JOHNSON CONTROLS INTERNATIONAL PLC

Annual Report

For the Year Ended September 30, 2021

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JOHNSON CONTROLS INTERNATIONAL PLC
DIRECTORS' REPORT
For the Financial Year Ended September 30, 2021

The directors present their report and the audited consolidated financial statements of Johnson Controls International plc and its subsidiaries (hereinafter referred to as "Johnson Controls" or the "Group") for the financial year ended September 30, 2021, which are set out on pages 45 to 113, and audited entity financial statements of Johnson Controls International plc ("Johnson Controls Ireland" or "the Company") for the financial year ended September 30, 2021, which are set out on pages 114 to 124.

The directors have elected to prepare the consolidated financial statements of the Group in accordance with Section 279 of the Companies Act 2014 (the "Act"), which provides that a true and fair view of the state of affairs and profit or loss may be given by preparing the financial statements in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP"), as defined in Section 279 of the Act, to the extent that the use of those principles in the preparation of the financial statements does not contravene any provision of the Act or of any regulations made thereunder.

The directors have elected to prepare the Company financial statements in accordance with Financial Reporting Standard 102, "The Financial Reporting Standard applicable in the UK and Ireland" ("FRS 102"), together with the Companies Act 2014.

DIRECTORS' COMPLIANCE STATEMENT

The directors acknowledge that they are responsible for securing the Company's compliance with its relevant obligations.

The directors confirm that the Company has:

1. Drawn up a compliance policy statement setting out the Company's policies respecting compliance by the Company with its relevant obligations.

2. Put in place appropriate arrangements or structures that are designed to secure material compliance with the Company's relevant obligations.

3. Conducted a review during the financial year ended September 30, 2021 of the arrangements and structures referred to at 2 above.

STATEMENT OF DIRECTORS' RESPONSIBILITIES

The directors are responsible for preparing the Directors' Report and the financial statements in accordance with Irish law.

Irish law requires the directors to prepare financial statements for each financial year that give a true and fair view of the Group's and Company's assets, liabilities and financial position as at the end of the financial year and of the profit or loss of the Group for the financial year. Under that law, the directors have prepared the consolidated financial statements in accordance with U.S. accounting standards, as defined in Section 279(1) of the Companies Act 2014, to the extent that the use of those principles in the preparation of the financial statements does not contravene any provision of the Companies Act, or of any regulations made thereunder, and the Company financial statements in accordance with Irish Generally Accepted Accounting Practice (accounting standards issued by the UK Financial Reporting Council, including Financial Reporting Standard 102 *The Financial Reporting Standard applicable in the UK and Republic of Ireland* and Irish law).

Under Irish law, the directors shall not approve the financial statements unless they are satisfied that they give a true and fair view of the Group's and Company's assets, liabilities and financial position as at the end of the financial year and the profit or loss of the Group for the financial year.

In preparing these financial statements, the directors are required to:

- select suitable accounting policies and then apply them consistently;
- make judgments and estimates that are reasonable and prudent;
- state that the consolidated financial statements of the Group comply with accounting principles generally accepted in the United States of America (U.S.) (U.S. GAAP) to the extent that it does not contravene Irish Company Law, and that the Company financial statements comply with accounting standards issued by the UK Financial Reporting Council and Irish Law; and
- prepare the Group and Company financial statements on a going concern basis unless it is inappropriate to presume that the Group and Company will continue in business.

The directors are responsible for keeping adequate accounting records that are sufficient to:

- correctly record and explain the transactions of the Company;
- enable, at any time, the assets, liabilities, financial position and profit or loss of the Company to be determined with reasonable accuracy; and
- enable the directors to ensure that the financial statements comply with the Companies Act 2014 and enable those financial statements to be audited.

