357)
	(537)	612	(739)
Income tax provision (benefit)	$ 108	$ (233)	$ 197

Consolidated U.S. income (loss) from continuing operations before income taxes and noncontrolling interests for the fiscal years ended September 30, 2020, 2019 and 2018 was $(385) million, $(259) million and $261 million, respectively. Consolidated non-U.S. income from continuing operations before income taxes and noncontrolling interests for the fiscal years ended September 30, 2020, 2019 and 2018 was $1,288 million, $1,315 million and $1,285 million, respectively.

Continuing operations income taxes paid (refunded) for the fiscal years ended September 30, 2020, 2019 and 2018 were $(386) million, $377 million and $81 million, respectively. At September 30, 2020 and 2019, the Company recorded within the continuing operations consolidated statements of financial position in other current assets approximately $252 million and $1,069 million, respectively, of income tax assets. At September 30, 2020 and 2019, the Company recorded within the continuing operations consolidated statements of financial position in other current liabilities approximately $243 million and $159 million, respectively, of accrued income tax liabilities.

The Company has not provided U.S. or non-U.S. income taxes on approximately $22.0 billion of outside basis differences of consolidated subsidiaries of Johnson Controls International plc. The Company is indefinitely reinvested in these basis differences. The reduction of the outside basis differences via the sale or liquidation of these subsidiaries and/or distributions could create taxable income. The Company's intent is to reduce the outside basis differences only when it would be tax efficient. Given the numerous ways in which the basis differences may be reduced, it is not practicable to estimate the amount of unrecognized withholding taxes and deferred tax liability on the outside basis differences.

Deferred taxes were classified in the consolidated statements of financial position as follows (in millions):

	September 30,	
	2020	2019
Other noncurrent assets	$ 862	$ 552
Other noncurrent liabilities	(385)	(588)
Net deferred tax asset (liability)	$ 477	$ (36)

Temporary differences and carryforwards which gave rise to deferred tax assets and liabilities included (in millions):

	September 30,	
	2020	2019
Deferred tax assets		
Accrued expenses and reserves	$ 474	$ 437
Employee and retiree benefits	286	265
Property, plant and equipment	182	—
Net operating loss and other credit carryforwards	6,306	5,664
Research and development	112	106
Other, net	99	—
	7,459	6,472
Valuation allowances	(5,518)	(5,068)
	1,941	1,404
Deferred tax liabilities		
Property, plant and equipment	—	139
Subsidiaries, joint ventures and partnerships	730	499
Intangible assets	734	759
Other, net	—	43
	1,464	1,440
Net deferred tax asset (liability)	$ 477	$ (36)

At September 30, 2020, the Company had available net operating loss carryforwards of approximately $25.0 billion, of which $15.1 billion will expire at various dates between 2021 and 2040, and the remainder has an indefinite carryforward period. The Company had available U.S. foreign tax credit carryforwards at September 30, 2020 of $35 million which will expire in 2030. The valuation allowance, generally, is for loss and credit carryforwards for which realization is uncertain because it is unlikely that the losses and/or credits will be realized given the lack of sustained profitability and/or limited carryforward periods in certain countries.

19. SEGMENT INFORMATION

ASC 280, "Segment Reporting," establishes the standards for reporting information about segments in financial statements. In applying the criteria set forth in ASC 280, the Company has determined that it has four reportable segments for financial reporting purposes.

Building Solutions North America: Building Solutions North America designs, sells, installs, and services HVAC, controls, refrigeration, integrated electronic security, and integrated fire detection and suppression systems for commercial, industrial, retail, small business, institutional and governmental customers in North America. Building Solutions North America also provides energy efficiency solutions and technical services, including inspection, scheduled maintenance, and repair and replacement of mechanical and control systems, as well as data-driven “smart building” solutions, to non-residential building and industrial applications in the North American marketplace.

Building Solutions EMEA/LA: Building Solutions EMEA/LA designs, sells, installs, and services HVAC, controls, refrigeration, integrated electronic security, integrated fire detection and suppression systems, and provides technical services, including data-driven “smart building” solutions, to markets in Europe, the Middle East, Africa and Latin America.

Building Solutions Asia Pacific: Building Solutions Asia Pacific designs, sells, installs, and services HVAC, controls, refrigeration, integrated electronic security, integrated fire detection and suppression systems, and provides technical services, including data-driven “smart building” solutions, to the Asia Pacific marketplace.

Global Products: Global Products designs and produces heating and air conditioning for residential and commercial applications, and markets products and refrigeration systems to replacement and new construction market customers globally. The Global Products business also designs, manufactures and sells fire protection and security products, including intrusion security, anti-theft devices, and access control and video management systems, for commercial, industrial, retail, residential, small business, institutional and governmental customers worldwide. Global Products also includes the Johnson Controls-Hitachi joint venture.

On October 1, 2018, the Company adopted ASU No. 2016-01, "Financial Instruments - Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities." The new standard requires the mark-to-market of marketable securities investments previously recorded within accumulated other comprehensive income on the statement of financial position be recorded in the statement of income on a prospective basis beginning as of the adoption date. As these restricted investments do not relate to the underlying operating performance of its business, the Company's definition of segment earnings excludes the mark-to-market adjustments in fiscal 2020 and 2019.

Management evaluates the performance of its business segments primarily on segment earnings before interest, taxes and amortization ("EBITA"), which represents income from continuing operations before income taxes and noncontrolling interests, excluding general corporate expenses, intangible asset amortization, net financing charges, restructuring and impairment costs, and net mark-to-market adjustments related to pension and postretirement plans and restricted asbestos investments.

Financial information relating to the Company's reportable segments is as follows (in millions):

	Year Ended September 30,		
	2020	2019	2018
Net Sales			
Building Solutions North America	$ 8,605	$ 9,031	$ 8,679
Building Solutions EMEA/LA	3,440	3,655	3,696
Building Solutions Asia Pacific	2,403	2,658	2,553
Global Products	7,869	8,624	8,472
Total net sales	$ 22,317	$ 23,968	$ 23,400

	Year Ended September 30,		
	2020	2019	2018
Segment EBITA			
Building Solutions North America (1)	$ 1,157	$ 1,153	$ 1,109
Building Solutions EMEA/LA (2)	338	368	344
Building Solutions Asia Pacific (3)	319	341	347
Global Products (4)	1,134	1,179	1,338
Total segment EBITA	$ 2,948	$ 3,041	$ 3,138
Amortization of intangible assets	(386)	(377)	(376)
Corporate expenses (5)	(371)	(405)	(584)
Net financing charges	(231)	(350)	(401)
Restructuring and impairment costs	(783)	(235)	(255)
Net mark-to-market adjustments	(274)	(618)	24
Income from continuing operations before income taxes	$ 903	$ 1,056	$ 1,546

	September 30,		
	2020	2019	2018
Assets			
Building Solutions North America (6)	$ 15,215	$ 15,562	$ 15,384
Building Solutions EMEA/LA (7)	4,989	4,786	4,997
Building Solutions Asia Pacific (8)	2,720	2,657	2,743
Global Products (9)	13,882	13,945	14,261
	36,806	36,950	37,385
Assets held for sale	147	158	8,203
Unallocated	3,862	5,179	3,209
Total	$ 40,815	$ 42,287	$ 48,797

	Year Ended September 30,		
	2020	2019	2018
Depreciation/Amortization			
Building Solutions North America	$ 233	$ 233	$ 236
Building Solutions EMEA/LA	102	112	110
Building Solutions Asia Pacific	24	23	28
Global Products	414	396	390
	773	764	764
Corporate	49	61	60
Continuing Operations	822	825	824
Discontinued Operations	—	32	261
Total	$ 822	$ 857	$ 1,085

	Year Ended September 30,		
	2020	2019	2018
Capital Expenditures			
Building Solutions North America	$ 93	$ 119	$ 114
Building Solutions EMEA/LA	99	93	73
Building Solutions Asia Pacific	36	26	26
Global Products	191	310	307
	419	548	520
Corporate	24	38	125
Continuing Operations	443	586	645
Discontinued Operations	—	197	385
Total	$ 443	$ 783	$ 1,030

(1) Building Solutions North America segment EBITA for the years ended September 30, 2020 and 2018 excludes $520 million and $20 million, respectively, of restructuring and impairment costs. For the year ended September 30, 2020, Building Solutions North America includes $1 million of equity losses.