The directors are also responsible for safeguarding the assets of the Company and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

The directors are responsible for the maintenance and integrity of the corporate and financial information included on the Company's website. Legislation in Ireland governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

ACCOUNTING RECORDS

The measures that the directors have taken to secure compliance with the requirements of Sections 281 to 285 of the Companies Act 2014 with regards to the keeping of accounting records, are the employment of appropriately qualified accounting personnel and the maintenance of computerized accounting systems. In accordance with Section 283 of the Companies Act 2014, sufficient books of account are maintained in the Group's registered office in One Albert Quay, Cork, Ireland and at the Group's office at 5757 N Green Bay Ave, Milwaukee, WI 53209, USA to disclose, with reasonable accuracy, the financial position of the Group at intervals not exceeding six months.

BASIS OF PRESENTATION

The accompanying financial statements have been prepared in United States dollars and reflect the consolidated operations of the Group. Unless otherwise indicated, references to 2021 and 2020 are to Johnson Control's financial years ending September 30, 2021 ("fiscal 2021") and 2020 ("fiscal 2020"), respectively.

PRINCIPAL ACTIVITIES

Johnson Controls International plc, headquartered in Cork, Ireland, is a global leader in smart, healthy and sustainable buildings, serving a wide range of customers in more than 150 countries. The Group's products, services, systems and solutions advance the safety, comfort and intelligence of spaces to serve people, places and the planet. The Group 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 Group was renamed to Johnson Controls, Inc. in 1974. In 2005, the Group acquired York International, a global supplier of heating, ventilating, air-conditioning ("HVAC") and refrigeration equipment and services. In 2014, the Group acquired Air Distribution Technologies, Inc., one of the largest independent providers of air distribution and ventilation products in North America. In 2015, the Group 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 Group sold its Power Solutions business to BCP Acquisitions LLC, an entity controlled by investment funds managed by Brookfield Capital Partners LLC, completing the Group's transformation into a pure-play building technologies and solutions provider.

The Group 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 Group further serves customers by providing technical services, including maintenance, management, repair, retrofit and replacement of equipment (in the HVAC, industrial refrigeration, security and fire-protection space), energy-management consulting and data-driven "smart building" services and solutions powered by its OpenBlue software platform and capabilities. The Group partners with customers by leveraging its broad product portfolio and digital capabilities powered by OpenBlue, together with its direct channel service and solutions capabilities, to deliver outcome-based solutions across the lifecycle of a building that address customers' needs to improve energy efficiency and reduce greenhouse gas emissions.

Business Segments

The Group 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, building management, refrigeration, integrated electronic security and integrated fire-detection and suppression systems for commercial, industrial, retail, small business, institutional and governmental customers in the United States and Canada. Building Solutions North America also provides energy efficiency solutions and technical services, including inspection, scheduled maintenance, and repair and replacement of mechanical and controls systems, as well as data-driven "smart building" solutions, to non-residential building and industrial applications in the United States and Canadian marketplace.

Building Solutions EMEA/LA: Building Solutions EMEA/LA designs, sells, installs, and services HVAC, controls, building management, 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, building management, 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, manufactures and sells HVAC equipment, controls software and software services for residential and commercial applications to commercial, industrial, retail, residential, small business, institutional and governmental customers worldwide. In addition, Global Products designs, manufactures and sells refrigeration equipment and controls globally. The Global Products business also designs, manufactures and sells fire protection, fire suppression and security products, including intrusion security, anti-theft devices, access control, and video surveillance and management systems, for commercial, industrial, retail, residential, small business, institutional and governmental customers worldwide. Global Products includes the Johnson Controls-Hitachi joint venture.

For more information on the Group's segments, refer to Note 20, "Segment Information," of the notes to consolidated financial statements.

Products, Systems, Services and Solutions

The Group sells and installs its commercial HVAC equipment and systems, control systems, security systems, fire-detection and fire suppression 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 and suppression products. The Group's large base of current customers leads to significant repeat business for the maintenance, retrofit and replacement markets. The Group 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®, Silent-Aire®, Simplex® and Grinnell®, together with the breadth and depth of the products, systems and solutions offered by the Group, give it what it believes to be the most diverse portfolio in the building technology industry.

The Group has developed software platforms, including on-premises platforms and cloud-based software services, and integrated its products and services with digital capabilities to provide data-driven solutions to create smarter, safer and more sustainable buildings. In fiscal 2020, the Group launched its software platform, OpenBlue, enabling enterprises to manage all aspects of their physical spaces delivering sustainability, new occupant experiences, safety and security by combining the Group's building expertise with cutting-edge technology, including AI-powered service solutions such as remote diagnostics, predictive maintenance, compliance monitoring and advanced risk assessments. The Group leverages its digital and data-driven products and services to offer integrated and customizable solutions focused on delivering outcomes to customers, including OpenBlue Buildings-as-a-Service, OpenBlue Net Zero Buildings-as-a-Service and OpenBlue Healthy Buildings. These services are generally designed to generate recurring revenue for the Group as it supports its customers in achieving their desired outcomes.

In fiscal 2021, approximately 37% of sales originated from product offerings, 36% of sales originated from installations and 27% of sales originated from service offerings.

Competition

The Group 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 local, regional, national and international providers. Larger competitors include Honeywell International, Inc.; Siemens Smart Infrastructure, 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, the Group competes in a highly fragmented building services market. The loss of any individual contract or customer would not have a material adverse effect on the Group.

Business Strategy

The Group's business strategy is to sustain and expand its position as a leader in smart and sustainable building solutions by offering a full spectrum of products and solutions for customer buildings across the globe. The Group's core strategy remains focused on creating growth platforms, driving operational improvements and creating a high-performance culture. The Group has strong 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 Group believes that it is well positioned to capitalize on the emerging and prevalent trends in the buildings industry, including decarbonization, healthy buildings/indoor environmental quality and smart buildings. To capitalize on these trends, the Group is building on its fiscal 2021 priorities of maintaining leading positions in commercial HVAC and building management systems, as well as enabling growth through digital, to develop and leverage new digital technologies and capabilities into outcomes powered by its OpenBlue software platform. In furtherance of these goals, the Group has three strategic priorities:

Capitalize on Key Growth Vectors: Decarbonization, healthy buildings/indoor environmental quality and smart buildings represent key growth opportunities for the Group. The Group seeks to leverage its existing portfolio breadth and investments in product development, combined with the expansion of its digital products and capabilities powered by OpenBlue, to offer differentiated solutions and innovative deal structures to help customers achieve their objectives. The Group intends to invest in products and expand its partnerships to power innovation that will allow it to provide differentiated services that are tailored to its customers' desired outcomes.

Accelerate in High Growth Digital Services, Regions and Verticals: The Group is focused on transforming its large service business through its OpenBlue digital technologies and enabled by the Group's installed base, domain expertise and global coverage. The Group further intends to expand its presence in high growth regions and invest in high growth verticals within the markets it serves, including healthcare, commercial offices/campus, education and data centers.

Sustain a High-Performance, Customer-Centric Culture: The Group recognizes that developing talent and creating positive customer experiences is central to accomplishing its business strategies. The Group is investing in its talent to build a diverse workforce that is digital capable, solutions oriented and focused on continuous learning and growth. The Group aims to leverage its talent capabilities and training to create a customer-focused culture to drive customer loyalty and decisions.

To realize these priorities, the Group 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 Group's direct field businesses and third-party channels across the globe. The Group is augmenting its strategic priorities with disciplined execution, productivity enhancements and sustainable cost management to create a path to realize expanded margins and enhanced profitability.

Backlog

The Group's backlog is applicable to its sales of systems and services. At September 30, 2021, the backlog was $10.5 billion, of which $10.1 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, 2021, remaining performance obligations were $16.1 billion, which is $5.6 billion higher than the Group's backlog of $10.5 billion. Differences between the Group'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 average 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 Group 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 Group will continue to report backlog as it believes it is a useful measure of evaluating the Group's operational performance and relationship to total orders.