(2) Building Solutions EMEA/LA segment EBITA for the years ended September 30, 2020 and 2018 excludes $59 million, and $56 million, respectively, of restructuring and impairment costs. For the years ended September 30, 2020, 2019 and 2018, Building Solutions EMEA/LA segment EBITA includes $6 million, $12 million and $1 million, respectively, of equity income.

(3) Building Solutions Asia Pacific segment EBITA for the years ended September 30, 2020 and 2018 excludes $56 million and $16 million, respectively, of restructuring and impairment costs. For the years ended September 30, 2020, 2019 and 2018, Building Solutions Asia Pacific segment EBITA includes less than $1 million, $1 million and $1 million, respectively, of equity income.

(4) Global Products segment EBITA for the years ended September 30, 2020, 2019 and 2018 excludes $143 million, $235 million and $113 million, respectively, of restructuring and impairment costs. For the years ended September 30, 2020, 2019 and 2018, Global Products segment EBITA includes $166 million, $179 million and $175 million, respectively, of equity income.

(5) Corporate expenses for the years ended September 30, 2020 and 2018 excludes $5 million and $50 million, respectively, of restructuring and impairment costs.

(6) Buildings Solutions North America assets as of September 30, 2020, 2019 and 2018 include $7 million, $8 million and $8 million, respectively, of investments in partially-owned affiliates.

(7) Building Solutions EMEA/LA assets as of September 30, 2020, 2019 and 2018 include $108 million, $109 million and $99 million, respectively, of investments in partially-owned affiliates.

(8) Building Solutions Asia Pacific assets as of September 30, 2020, 2019 and 2018 include $2 million and $6 million, and $1 million, respectively, of investments in partially-owned affiliates.

(9) Global Products assets as of September 30, 2020, 2019 and 2018 include $797 million, $730 million and $740 million, respectively, of investments in partially-owned affiliates.

In fiscal years 2020, 2019 and 2018 no customer exceeded 10% of consolidated net sales.

Geographic Segments

Financial information relating to the Company’s operations by geographic area is as follows (in millions):

	Year Ended September 30,		
	2020	2019	2018
Net Sales			
United States	$ 11,007	$ 11,773	$ 11,306
China	1,206	1,424	1,480
Japan	1,789	1,943	1,903
Germany	583	629	616
United Kingdom	980	1,042	1,075
Taiwan	725	612	661
Other foreign	4,113	4,625	4,423
Other European countries	1,914	1,920	1,936
Total	$ 22,317	$ 23,968	$ 23,400
Long-Lived Assets (Year-end)			
United States	$ 1,713	$ 1,824	$ 1,879
China	164	326	332
Japan	204	228	209
Germany	22	20	19
United Kingdom	70	77	73
Taiwan	133	141	154
Other foreign	567	568	464
Other European countries	186	164	170
Total	$ 3,059	$ 3,348	$ 3,300

Net sales attributed to geographic locations are based on the location of the assets producing the sales. Long-lived assets by geographic location consist of net property, plant and equipment.

20. NONCONSOLIDATED PARTIALLY-OWNED AFFILIATES

Investments in the net assets of nonconsolidated partially-owned affiliates are stated in the "Investments in partially-owned affiliates" line in the consolidated statements of financial position as of September 30, 2020 and 2019. Equity in the net income of nonconsolidated partially-owned affiliates is stated in the "Equity income" line in the consolidated statements of income for the years ended September 30, 2020, 2019 and 2018.

The following table presents aggregated summarized financial data for the Company's nonconsolidated partially-owned affiliates which were considered significant subsidiaries in fiscal 2019 and 2018, but not in fiscal 2020 due to adoption of the SEC Final Rule Release No. 33-10786. The amounts included in the table below represent 100% of the results of continuing operations of such nonconsolidated partially-owned affiliates accounted for under the equity method.

Summarized balance sheet data as of September 30, 2019 is as follows (in millions):

	September 30, 2019
Current assets	$ 2,941
Noncurrent assets	1,020
Total assets	$ 3,961
Current liabilities	$ 2,135
Noncurrent liabilities	157
Noncontrolling interests	67
Shareholders' equity	1,602
Total liabilities and shareholders' equity	$ 3,961

Summarized income statement data for the years ended September 30, 2019 and 2018 is as follows (in millions):

	Year Ended September 30,	
	2019	2018
Net sales	$ 3,882	$ 3,974
Gross profit	1,070	1,049
Net income	411	390
Income attributable to noncontrolling interests	13	10
Net income attributable to the entity	398	380

21. GUARANTEES

Certain of the Company's subsidiaries at the business segment level have guaranteed the performance of third-parties and provided financial guarantees for uncompleted work and financial commitments. The terms of these guarantees vary with end dates ranging from the current fiscal year through the completion of such transactions and would typically be triggered in the event of nonperformance. Performance under the guarantees, if required, would not have a material effect on the Company's financial position, results of operations or cash flows.

The Company offers warranties to its customers depending upon the specific product and terms of the customer purchase agreement. A typical warranty program requires that the Company replace defective products within a specified time period from the date of sale. The Company records an estimate for future warranty-related costs based on actual historical return rates and other known factors. Based on analysis of return rates and other factors, the Company's warranty provisions are adjusted as necessary. The Company monitors its warranty activity and adjusts its reserve estimates when it is probable that future warranty costs will be different than those estimates.

The Company's product warranty liability for continuing operations is recorded in the consolidated statements of financial position in other current liabilities if the warranty is less than one year and in other noncurrent liabilities if the warranty extends longer than one year.

The changes in the carrying amount of the Company's total product warranty liability for continuing operations for the fiscal years ended September 30, 2020 and 2019 were as follows (in millions). Extended warranty for which deferred revenue is recorded is not included in the table below, but rather included within the contract balances table in the Note 4, "Revenue Recognition," of the notes to consolidated financial statements for all periods presented.

	Year Ended September 30,	
	2020	2019
Balance at beginning of period	$ 156	$ 197
Accruals for warranties issued during the period	71	78
Accruals from acquisitions and divestitures	—	1
Accruals related to pre-existing warranties (including changes in estimates)	9	(39)
Settlements made (in cash or in kind) during the period	(71)	(79)
Currency translation	2	(2)
Balance at end of period	$ 167	$ 156

22. COMMITMENTS AND CONTINGENCIES

Environmental Matters

The Company accrues for potential environmental liabilities when it is probable a liability has been incurred and the amount of the liability is reasonably estimable. As of September 30, 2020, reserves for environmental liabilities for continuing operations totaled $130 million, of which $61 million was recorded within other current liabilities and $69 million was recorded within other noncurrent liabilities in the consolidated statements of financial position. Reserves for environmental liabilities for continuing operations totaled $159 million at September 30, 2019, of which $52 million was recorded within other current liabilities and $107 million was recorded within other noncurrent liabilities in the consolidated statements of financial position.

Tyco Fire Products L.P. ("Tyco Fire Products"), in coordination with the Wisconsin Department of Natural Resources ("WDNR"), has been conducting an environmental assessment of its Fire Technology Center ("FTC") located in Marinette, Wisconsin and surrounding areas in the City of Marinette and Town of Peshtigo, Wisconsin. In connection with the assessment, perfluorooctane sulfonate ("PFOS") and perfluorooctanoic acid ("PFOA") and/or other per- and poly fluorinated substances ("PFAS") have been detected at the FTC and in groundwater and surface water outside of the boundaries of the FTC. Tyco Fire Products continues to investigate the extent of potential migration of these compounds and is working with WDNR to address these issues insofar as they related to this migration.

During the third quarter of 2019, the Company increased its environmental reserves, which included $140 million related to remediation efforts to be undertaken to address contamination relating to fire-fighting foams containing PFAS compounds at or near the FTC, as well as the continued remediation of arsenic and other contaminants at the Tyco Fire Products Stanton Street manufacturing facility also located in Marinette, Wisconsin (the "Stanton Street Facility"). The Company is not able to estimate a possible loss or range of loss in excess of the established accruals at this time.

A substantial portion of the increased reserves relates to remediation resulting from the use of fire-fighting foams containing PFAS at the FTC. The use of fire-fighting foams at the FTC was primarily for training and testing purposes in order to ensure that such products sold by the Company's affiliates, Chemguard, Inc. ("Chemguard") and Tyco Fire Products, were effective at suppressing high intensity fires that may occur at military installations, airports or elsewhere. The reserve was recorded in the quarter ended June 30, 2019 following a comprehensive review by independent environmental consultants related to the presence of PFAS at or near the FTC, as well as remediation discussions with the WDNR.