Raw Materials

Raw materials used by the Group’s businesses in connection with their operations include steel, aluminum, brass, copper, polypropylene and certain flurochemicals used in fire suppression agents. The Group also uses semiconductors and other electronic components in the manufacture of its products. During portions of fiscal 2021, the Group experienced higher than normal commodity and component prices and, in some instances, shortages due to global inflation, supply chain disruptions, labor shortages, increased demand and other regulatory and macroeconomic factors associated with the COVID-19 pandemic. These trends had a negative impact on the Group’s results of operations in fiscal 2021, although they were largely mitigated by the Group through proactive measures such as making purchases with the anticipation of higher demand, expanding and redistributing its supplier network, supplier financing, price increases and productivity improvements. The Group believes that the macroeconomic trends experienced in fiscal 2021 will continue into fiscal 2022. Therefore, the Group could experience further disruptions, shortages and price inflation in the future, the effect of which will depend on the Group’s ability to successfully mitigate and offset the impact of these events. In fiscal 2022, commodity prices and availability could fluctuate throughout the year and could significantly affect the Group’s results of operations.

Intellectual Property

Generally, the Group 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 Group takes action to protect its businesses by asserting its intellectual property rights against third-party infringers.

The Group 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 Group 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 Group, from time to time, grants licenses under its patents and technology and receives licenses under patents and technology of others.

The Group’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 Group are sold. The Group, from time to time, becomes involved in trademark licensing transactions.

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

Government Regulation and Supervision

The Group's operations are subject to numerous federal, state and local laws and regulations, both within and outside the United States, 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 Group operates have licensing laws directed specifically toward the alarm and fire suppression industries. The Group'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 Group's fire businesses. The Group’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 Group conducts its business, and changes in legislation or government policies can affect the Group's worldwide operations, both favorably and unfavorably. For a more detailed description of the various laws and regulations that affect the Group's business, see Item 1A. Risk Factors.

Regulatory Capital Expenditures

The Group’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 Group 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 Group 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 Group’s HVAC products and solutions. The Group’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 2021 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 Group's financial results or competitive position in any one year. See Note 23, "Commitments and Contingencies," of the notes to consolidated financial statements for further discussion of environmental matters.

Seasonal Factors

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

RESEARCH AND DEVELOPMENT EXPENDITURES

Refer to Note 1, "Basis of Presentation and Summary of Significant Accounting Policies," of the notes to consolidated financial statements for research and development expenditures. In January 2021, the Group committed to invest 75 percent of its new product research and development in climate-related innovation to develop sustainable products and services.

PRINCIPAL RISKS AND UNCERTAINTIES

Provided below is a cautionary discussion of what we believe to be the most important risk factors applicable to the Group. Discussion of these factors is incorporated by reference into and considered an integral part of this report. The disclosure of a risk should not be interpreted imply that such risk has not already materialized. Additional risks not currently known to the Group or that the Group currently believes are immaterial also may impair the Group's business, financial condition, results of operations and cash flows.

Risks Related to Economic and Political Conditions

Impacts related to 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 disrupted economic activity around the world. As a result, 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. While a substantial portion of our businesses and facilities have been classified as essential in jurisdictions in which facility closures have been mandated, we can give no assurance that there will not be additional closures in the future or that our businesses and facilities 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. In response to the challenges presented by COVID-19, we modified our business practices, including restricting non-essential employee travel, implementing remote work protocols, and limiting 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.