On June 21, 2019, the WDNR announced that it had received from the Wisconsin Department of Health Services ("WDHS") a recommendation for groundwater quality standards as to, among other compounds, PFOA and PFOS. The WDHS recommended a groundwater enforcement standard for PFOA and PFOS of 20 parts per trillion. On August 22, 2019, the Governor of Wisconsin issued an executive order that, among other things, directed the WDNR to create a PFAS Coordinating

Council and to work with other Wisconsin agencies (including WDHS) to establish final groundwater quality standards based on the WDHS's prior recommendation.

In July 2019, the Company received a letter from the WDNR directing the expansion of the evaluation of PFAS in the Marinette region to include (1) biosolids sludge produced by the City of Marinette Waste Water Treatment Plant and spread on certain fields in the area and (2) the Menominee and Peshtigo Rivers. Tyco Fire Products voluntarily responded to the WDNR's letter to request additional necessary information. On October 16, 2019, the WDNR issued a "Notice of Noncompliance" to Tyco Fire Products and Johnson Controls, Inc. regarding the WDNR's July 3, 2019 letter. The letter stated that "if you fail to take the actions required by Wis. Stat. § 292.11 to address this contamination, the DNR will move forward under Wis. Stat. § 292.31 to implement the SI workplan and evaluate further environmental enforcement actions and cost recovery under Wis. Stat. § 292.31(8)." The WDNR issued a further letter regarding the issue on November 4, 2019. In February 2020, the WDNR sent a letter to Tyco Fire Products and Johnson Controls, Inc. further directing the expansion of the evaluation of PFAS in the Marinette region to include investigation activities south and west of the previously defined FTC study area. Tyco Fire Products and Johnson Controls, Inc. believe that they have complied with all applicable environmental laws and regulations. The Company cannot predict what regulatory or enforcement actions, if any, might result from the WDNR's actions, or the consequences of any such actions.

Tyco Fire Products has been engaged in remediation activities at the Stanton Street Facility since 1990. Its corporate predecessor, Ansul Incorporated ("Ansul") manufactured arsenic-based agricultural herbicides at the Stanton Street Facility, which resulted in significant arsenic contamination of soil and groundwater on the site and in parts of the adjoining Menominee River. In 2009, Ansul entered into an Administrative Consent Order (the "Consent Order") with the U.S. Environmental Protection Agency to address the presence of arsenic at the site. Under this agreement, Tyco Fire Products' principal obligations are to contain the arsenic contamination on the site, pump and treat on-site groundwater, dredge, treat and properly dispose of contaminated sediments in the adjoining river areas, and monitor contamination levels on an ongoing basis. Activities completed under the Consent Order since 2009 include the installation of a subsurface barrier wall around the facility to contain contaminated groundwater, the installation of a groundwater extraction and treatment system and the dredging and offsite disposal of treated river sediment. The increase in the reserve related to the Stanton Street Facility was recorded following a further review of the Consent Order, which resulted in the identification of several structural upgrades needed to preserve the effectiveness of prior remediation efforts. In addition to ongoing remediation activities, the Company is also working with the WDNR to investigate the presence of PFAS at or near the Stanton Street Facility as part of the evaluation of PFAS in the Marinette region.

Potential environmental liabilities accrued by the Company do not take into consideration possible recoveries of future insurance proceeds. They do, however, take into account the likely share other parties will bear at remediation sites. It is difficult to estimate the Company's ultimate level of liability at many remediation sites due to the large number of other parties that may be involved, the complexity of determining the relative liability among those parties, the uncertainty as to the nature and scope of the investigations and remediation to be conducted, the uncertainty in the application of law and risk assessment, the various choices and costs associated with diverse technologies that may be used in corrective actions at the sites, and the often quite lengthy periods over which eventual remediation may occur. It is possible that technological, regulatory or enforcement developments, the results of additional environmental studies or other factors could change the Company's expectations with respect to future charges and cash outlays, and such changes could be material to the Company's future results of operations, financial condition or cash flows. Nevertheless, the Company does not currently believe that any claims, penalties or costs in addition to the amounts accrued will have a material adverse effect on the Company's financial position, results of operations or cash flows. In addition, the Company has identified asset retirement obligations for environmental matters that are expected to be addressed at the retirement, disposal, removal or abandonment of existing owned facilities. At September 30, 2020 and 2019, the Company recorded conditional asset retirement obligations for continuing operations of $29 million and $30 million, respectively.

Asbestos Matters

The Company and certain of its subsidiaries, along with numerous other third parties, are named as defendants in personal injury lawsuits based on alleged exposure to asbestos containing materials. These cases have typically involved product liability claims based primarily on allegations of manufacture, sale or distribution of industrial products that either contained asbestos or were used with asbestos containing components.

As of September 30, 2020, the Company's estimated asbestos-related net liability recorded on a discounted basis within the Company's consolidated statements of financial position was $115 million. The net liability within the consolidated statements of financial position was comprised of a liability for pending and future claims and related defense costs of $483 million, of which $49 million was recorded in other current liabilities and $434 million was recorded in other noncurrent liabilities. The

Company also maintained separate cash, investments and receivables related to insurance recoveries within the consolidated statements of financial position of $368 million, of which $39 million was recorded in other current assets and $329 million was recorded in other noncurrent assets. Assets included $9 million of cash and $291 million of investments, which have all been designated as restricted. In connection with the recognition of liabilities for asbestos-related matters, the Company records asbestos-related insurance recoveries that are probable; the amount of such recoveries recorded at September 30, 2020 was $68 million.

As of September 30, 2019, the Company's estimated asbestos-related net liability recorded on a discounted basis within the Company's consolidated statements of financial position was $141 million. The net liability within the consolidated statements of financial position was comprised of a liability for pending and future claims and related defense costs of $507 million, of which $50 million was recorded in other current liabilities and $457 million was recorded in other noncurrent liabilities. The Company also maintained separate cash, investments and receivables related to insurance recoveries within the consolidated statements of financial position of $366 million, of which $46 million was recorded in other current assets and $320 million was recorded in other noncurrent assets. Assets included $16 million of cash and $273 million of investments, which have all been designated as restricted. In connection with the recognition of liabilities for asbestos-related matters, the Company records asbestos-related insurance recoveries that are probable; the amount of such recoveries recorded at September 30, 2019 was $77 million.

The Company's estimate of the liability and corresponding insurance recovery for pending and future claims and defense costs is based on the Company's historical claim experience, and estimates of the number and resolution cost of potential future claims that may be filed and is discounted to present value from 2068 (which is the Company's reasonable best estimate of the actuarially determined time period through which asbestos-related claims will be filed against Company affiliates). Asbestos-related defense costs are included in the asbestos liability. The Company's legal strategy for resolving claims also impacts these estimates. The Company considers various trends and developments in evaluating the period of time (the look-back period) over which historical claim and settlement experience is used to estimate and value claims reasonably projected to be made through 2068. At least annually, the Company assesses the sufficiency of its estimated liability for pending and future claims and defense costs by evaluating actual experience regarding claims filed, settled and dismissed, and amounts paid in settlements. In addition to claims and settlement experience, the Company considers additional quantitative and qualitative factors such as changes in legislation, the legal environment, and the Company's defense strategy. The Company also evaluates the recoverability of its insurance receivable on an annual basis. The Company evaluates all of these factors and determines whether a change in the estimate of its liability for pending and future claims and defense costs or insurance receivable is warranted.

The amounts recorded by the Company for asbestos-related liabilities and insurance-related assets are based on the Company's strategies for resolving its asbestos claims, currently available information, and a number of estimates and assumptions. Key variables and assumptions include the number and type of new claims that are filed each year, the average cost of resolution of claims, the identity of defendants, the resolution of coverage issues with insurance carriers, amount of insurance, and the solvency risk with respect to the Company's insurance carriers. Many of these factors are closely linked, such that a change in one variable or assumption will impact one or more of the others, and no single variable or assumption predominately influences the determination of the Company's asbestos-related liabilities and insurance-related assets. Furthermore, predictions with respect to these variables are subject to greater uncertainty in the later portion of the projection period. Other factors that may affect the Company's liability and cash payments for asbestos-related matters include uncertainties surrounding the litigation process from jurisdiction to jurisdiction and from case to case, reforms of state or federal tort legislation and the applicability of insurance policies among subsidiaries. As a result, actual liabilities or insurance recoveries could be significantly higher or lower than those recorded if assumptions used in the Company's calculations vary significantly from actual results.

Insurable Liabilities

The Company records liabilities for its workers' compensation, product, general and auto liabilities. The determination of these liabilities and related expenses is dependent on claims experience. For most of these liabilities, claims incurred but not yet reported are estimated by utilizing actuarial valuations based upon historical claims experience. At September 30, 2020 and 2019, the insurable liabilities totaled $363 million and $379 million, respectively, of which $83 million and $99 million was recorded within other current liabilities, $22 million and $22 million was recorded within accrued compensation and benefits, and $258 million and $258 million was recorded within other noncurrent liabilities in the consolidated statements of financial position, respectively. The Company records receivables from third party insurers when recovery has been determined to be probable. The amount of such receivables recorded at September 30, 2020 were $21 million, of which $5 million was recorded within other current assets and $16 million was recorded within other noncurrent assets, respectively. The amount of such receivables recorded at September 30, 2019 were $23 million, of which $5 million was recorded within other current assets and

$18 million was recorded within other noncurrent assets, respectively. The Company maintains captive insurance companies to manage its insurable liabilities.

Aqueous Film-Forming Foam ("AFFF") Litigation

Two of the Company's subsidiaries, Chemguard and Tyco Fire Products, have been named, along with other defendant manufacturers, and, in some cases, certain subsidiaries of the Company affiliated with Chemguard and Tyco Fire Products, in a number of class action and other lawsuits relating to the use of fire-fighting foam products by the U.S. Department of Defense (the "DOD") and others for fire suppression purposes and related training exercises. Plaintiffs generally allege that the firefighting foam products manufactured by defendants contain or break down into the chemicals PFOS and PFOA and/or other PFAS compounds and that the use of these products by others at various airbases, airports and other sites resulted in the release of these chemicals into the environment and ultimately into communities' drinking water supplies neighboring those airports, airbases and other sites. PFOA, PFOS, and other PFAS compounds are being studied by the United States Environmental Protection Agency ("EPA") and other environmental and health agencies and researchers. The EPA has not issued binding regulatory limits, but has stated that it would propose regulatory standards for PFOS and PFOA in drinking water by the end of 2019, in accordance with its PFAS Action Plan released in February 2019, and issued interim recommendations for addressing PFOA and PFOS in groundwater in December 2019. While those studies continue, the EPA has issued a health advisory level for PFOA and PFOS in drinking water. Both PFOA and PFOS are types of synthetic chemical compounds that have been present in firefighting foam. However, both are also present in many existing consumer products. According to EPA, PFOA and PFOS have been used to make carpets, clothing, fabrics for furniture, paper packaging for food and other materials (e.g., cookware) that are resistant to water, grease or stains.

Plaintiffs generally seek compensatory damages, including damages for alleged personal injuries, medical monitoring, diminution in property values, investigation and remediation costs, and natural resources damages, and also seek punitive damages and injunctive relief to address remediation of the alleged contamination.

In September 2018, Tyco Fire Products and Chemguard filed a Petition for Multidistrict Litigation with the United States Judicial Panel on Multidistrict Litigation ("JPML") seeking to consolidate all existing and future federal cases into one jurisdiction. On December 7, 2018, the JPML issued an order transferring various AFFF cases to a multi-district litigation ("MDL") before the United States District Court for the District of South Carolina. Additional cases have been identified for transfer to or are being directly filed in the MDL.

AFFF Putative Class Actions

Chemguard and Tyco Fire Products are named in 30 putative class actions in federal courts originating from Colorado, Delaware, Florida, Massachusetts, New York, Pennsylvania, Washington, New Hampshire, South Carolina, the District of Columbia, Guam, West Virginia, Michigan and South Dakota. All but one of these cases has been transferred to the MDL, and it is anticipated that the remaining case will be removed to federal court and transferred following service of the complaint.

AFFF Individual or Mass Actions

There are approximately 746 individual or "mass" actions pending that were filed in state or federal court in California (5 cases), Colorado (41 cases), New York (4 cases), Pennsylvania (15 cases), New Mexico (2 cases), Missouri (1 case), Arizona (1 case), and South Carolina (677 cases direct filed from various U.S. jurisdictions) against Chemguard and Tyco Fire Products and other defendants in which the plaintiffs generally seek compensatory damages, including damages for alleged personal injuries, medical monitoring, and alleged diminution in property values. The cases involve five plaintiffs in California, approximately 7,000 plaintiffs in Colorado, approximately 126 plaintiffs in New York, 15 plaintiffs in Pennsylvania, two plaintiffs in New Mexico, one plaintiff in Missouri, two plaintiffs in Arizona, and more than 500 plaintiffs from various states who direct-filed complaints in South Carolina. All but six of these matters have been transferred to or directly-filed in the MDL, and it is anticipated that the remaining cases will be transferred to the MDL. Many of the additional filed actions were directly filed in South Carolina by plaintiffs who were among the 660 plaintiffs the Company had previously disclosed to have made filings in Pennsylvania state court. The Company anticipates that the remainder of the possible individual product liability claims filed in Pennsylvania state court will either soon be filed in the MDL (and that all such claims in state court will be dismissed accordingly) or will be dismissed in Pennsylvania without a corresponding filing in South Carolina.

AFFF Municipal Cases

Chemguard and Tyco Fire Products are also defendants in 58 cases in federal and state courts involving municipal or water provider plaintiffs in Alaska, Arizona, California, Colorado, Florida, Massachusetts, New Jersey, New York, Maryland, Ohio, Pennsylvania, Washington, the District of Columbia and several municipalities or water providers from various states who direct-filed complaints in South Carolina. All but three of these cases have been transferred to or directly filed in the MDL, and it is anticipated that the remaining cases will be transferred to the MDL. These municipal plaintiffs generally allege that the use of the defendants' fire-fighting foam products at fire training academies, municipal airports, Air National Guard bases, or Navy or Air Force bases released PFOS and PFOA into public water supply wells, allegedly requiring remediation of public property. Since the beginning of fiscal year 2021, two municipal actions have been filed against the Company.

In May 2018, the Company was also notified by the Widefield Water and Sanitation District in Colorado Springs, Colorado that it may assert claims regarding its remediation costs in connection with PFOS and PFOA contamination allegedly resulting from the use of those products at the Peterson Air Force Base. In May 2020, the Company was also notified by the Lakewood Water District in Pierce County, Washington that it may assert claims regarding remediation in connection with PFOA, PFOS, and other PFAS contamination allegedly resulting from the use of those products at Joint Base Lewis-McChord.

State or U.S. Territory Attorneys General Litigation related to AFFF

In June 2018, the State of New York filed a lawsuit in New York state court (State of New York v. The 3M Company et al No. 904029-18 (N.Y. Sup. Ct., Albany County)) against a number of manufacturers, including affiliates of the Company, with respect to alleged PFOS and PFOA contamination purportedly resulting from firefighting foams used at locations across New York, including Stewart Air National Guard Base in Newburgh and Gabreski Air National Guard Base in Southampton, Plattsburgh Air Force Base in Plattsburgh, Griffiss Air Force Base in Rome, and unspecified "other" sites throughout the State. The lawsuit seeks to recover costs and natural resource damages associated with contamination at these sites. This suit has been removed to the United States District Court for the Northern District of New York and transferred to the MDL.

In February 2019, the State of New York filed a second lawsuit in New York state court (State of New York v. The 3M Company et al (N.Y. Sup. Ct., Albany County)), against a number of manufacturers, including affiliates of the Company, with respect to alleged PFOS and PFOA contamination purportedly resulting from firefighting foams used at additional locations across New York. This suit has been removed to the United States District Court for the Northern District of New York and transferred to the MDL. In July 2019, the State of New York filed a third lawsuit in New York state court (*State of New York v. The 3M Company et al* (N.Y. Sup. Ct., Albany County)), against a number of manufacturers, including affiliates of the Company, with respect to alleged PFOS and PFOA contamination purportedly resulting from firefighting foams used at further additional locations across New York. This suit has been removed to the United States District Court for the Northern District of New York and transferred to the MDL. In November 2019, the State of New York filed a fourth lawsuit in New York state court (*State of New York v. The 3M Company et al* (N.Y. Sup. Ct., Albany County)), against a number of manufacturers, including affiliates of the Company, with respect to alleged PFOS and PFOA contamination purportedly resulting from firefighting foams used at further additional locations across New York. This suit has been removed to federal court and transferred to the MDL.