In September 2021, the Biden Administration issued an executive order requiring U.S.-based employees, contractors, and subcontractors, that work on or in support of U.S. Government contracts, to be fully vaccinated. The executive order includes on-site and remote U.S.-based employees, contractors and subcontractors but permits limited exceptions for medical and religious reasons. The Occupational Safety and Health Administration ("OSHA") also issued rules requiring, among other things, that all large employers in the U.S. have employees who are not fully vaccinated regularly tested for COVID-19 at least once per week. However, the implementation and enforcement of the OSHA rules and the federal contractor mandate remains uncertain due to ongoing legal challenges. If the rules and mandate are upheld and implemented, they are expected to be applicable to our U.S. operations and our federal contracting business. We have internally announced policies with respect to our U.S.-based employees to comply with these orders if implemented. In addition, a number of our customers have issued vaccine requirements with respect to our employees who provide on-site service at customer facilities. It is also possible that additional vaccine mandates may be announced in other jurisdictions in which our businesses operate. Our efforts to comply with these mandates, including requiring that some or all of our employees be fully vaccinated against COVID-19, could result in increased labor attrition and disruption, as well as difficulty securing future labor needs, and could materially impact our ability to deliver services to our U.S. federal government customers and potentially other customers, which could in turn adversely impact our results of operations.

We may also experience impacts from market forces and changes in consumer behavior related to pandemic fears as a result of COVID-19. Although we experienced increases in both demand and volumes during fiscal 2021 as governments distributed vaccines and lifted COVID-19-related restrictions, challenges in achieving sufficient vaccination levels and the introduction of new variants of COVID-19 have and could continue to negatively impact our results of operations due to the extension or reinstitution of lockdowns and similar restrictive measures, limited access to customer sites to perform installation and service work, the delay or abandonment of projects on which we provide products and/or services, and the general adverse impacts on demand and sales volumes from industries that are sensitive to economic downturns and volatility in commodity prices. In addition, the Group has experienced and could continue to experience labor shortages at its facilities as the Group expands its production capacity to meet increased customer demand. 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.

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. This 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.

The extent to which the COVID-19 pandemic continues to impact our results of operations and financial condition will depend on future developments that are highly uncertain and cannot be predicted, including the resurgence of COVID-19 and its variants in regions recovering from the impacts of the pandemic, the effectiveness of COVID-19 vaccines and the speed at which populations are vaccinated around the globe, the impact of COVID-19 on economic activity and regulatory actions taken to contain the impact of COVID-19 on public health and the global economy. The impact of COVID-19 may also exacerbate other risks discussed in this report, any of which could have a material effect on our financial condition, results of operations and cash flows.

The ability of suppliers to deliver raw materials, parts and components to our manufacturing facilities, and our ability to manufacture without disruption, could affect our results of operations.

We use a wide range of materials (primarily steel, copper and aluminum) and components (including semiconductors and other electronic components) in the global production of our products, which come from numerous suppliers around the world. Because not all of our business arrangements provide for guaranteed supply and some key parts may be available only from a single supplier or a limited group of suppliers, we are subject to supply and pricing risk. Our operations and those of our suppliers are subject to disruption for a variety of reasons, including COVID-19-related supplier plant shutdowns or slowdowns, transportation delays, work stoppages, labor relations, labor shortages, price inflation, governmental regulatory and enforcement actions, intellectual property claims against suppliers, financial issues such as supplier bankruptcy, information technology failures, and hazards such as fire, earthquakes, flooding, or other natural disasters. For example, we expect to continue to be impacted by the following supply chain issues, due to economic, political and other factors largely beyond our control: increased input material costs and component shortages; supply chain disruptions and delays and cost inflation, all of which could continue or escalate in the future. The effects of climate change, including extreme weather events, long-term changes in temperature levels, water availability, increased cost for decarbonizing process heating, supply costs impacted by increasing energy costs, or energy costs impacted by carbon prices or offsets may exacerbate these risks. Such disruptions could interrupt our ability to manufacture certain products. Any significant disruption could materially and adversely affect our business, financial condition, results of operations and cash flows.

Material supply shortages and delays in deliveries, along with other factors such as price inflation, can also result in increased pricing. While many of our customers permit quarterly or other periodic adjustments to pricing based on changes in component prices and other factors, we may bear the risk of price increases that occur between any such repricing or, if such repricing is not permitted, during the balance of the term of the particular customer contract.

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.

We have experienced, and expect to continue to experience, increased commodity costs as a result of global macroeconomic trends. While we have taken action to offset increasing commodity costs as described above, we have nonetheless experienced negative impacts on profitability as a result of such increased costs. Continued increased commodity costs could continue to negatively impact our results of operations to the extent we are unable to successfully mitigate and offset the impact of these costs.

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 and component prices, as well as commodity and component shortages, 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, 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, component 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. In December 2020, the U.K. and the European Union announced they had entered into a post-Brexit deal on certain aspects of trade and other strategic and political issues. Depending on the application of the terms of the trade and cooperation agreement between the U.K. and the European Union, we could face increased regulatory costs and challenges. The implications of these uncertainties could affect our business, financial position and results of operations.

We are also subject to a complex network of tax laws and tax treaties that impact our effective tax rate. For more information on risks related to tax regulation, see “Risks Related to Tax Matters” below.

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 and water scarcity, create financial risks to our business. For example, the demand for our products and services, such as commercial and 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 regulations designed to reduce greenhouse gas emissions. These regulations tend to be implemented under global, national and sub-national climate objectives or policies, and target the global warming potential ("GWP") of refrigerants, equipment energy efficiency, and the combustion of fossil fuels as a heating source. Many of our products consume energy and use refrigerants. Regulations which seek to reduce greenhouse gas emissions present a risk to our global products business, predominantly our HVAC business, if we do not adequately prepare our product portfolio. As a result, we may be required to make increased capital expenditures to improve our product portfolio to meet new regulations and standards. Further, our customers and the markets we serve may impose emissions or other environmental standards through regulation, market-based emissions policies or consumer preference that we may not be able to timely meet due to the required level of capital investment or technological advancement. While we have been committed to continuous improvements to our product portfolio to meet and exceed anticipated regulations and preferences, 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.

As of the date of this filing, we have made several public commitments regarding our intended reduction of carbon emissions, including commitments to achieve net zero carbon emissions by 2040 and the establishment of science-based targets to reduce carbon emissions from our operations and the operations of our customers. Although we intend to meet these commitments, we may be required to expend significant resources to do so, which could increase our operational costs. Further, there can be no assurance of the extent to which any of our commitments will be achieved, or that any future investments we make in furtherance of achieving such targets and goals will meet investor expectations or any binding or non-binding legal standards regarding sustainability performance. Moreover, we may determine that it is in the best interest of our company and our stockholders to prioritize other business, social, governance or sustainable investments over the achievement of our current commitments based on economic, regulatory and social factors, business strategy or pressure from investors, activist groups or other stakeholders. If we are unable to meet these commitments, then we could incur adverse publicity and reaction from investors, activist groups our other stakeholders, which could adversely impact the perception of us and our products and services by current and potential customers, as well as investors, which could in turn adversely impact 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, state and European Union 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 Group 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 Group'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 services and 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.

The development of technology products and services presents security and safety risks.

An increasing number of our products, services and technologies, including our OpenBlue platform, are delivered with digital capabilities and the accompanying interconnected device networks, which include sensors, data, building management systems and advanced computing capabilities. If we are unable to manage the lifecycle cybersecurity risk in development, deployment and operation of our digital platforms and services, the possible consequences include financial loss, reputational damage, adverse health, safety, and environmental consequences, exposure to legal claims or enforcement actions, theft of intellectual property, fines levied by the Federal Trade Commission or other governmental organizations, the diminution in the value of our investment in research, development and engineering, and increased cybersecurity protection and remediation costs, which in turn could 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 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 Group, its products, its customers and/or its third-party service providers, including cloud providers. These threats and incidents originate from many sources globally and include malwares that take the form of computer viruses, ransomware, worms, Trojan horses, spyware, adware, scareware, rogue software, and programs that act against the computer user. While we have experienced, and expect to continue to experience, these types of threats and incidents, none of them to date has been material to the Group. 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. 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. Such incidents could remain undetected for an extended period of time, and the losses arising from such incidents could exceed our available insurance coverage for such matters. 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 and the role they play in managing building systems. The potential consequences of a material cybersecurity incident include financial loss, reputational damage, adverse health, safety, and environmental consequences, exposure to legal claims or enforcement actions, theft of intellectual property, fines levied by the Federal Trade Commission or other governmental organizations, diminution in the value of our investment in research, development and engineering, and increased cybersecurity protection and remediation costs, which in turn could adversely affect our competitiveness and results of operations.