In January 2019, the State of Ohio filed a lawsuit in Ohio state court (State of Ohio v. The 3M Company et al., No. G-4801-CI-021804752-000 (Court of Common Pleas of Lucas County, Ohio)) against a number of manufacturers, including affiliates of the Company, with respect to PFOS and PFOA contamination allegedly resulting from the use of firefighting foams at various specified and unspecified locations across Ohio. The lawsuit seeks to recover costs and natural resource damages associated with the contamination. This lawsuit has been removed to the United States District Court for the Northern District of Ohio and transferred to the MDL.

In addition, in May and June 2019, three other states filed lawsuits in their respective state courts against a number of manufacturers, including affiliates of the Company, with respect to PFOS and PFOA contamination allegedly resulting from the use of firefighting foams at various specified and unspecified locations across their jurisdictions (*State of New Hampshire v. The 3M Company et al.*; *State of Vermont v. The 3M Company et al.*; *State of New Jersey v. The 3M Company et al.*). All three of these suits have been removed to federal court and transferred to the MDL.

In September 2019, the government of Guam filed a lawsuit in the superior court of Guam against a number of manufacturers, including affiliates of the Company, with respect to PFOS and PFOA contamination allegedly resulting from the use of firefighting foams at various locations within its jurisdiction. This complaint has been removed to federal court and transferred to the MDL.

In November 2019, the government of the Commonwealth of the Northern Mariana Islands filed a lawsuit in the superior court of the Northern Mariana Islands against a number of manufacturers, including affiliates of the Company, with respect to PFOS and PFOA contamination allegedly resulting from the use of firefighting foams at various locations within its jurisdiction. This complaint has been removed to federal court and transferred to the MDL.

In August 2020, Attorney General of the State of Michigan filed two substantially similar lawsuits—one in federal court and one in state court—against a number of manufacturers, including affiliates of the Company, with respect to PFOS and PFOA contamination allegedly resulting from the use of firefighting foams at various locations within the State. The federal action has been transferred to the MDL, and the state court action has been removed to federal court and tagged for transfer to the MDL.

AFFF Matters Related to the Tyco Fire Products Fire Technology Center in Marinette, Wisconsin

Tyco Fire Products and Chemguard are defendants in one lawsuit in Marinette County, Wisconsin alleging damages due to the historical use of AFFF products at Tyco's Fire Technology Center in Marinette, Wisconsin. The putative class action, *Joan & Richard Campbell for themselves and on behalf of other similarly situated v. Tyco Fire Products LP and Chemguard Inc., et al.* (Marinette County Circuit Court, filed Dec. 17, 2018) alleges PFAS (including PFOA/PFOS) contaminated groundwater migrated off Tyco's property and into residential drinking water wells causing both personal injuries and property damage to the plaintiffs; Tyco and Chemguard removed this case to the United States District Court for the Eastern District of Wisconsin and it has been transferred to the MDL. A second lawsuit, *Duane and Janell Goldsmith individually and on behalf of H.G. and K.G v. Tyco Fire Products LP and Chemguard Inc., et al.* (Marinette County Circuit Court, filed Dec. 17, 2018) was also filed by a family alleging personal injuries due to contaminated groundwater; this case has been dismissed without prejudice.

Other AFFF Related Matters

In March 2020, the Kalispel Tribe of Indians (a federally recognized Tribe) and two tribal corporations filed a lawsuit in the United States District Court for the Eastern District of Washington against a number of manufacturers, including affiliates of the Company, and the United States with respect to PFAS contamination allegedly resulting from the use and disposal of AFFF by the United States Air Force at and around Fairchild Air Force Base in eastern Washington. This case has been transferred to the MDL.

Other PFAS Related Matters

In April 2020, the Weirton Area Water Board in West Virginia filed a lawsuit in the Circuit Court of Brooke County, West Virginia against a number of PFAS chemical manufacturers, including Chemguard, with respect to PFAS contamination. This case has been removed to the United States District Court for the Northern District of West Virginia.

The Company is vigorously defending the above matters and believes that it has meritorious defenses to class certification and the claims asserted, including statutes of limitations, the government contractor defense, various medical and scientific defenses, and other factual and legal defenses. The government contractor defense is a form of immunity available to government contractors that produced products for the United States government pursuant to the government's specifications. Tyco and Chemguard have insurance that has been in place for many years and the Company is pursuing this coverage for these matters. However, there are numerous factual and legal issues to be resolved in connection with these claims, and it is extremely difficult to predict the outcome or ultimate financial exposure, if any, represented by these matters, and there can be no assurance that any such exposure will not be material.

Bosch Litigation

On March 15, 2019, a German subsidiary of the Company received a complaint from Robert Bosch GmbH ("Bosch"), filed in a German court. The complaint related to an automotive starter batteries joint venture in which the Company and Bosch were 80/20 parties to this joint venture. At the time the complaint was filed, JCI's ownership interest in the joint venture was to be transferred to entities controlled by the Purchaser upon consummation of the sale of the Company's Power Solutions business. The complaint alleged that certain internal Company reorganization transactions were not in compliance with the arrangements relating to such joint venture.

On August 8, 2019, Bosch entered into an agreement with Purchaser pursuant to which Purchaser would purchase Bosch's interest in the joint venture. Simultaneously with this agreement, the Company and Bosch executed an agreement to dismiss the proceedings between the parties upon the completion of Purchaser's acquisition of Bosch's interest. In the first quarter of fiscal

2020, following the completion of Purchaser's acquisition of Bosch's interest in the joint venture, the Company and Bosch made filings with the German court terminating the litigation.

Pursuant to the Company's obligations to Purchaser in connection with the divestiture of the Company's Power Solutions business, the Company reimbursed Purchaser a portion of its costs in connection with its acquisition of Bosch's interests in the joint venture, which was reflected as a cash outflow for discontinued operations.

Other Matters

The Company is involved in various lawsuits, claims and proceedings incident to the operation of its businesses, including those pertaining to product liability, environmental, safety and health, intellectual property, employment, commercial and contractual matters, and various other casualty matters. Although the outcome of litigation cannot be predicted with certainty and some lawsuits, claims or proceedings may be disposed of unfavorably to us, it is management's opinion that none of these will have a material adverse effect on the Company's financial position, results of operations or cash flows. Costs related to such matters were not material to the periods presented.

23. RELATED PARTY TRANSACTIONS

In the ordinary course of business, the Company enters into transactions with related parties, such as equity affiliates. Such transactions consist of facility management services, the sale or purchase of goods and other arrangements.

The following table presents net sales to and purchases from related parties for the years ended September 30, 2020, 2019, and 2018 (in millions):

	Year Ended September 30,		
	2020	2019	2018
Net sales to related parties	$ 194	$ 217	$ 220
Purchases from related parties	85	66	63

The following table presents receivables from and payables to related parties in the consolidated statements of financial position (in millions):

	September 30,	
	2020	2019
Receivable from related parties	$ 48	$ 34
Payable to related parties	11	6

JOHNSON CONTROLS INTERNATIONAL PLC AND SUBSIDIARIES
SCHEDULE II - VALUATION AND QUALIFYING ACCOUNTS
(In millions)

Year Ended September 30,	2020	2019	2018
Accounts Receivable - Allowance for Doubtful Accounts			
Balance at beginning of period	$ 173	$ 169	$ 172
Provision charged to costs and expenses	20	37	14
Accounts charged off, net of recoveries	(21)	(21)	(17)
Acquisition (divestiture) of businesses	—	(10)	—
Currency translation	1	(2)	—
Balance at end of period	$ 173	$ 173	$ 169
Deferred Tax Assets - Valuation Allowance			
Balance at beginning of period	$ 5,068	$ 5,088	$ 3,735
Allowance provision for new operating and other loss carryforwards	624	195	1,639
Allowance provision (benefits)	(174)	(215)	(286)
Balance at end of period	$ 5,518	$ 5,068	$ 5,088

ITEM 9 CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A CONTROLS AND PROCEDURES

Disclosure Controls and Procedures

The Company's management, with the participation of the Company's Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of the Company's disclosure controls and procedures (as such term is defined in Rule 13a-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act")) as of the end of the period covered by this report. Based on such evaluations, the Company's Chief Executive Officer and Chief Financial Officer have concluded that, as of the end of such period, the Company's disclosure controls and procedures are effective in recording, processing, summarizing, and reporting, on a timely basis, information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act, and that information is accumulated and communicated to the Company's management, including the Company's Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

Management's Report on Internal Control Over Financial Reporting

The Company's management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rule 13a-15(f). The Company's management, with the participation of the Company's Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of the Company's internal control over financial reporting based on the framework in Internal Control-Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this evaluation, the Company's management has concluded that, as of September 30, 2020, the Company's internal control over financial reporting was effective.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

PricewaterhouseCoopers LLP, an independent registered public accounting firm, has audited the Company's consolidated financial statements and the effectiveness of internal control over financial reporting as of September 30, 2020 as stated in its report which is included in Item 8 of this Form 10-K and is incorporated by reference herein.