Data privacy, identity protection and information security compliance 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, we rely 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 us. 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.

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 high-performance, customer-centric and diverse management team and workforce. Continuous efficient and timely customer service, customer support and customer intimacy are essential to enabling customer loyalty and driving our financial results. Our growth strategies require that we pivot to new talent capability investments and build the workforce of the future, with an emphasis on developing skills in digital and consultative, outcome-based selling. Failure to ensure that we have the leadership and talent capacity with the necessary skillset 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.

Our ability to convert backlog into revenue requires us to maintain a labor force that is sufficiently large enough to support our manufacturing operations to meet customer demand, as well as provide on-site services and project support for our customers. This includes recruiting, hiring and retaining skilled trade workers to support our direct channel field businesses. Recently, we have experienced the impacts of widespread shortages for both skilled and unskilled labor. While we have taken measures to mitigate the impact of these shortages and enhanced our ability to recruit and retain skilled and unskilled labor, we can provide no assurance that such efforts will be successful. If the impacts of labor shortages continue and our mitigation efforts are unsuccessful, this could limit our ability to convert backlog into revenue and negatively impact our results of operations.

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, climate change, power outages, fires, explosions, terrorism, sabotage, adverse weather conditions, public health crises (including COVID-19 related shutdowns), labor disputes, labor shortages 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. For example, during the COVID-19 pandemic, we experienced disruptions in certain of our manufacturing facilities resulting from government-mandated shutdowns during the onset of the pandemic and have more recently experienced labor shortages as we have sought to expand production capacity in response to increased demand. The continuation or recurrence of either of these trends 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 101,000 people worldwide. Approximately 22% 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 statement 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. 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 23, “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 23, “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 and earn-out obligations) 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 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. 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 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.

Risks Related to Tax Matters

Future potential changes to the tax laws could adversely affect us and our affiliates.

Legislative and regulatory action may be taken in the U.S. and other jurisdictions in which we operate, 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.

Recently, the U.S. Congress has advanced a variety of tax legislation proposals that are under consideration for potential legislative action. While the final form of any legislative action is still unknown, various proposals, if enacted, could have a material impact on the Group’s effective tax rate. In October 2021, 136 out of 140 countries in the Organization for Economic

Co-operation and Development ("OECD") Inclusive Framework on Base Erosion and Profit Shifting ("IF"), including Ireland, politically committed to potentially fundamental changes to the international corporate tax system, including the potential implementation of a global minimum corporate tax rate. While the details of these pronouncements presently remain unclear and timing of implementation uncertain, the impact of local country IF adoption could have a material impact on our effective tax rate. It is also possible that jurisdictions in which we do business could react to such IF developments unilaterally by enacting tax legislation that could adversely affect us or our affiliates. There is also general 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.

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.

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 statement of financial position and our income tax provision in our consolidated statement 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.

Risks Relating to Our Jurisdiction of Incorporation

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 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 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, 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.

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.

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; 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.

BUSINESS REVIEW

Key Performance Indicators

The following analysis of the consolidated results of operations relates to continuing operations unless otherwise noted.