Changes in Internal Control Over Financial Reporting

There have been no changes in the Company's internal control over financial reporting during the quarter ended September 30, 2020, that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

ITEM 9B OTHER INFORMATION

CFO Succession

As previously disclosed in the Company's Current Report on Form 8-K filed on August 18, 2020, Olivier Leonetti will succeed Brian Stief as the Company's Chief Financial Officer and Principal Financial Officer on the date immediately following the date of the filing of this Annual Report on Form 10-K. Mr. Stief will remain in the role of Vice Chairman until his retirement.

PART III

In response to Part III, Items 10, 11, 12, 13 and 14, parts of the Company's definitive proxy statement (to be filed pursuant to Regulation 14A within 120 days after Registrant's fiscal year-end of September 30, 2020) for its annual meeting to be held on March 10, 2021, are incorporated by reference in this Form 10-K.

ITEM 10 DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information relating to directors and nominees of Johnson Controls is set forth under the caption "Proposal Number One" in Johnson Controls' proxy statement for its annual meeting of shareholders to be held on March 10, 2021 (the "Johnson Controls Proxy Statement") and is incorporated by reference herein. Information about executive officers is included in Part I, Item 4 of this Annual Report on Form 10-K. The information required by Items 405, 407(c)(3), (d)(4) and (d)(5) of Regulation S-K is contained under the captions "Governance of the Company - Nomination of Directors and Board Diversity," "Governance of the Company - Board Committees", and "Committees of the Board - Audit Committee" of the Johnson Controls Proxy Statement and such information is incorporated by reference herein.

Code of Ethics

Johnson Controls has adopted a code of ethics for directors, officers (including the Company's principal executive officer, principal financial officer and principal accounting officer) and employees, known as Values First, The Johnson Controls Code of Ethics. The Code of Ethics is available on the Company's website at www.valuesfirst.johnsoncontrols.com. The Company posts any amendments to or waivers of its Code of Ethics (to the extent applicable to the Company's directors or executive officers) at the same location on the Company's website. In addition, copies of the Code of Ethics may be obtained in print without charge upon written request by any stockholder to the office of the Company at One Albert Quay, Cork, Ireland.

ITEM 11 EXECUTIVE COMPENSATION

The information required by Item 402 of Regulation S-K is contained under the captions "Compensation Discussion & Analysis" (excluding the information under the caption "Compensation Committee Report on Executive Compensation"), "Executive Compensation Tables" and "Compensation of Non-Employee Directors" of the Johnson Controls Proxy Statement. Such information is incorporated by reference.

The information required by Items 407(e)(4) and (e)(5) of Regulation S-K is contained under the captions "Committees of the Board - Compensation Committee Interlocks and Insider Participation" and "Compensation Discussion & Analysis - Compensation Committee Report on Executive Compensation" of the Johnson Controls Proxy Statement. Such information (other than the Compensation Committee Report on Executive Compensation, which shall not be deemed to be "filed") is incorporated by reference.

ITEM 12 SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information in the Johnson Controls Proxy Statement set forth under the caption "Security Ownership of Certain Beneficial Owners and Management" is incorporated herein by reference.

The following table provides information about the Company's equity compensation plans as of September 30, 2020:

	(a) Number of Securities to be Issued upon Exercise of Outstanding Options, Warrants and Rights	(b) Weighted-Average Exercise Price of Outstanding Options, Warrants and Rights	(c) Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column (a))
Plan Category			
Equity compensation plans approved by shareholders	10,114,905	$ 37.14	26,553,821
Equity compensation plans not approved by shareholders	—	—	—
Total	10,114,905	$ 37.14	26,553,821

ITEM 13 CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information in the Johnson Controls Proxy Statement set forth under the captions “Committees of the Board,” “Governance of the Company - Director Independence,” and “Governance of the Company - Other Directorships, Conflicts and Related Party Transactions,” is incorporated herein by reference.

ITEM 14 PRINCIPAL ACCOUNTING FEES AND SERVICES

The information in the Johnson Controls Proxy Statement set forth under “Proposal Number Two” related to the appointment of auditors is incorporated herein by reference.

PART IV

ITEM 15 EXHIBITS, FINANCIAL STATEMENT SCHEDULES

Reference is made to the separate exhibit index contained on page 117 filed herewith.

All other schedules are omitted because they are not applicable, or the required information is shown in the financial statements or notes thereto.

Financial statements of 50% or less-owned companies have been omitted because the proportionate share of their profit before income taxes and total assets are individually less than 20% of the respective consolidated amounts, and investments in such companies are less than 20% of consolidated total assets. Refer to Note 20, "Non-Consolidated Partially-Owned Affiliates" of the notes to consolidated financial statements for the summarized financial data for the Company's nonconsolidated partially-owned affiliates for fiscal 2019 and 2018. In the fourth quarter of fiscal 2020, the Company early adopted SEC Release No 33 – 10786 which, among other things, modified the significance test required in SEC Regulation S-X, Rule 1-02(w) by changing the income test to use the lower measure of significance based on income from continuing operations before taxes or revenue. Under the modified income test, none of the Company's non-consolidated partially-owned affiliates, either individually or in the aggregate, are considered significant subsidiaries.

ITEM 16 FORM 10-K SUMMARY

Not applicable.

Johnson Controls International plc
Index to Exhibits

(a) (1) and (2) Financial Statements and Supplementary Data - See Item 8
(b) Exhibit Index:

Exhibit	Title
2.1	Separation and Distribution Agreement, dated as of September 8, 2016, by and between Johnson Controls International plc and Adient Limited (incorporated by reference to Exhibit 2.1 to the registrant’s Current Report on Form 8-K filed September 9, 2016)
2.2	Agreement and Plan of Merger by and among Johnson Controls, Inc., Johnson Controls International plc (formerly Tyco International plc) and Jagara Merger Sub LLC, dated as of January 24, 2016 (incorporated by reference to Exhibit 2.1 to the registrant’s Current Report on Form 8-K filed January 27, 2016)
2.3	Merger Agreement, dated as of May 30, 2014, between Tyco International Ltd., and Johnson Controls International plc (formerly Tyco International plc) (incorporated by reference to Exhibit 2.1 to the registrant’s Current Report on Form 8-K filed on June 4, 2014)
3.1	Memorandum and Articles of Association of Johnson Controls International plc, as amended by special resolutions dated September 8, 2014, August 17, 2016 and March 7, 2018 (incorporated by reference to Exhibit 3.1 to the registrant’s Quarterly Report on Form 10-Q filed on May 3, 2018)
4.1	Assumption and Accession Agreement, dated as of November 17, 2014, by Johnson Controls International plc (formerly Tyco International plc) (incorporated by reference to Exhibit 4.1 to the registrant’s current report on Form 8-K filed on November 17, 2014)
4.2	Indenture, dated December 28, 2016, between Johnson Controls International plc and U.S. Bank National Association, as trustee (incorporated by reference to Exhibit 4.1 to the registrant’s current report on Form 8-K filed on December 28, 2016)
4.3	First Supplemental Indenture, dated December 28, 2016, between Johnson Controls International plc, and U.S. Bank National Association, as trustee, and Elavon Financial Services DAC, UK Branch, as paying agent for the New Euro Notes attaching forms of 2.355% Senior Notes due 2017 (retired; no longer outstanding), 7.125% Senior Notes due 2017 (retired; no longer outstanding), 1.400% Senior Notes due 2017 (retired, no longer outstanding as of November 2, 2017), 3.750% Notes due 2018 (retired; no longer outstanding), 5.000% Senior Notes due 2020 (retired; no longer outstanding), 4.25% Senior Notes due 2021, 3.750% Senior Notes due 2021, 3.625% Senior Notes due 2024, 6.000% Notes due 2036, 5.70% Senior Notes due 2041, 5.250% Senior Notes due 2041, 4.625% Senior Notes due 2044, 6.950% Debentures due December 1, 2045, 4.950% Senior Notes due 2064, 4.625% Notes due 2023, 1.375% Notes due 2025, 3.900% Notes due 2026, and 5.125% Notes due 2045 (incorporated by reference to Exhibit 4.2 to the registrant’s current report on Form 8-K filed on December 28, 2016)
4.4	Second Supplemental Indenture, dated February 7, 2017, between Johnson Controls International plc and U.S. Bank National Association, as trustee, attaching form of 4.500% Senior Notes due 2047 (incorporated by reference to Exhibit 4.2 to the registrant’s Current Report on Form 8-K filed on February 7, 2017)
4.5	Third Supplemental Indenture, dated March 15, 2017, among Johnson Controls International plc, U.S. Bank National Association, as trustee and Elavon Financial Services DAC, UK Branch, as paying agent, attaching form of 1.000% Senior Notes due 2023 (incorporated by reference to Exhibit 4.2 to the registrant’s Current Report on Form 8-K filed on March 15, 2017)
4.6	Fifth Supplemental Indenture, dated September 11, 2020, among Johnson Controls International plc, Tyco Fire & Security Finance S.C.A. and U.S. Bank National Association, as trustee, attaching form of the 1.750% Senior Notes due 2030 (incorporated by reference to Exhibit 4.2 to the registrant’s Current Report on Form 8-K filed on September 11, 2020).
4.7	Sixth Supplemental Indenture, dated September 15, 2020, among Johnson Controls International plc, Tyco Fire & Security Finance S.C.A., U.S. Bank National Association, as trustee, and Elavon Financial Services DAC, as paying agent, attaching forms of the 0.375% Senior Notes due 2027 and the 1.000% Senior Notes due 2032 (incorporated by reference to Exhibit 4.2 to the registrant's Current Report on Form 8-K filed on September 15, 2020).

Johnson Controls International plc
Index to Exhibits

Exhibit	Title
4.8	Description of the Ordinary Shares of Johnson Controls International plc (filed herewith)
4.9	Description of the Johnson Controls International plc Notes (filed herewith)
4.10	Description of the Johnson Controls International plc and Tyco Fire & Security Finance S.C.A. Notes (filed herewith)
4.11	Miscellaneous long-term debt agreements and financing leases with banks and other creditors and debenture indentures.*
4.12	Miscellaneous industrial development bond long-term debt issues and related loan agreements and leases.*
10.1	Credit Agreement, dated as of December 5, 2019, among Johnson Controls International plc, certain of its subsidiaries party thereto from time to time, the lenders party thereto from time to time, and JPMorgan Chase Bank, N.A., as administrative agent (incorporated by reference to Exhibit 10.1 to the registrant's Current Report filed December 6, 2019)
10.2	364-Day Credit Agreement, dated as of December 5, 2019, among Johnson Controls International plc, certain of its subsidiaries party thereto from time to time, the lenders party thereto from time to time, and JPMorgan Chase Bank, N.A., as administrative agent (incorporated by reference to Exhibit 10.2 to the registrant's Current Report filed December 6, 2019)
10.3	Stock and Asset Purchase Agreement, dated as of November 13, 2018, by and between Johnson Controls International plc and BCP Acquisitions LLC (incorporated by reference to Exhibit 2.1 to the Company's Current Report filed November 13, 2018).
10.4	Tax Matters Agreement, dated as of September 8, 2016, by and between Johnson Controls International plc and Adient Limited (incorporated by reference to Exhibit 10.2 to the registrant's Current Report on Form 8-K filed on September 9, 2016)
10.5	Employee Matters Agreement, dated as of September 8, 2016, by and between Johnson Controls International plc and Adient Limited (incorporated by reference to Exhibit 10.3 to the registrant's Current Report on Form 8-K filed on September 9, 2016)
10.6	Tax Sharing Agreement, dated September 28, 2012 by and among Pentair Ltd., Johnson Controls International plc (formerly Tyco International Ltd.), Tyco International Finance S.A. and The ADT Corporation (incorporated by reference to Exhibit 10.1 to the registrant's Current Report on Form 8-K filed on October 1, 2012) (Commission File No. 1-13836)
10.7	Non-Income Tax Sharing Agreement dated September 28, 2012 by and among Johnson Controls International plc (formerly Tyco International Ltd.), Tyco International Finance S.A. and The ADT Corporation (incorporated by reference to Exhibit 10.2 to the registrant's Current Report on Form 8-K filed on October 1, 2012) (Commission File No. 1-13836)
10.8	Trademark Agreement, dated as of September 25, 2012, by and among ADT Services GmbH, ADT US Holdings, Inc., Johnson Controls International plc (formerly Tyco International Ltd.) and The ADT Corporation (incorporated by reference to Exhibit 10.3 to the registrant's Current Report on Form 8-K filed on October 1, 2012) (Commission File No. 1-13836)
10.9	Form of Deed of Indemnification between Johnson Controls International plc (formerly Tyco International plc) and certain of its directors and officers (incorporated by reference to Exhibit 10.4 to the registrant's Current Report on Form 8-K filed on September 6, 2016)

Exhibit	Title
10.10	Form of Indemnification Agreement between Tyco Fire & Security (US) Management, Inc. and certain directors and officers of Johnson Controls International plc (incorporated by reference to Exhibit 10.5 to the registrant's Current Report on Form 8-K filed on September 6, 2016)
10.11	Tyco International plc 2004 Share and Incentive Plan (incorporated by reference to Exhibit 10.3 to the registrant's Current Report on Form 8-K filed on November 17, 2014) (Commission File No. 1-13836)**
10.12	Johnson Controls International plc 2012 Share and Incentive Plan, amended and restated as of March 8, 2017 (incorporated by reference to Exhibit 10.2 to the registrant's Quarterly Report on Form 10-Q filed on May 4, 2017)**
10.13	Johnson Controls International plc 2007 Stock Option Plan (incorporated by reference to Exhibit 10.7 to the registrant's Current Report on Form 8-K filed on September 6, 2016)**
10.14	Johnson Controls International plc 2012 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.6 to the registrant's Current Report on Form 8-K filed on September 6, 2016)**
10.15	Johnson Controls International plc Severance and Change in Control Policy for Officers, Amended and Restated December 7, 2017 (Incorporated by reference to Exhibit 10.2 to the registrant's Current Report on Form 8-K filed on December 11, 2017)**
10.16	Johnson Controls International plc Executive Deferred Compensation Plan, as amended and restated effective January 1, 2018 (incorporated by reference to Exhibit 10.3 to the registrant's Quarterly Report on Form 10-Q filed on May 3, 2018)**
10.17	Johnson Controls International plc Retirement Restoration Plan, as amended and restated effective January 1, 2018 (incorporated by reference to Exhibit 10.4 to the registrant's Quarterly Report on Form 10-Q filed on May 3, 2018)**
10.18	Tyco Supplemental Savings and Retirement Plan as amended and restated effective January 1, 2018 (incorporated by reference to Exhibit 10.2 to the registrant's Current Report on Form 8-K filed on September 19, 2017) **
10.19	Johnson Controls International plc Executive Compensation Incentive Recoupment Policy effective September 2, 2016 (incorporated by reference to Exhibit 10.24 to the registrant's Annual Report on Form 10-K for the fiscal year ended September 30, 2016 filed on November 23, 2016)**
10.20	Letter Agreement between Johnson Controls International plc and George R. Oliver dated December 8, 2017 (Incorporated by reference to Exhibit 10.1 to the registrant's Current Report on Form 8-K filed on December 11, 2017).**
10.21	Form of terms and conditions for Option / SAR Awards, Restricted Stock / Unit Awards, Performance Share Awards under the Johnson Controls International plc 2012 Share and Incentive Plan for periods commencing December 6, 2018 (incorporated by reference to Exhibit 10.2 to the registrant's Quarterly Report on Form 10-Q filed February 1, 2019)**
10.22	Form of terms and conditions for Option / SAR Awards, and Restricted Stock / Unit Awards, under the Johnson Controls International plc 2012 Share and Incentive Plan commencing December 6, 2018 applicable to Mr. Stief (incorporated by reference to Exhibit 10.3 to the registrant's Quarterly Report on Form 10-Q filed February 1, 2019)**
10.23	Form of Option/SAR Award for Executive Officers (incorporated by reference to Exhibit 10.24 to the registrant's Annual Report on Form 10-K for the fiscal year ended September 30, 2019 filed on November 21, 2019)**

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Exhibit	Title
10.24	Form of terms and conditions for Option / SAR Awards, Restricted Stock / Unit Awards, Performance Share Awards under the Johnson Controls International plc 2012 Share and Incentive Plan for fiscal 2018 (incorporated by reference to Exhibit 10.3 to the registrant's Quarterly Report on Form 10-Q filed on February 2, 2018)**
10.25	Form of terms and conditions for Option / SAR Awards, and Restricted Stock / Unit Awards, under the Johnson Controls International plc 2012 Share and Incentive Plan for fiscal 2018 applicable to Messrs. Oliver and Stief (incorporated by reference to Exhibit 10.4 to the registrant's Quarterly Report on Form 10-Q filed on February 2, 2018)**
10.26	Form of terms and conditions for Option / SAR Awards, Restricted Stock / Unit Awards, Performance Share Awards under the Johnson Controls International plc 2012 Share and Incentive Plan for periods commencing on September 2, 2016 (incorporated by reference to Exhibit 10.33 to the registrant's Annual Report on Form 10-K for the fiscal year ended September 30, 2016 filed on November 23, 2016)**
10.27	Form of terms and conditions for Option / SAR Awards, and Restricted Stock / Unit Awards, under the Johnson Controls International plc 2012 Share and Incentive Plan for periods commencing on September 2, 2016 applicable to Messrs. Molinaroli, Oliver and Stief (incorporated by reference to Exhibit 10.1 to registrant's Quarterly Report on Form 10-Q filed on February 8, 2017)**
10.28	Terms of Unit Award under the Johnson Controls International plc 2012 Share and Incentive Plan for Brian J. Stief dated September 14, 2017 (incorporated by reference to Exhibit 10.1 to the registrant's Current Report on Form 8-K filed on September 15, 2017)**
10.29	Terms of PSU Award under the Johnson Controls International plc 2012 Share and Incentive Plan for Brian J. Stief dated September 14, 2017 (incorporated by reference to Exhibit 10.2 to the registrant's Current Report on Form 8-K filed on September 15, 2017)**
10.30	Terms of RSU Award under the Johnson Controls International plc 2012 Share and Incentive Plan for Brian J. Stief dated September 14, 2017 (incorporated by reference to Exhibit 10.3 to the registrant's Current Report on Form 8-K filed on September 15, 2017)**
10.31	Letter Agreement dated as of September 14, 2017 between Johnson Controls International plc and Brian J. Stief (incorporated by reference to Exhibit 10.4 to the registrant's Current Report on Form 8-K filed on September 15, 2017)**
10.32	Form of terms and conditions for Option Awards, Restricted Unit Awards, Performance Share Awards under the 2012 Share and Incentive Plan for fiscal 2016 (incorporated by reference to Exhibit 10.2 to the registrant's Current Report on Form 8-K filed on October 13, 2015)**
10.33	Form of terms and conditions for Option Awards, Restricted Unit Awards, Performance Share Awards under the 2012 Stock and Incentive Plan for fiscal 2015 (incorporated by reference to Exhibit 10.9 to the registrant's Annual Report on Form 10-K for the fiscal year ended September 26, 2014 filed on November 14, 2014) (Commission File No. 1-13836)**
10.34	Form of terms and conditions for Option Awards, Restricted Unit Awards, Performance Share Awards under the 2012 Stock and Incentive Plan for fiscal 2014 (incorporated by reference to Exhibit 10.9 to the registrant's Annual Report on Form 10-K filed on for the year ended September 27, 2013 filed on November 14, 2013) (Commission File No. 1-13836)**
10.35	Form of terms and conditions for Restricted Stock Units for Directors under the Johnson Controls International plc 2012 Share and Incentive Plan for use beginning in 2018 (incorporated by reference to Exhibit 10.2 to the registrant's Quarterly Report on Form 10-Q filed on May 3, 2018)**

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Exhibit	Title
10.36	Form of terms and conditions for Restricted Stock Units for Directors under the Johnson Controls International plc 2012 Share and Incentive Plan for use in 2019 (incorporated by reference to Exhibit 10.2 to the registrant's Quarterly Report on Form 10-Q filed on May 3, 2019)**
10.37	Form of stock option or stock appreciation right award agreement for Johnson Controls, Inc. 2007 Stock Option Plan effective September 20, 2011 (incorporated by reference to Exhibit 10.V to Johnson Controls, Inc.'s Annual Report on Form 10-K for the year ended September 30, 2011 filed on November 22, 2011) (Commission File No. 1-5097)**
10.38	Johnson Controls, Inc. 2012 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.1(a) to Johnson Controls, Inc.'s Current Report on Form 8-K filed January 28, 2013) (Commission File No. 1-5097)**
10.39	Form of option/stock appreciation right agreement for Johnson Controls, Inc. 2012 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.1(c) to Johnson Controls, Inc.'s Current Report on Form 8-K filed November 21, 2013) (Commission File No. 1-5097)**
10.40	Restrictive covenants applicable to equity award agreements beginning December 2019 (incorporated by reference to Exhibit 10.3 to the registrant's Quarterly Report on Form 10-Q filed on January 31, 2020)
21.1	Subsidiaries of Johnson Controls International plc (filed herewith)
22.1	Co-Issuer of Debt Securities (filed herewith)
23.1	Consent of Independent Public Accounting Firm (filed herewith)
31.1	Certification by the Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith)
31.2	Certification by the Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith)
32.1	Certification by the Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (filed herewith)
101	Financial statements from the Annual Report on Form 10-K of Johnson Controls International plc for the fiscal year ended September 30, 2020 formatted in iXBRL (Inline Extensible Business Reporting Language): (i) the Consolidated Statements of Financial Position, (ii) the Consolidated Statements of Income, (iii) the Consolidated Statements of Comprehensive Income (Loss), (iv) the Consolidated Statements of Cash Flow, (v) the Consolidated Statements of Shareholders' Equity Attributable to Johnson Controls Ordinary Shareholders and (vi) Notes to Consolidated Financial Statements (filed herewith)
*	These instruments are not being filed as exhibits herewith because none of the long-term debt instruments authorizes the issuance of debt in excess of 10% of the total assets of Johnson Controls International plc and its subsidiaries on a consolidated basis. Johnson Controls International plc agrees to furnish a copy of each agreement to the Securities and Exchange Commission upon request.
**	Management contract or compensatory plan.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

JOHNSON CONTROLS INTERNATIONAL PLC

By /s/ Brian J. Stief
Brian J. Stief
Vice Chairman and
Chief Financial Officer

Date: November 16, 2020

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below as of November 16, 2020, by the following persons on behalf of the registrant and in the capacities indicated:

/s/ George R. Oliver
George R. Oliver
Chairman and Chief Executive Officer
(Principal Executive Officer)

/s/ Brian J. Stief
Brian J. Stief
Vice Chairman and
Chief Financial Officer (Principal Financial Officer)

/s/ Robert M. VanHimbergen
Robert M. VanHimbergen
Vice President and Corporate Controller
(Principal Accounting Officer)

/s/ Jean Blackwell
Jean Blackwell
Director

/s/ Pierre Cohade
Pierre Cohade
Director

/s/ Mike Daniels
Mike Daniels
Director

/s/ Juan Pablo del Valle Perochena
Juan Pablo del Valle Perochena
Director

/s/ Roy Dunbar
Roy Dunbar
Director

/s/ Gretchen R. Haggerty
Gretchen R. Haggerty
Director

/s/ Simone Menne
Simone Menne
Director

/s/ Jürgen Tinggren
Jürgen Tinggren
Director

/s/ Mark P. Vergnano
Mark P. Vergnano
Director

/s/ David Yost
David Yost
Director

/s/ John D. Young
John D. Young
Director