Macroeconomic Trends

Much of the demand for installation of the Group's products and 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. Positive or negative fluctuations in commercial and residential construction, industrial facility expansion and maintenance projects and other capital investments in buildings could have a corresponding impact on the Group’s financial condition, results of operations and cash flows.

As a result of the Group’s global presence, a significant portion of its revenues and expenses is denominated in currencies other than the U.S. dollar. The Group is therefore subject to non-U.S. currency risks and non-U.S. exchange exposure. While the Group employs financial instruments to hedge some of its transactional foreign exchange exposure, these activities do not insulate it completely from those exposures. Exchange rates can be volatile and a substantial weakening or strengthening of foreign currencies against the U.S. dollar could increase or reduce the Group’s profit margin in various locations outside of the U.S. and impact the comparability of results from period to period.

The Group continues to observe trends demonstrating increased interest and demand for safe, efficient and sustainable buildings, and seeks to capitalize on these trends to drive growth by developing and delivering technologies and solutions to create smart and healthy buildings. In 2020, the Group launched its software platform, OpenBlue, enabling enterprises to manage all aspects of their physical spaces delivering sustainability, new occupant experiences, and safety and security by combining the Group’s building expertise with cutting-edge technology, including AI-powered service solutions such as remote diagnostics, predictive maintenance, compliance monitoring and advanced risk assessments. The Group continues to leverage its install base, together with data-driven products and services to offer outcome-based solutions to customers with a focus on generating accelerated growth in services and recurring revenue for the Group. The Group has committed to investing 75 percent of its new product research and development in climate-related innovation to develop sustainable products and services.

The Group has experienced, and expects to continue to experience, increased input material cost inflation and component shortages, as well as disruptions and delays in its supply chain, as a result of global macroeconomic trends (including increased global demand), government-mandated actions in response to COVID-19 and labor shortages. Actions taken by the Group to mitigate supply chain disruptions and inflation, including expanding and redistributing its supplier network, supplier financing, price increases and productivity improvements, have generally been successful in offsetting some, but not all, of the impact of these trends. As a result, these trends have negatively impacted the Group’s revenue and margins. The Group expects that these trends will continue in fiscal year 2022. Therefore, the Group could experience further disruptions, shortages and price increases in the future, the effect of which will depend on the Group’s ability to successfully mitigate and offset the impact of these events.

Impact of COVID-19 pandemic

The global outbreak of COVID-19 severely restricted the level of economic activity around the world and caused a significant contraction in the global economy.

The Group’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. Although shutdown orders and similar restrictions have been lifted in many jurisdictions in conjunction with the global distribution of vaccines, challenges in achieving sufficient vaccination levels and the spread of new variants of COVID-19 have caused some governments to extend or reinstitute restrictions in impacted areas. During fiscal 2021, the Group’s facilities generally operated at normal levels.

The Group continues to focus its efforts on preserving the health and safety of its employees and customers, as well as maintaining the continuity of its operations. The Group modified its business practices in response to the COVID-19 outbreak, including restricting non-essential employee travel, implementing remote work protocols, and limiting physical participation in meetings, events and conferences. The Group also instituted preventive measures at its facilities, including enhanced health and safety protocols, temperature screening, requiring face coverings for all unvaccinated employees and encouraging employees to follow similar protocols when away from work. The Group has adopted and implemented a multifaceted framework to guide its decision making as it reopens its offices and facilities to employees, and will continue to monitor and audit its facilities to ensure that they are in compliance with the Group’s COVID-19 safety requirements.

The Group initially 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, during portions of fiscal 2020, the Group 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 Group's customers. In fiscal 2021, the Group has experienced increases in both demand and volumes as governments have distributed vaccines and lifted COVID-19-related restrictions, leading to increases in retrofit activity and, to a lesser extent, commercial building construction. The global pandemic has also provided the Group 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. As a result of the pandemic, the Group 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.

However, the Group continues to be influenced by COVID-19-related trends impacting site access and the labor force, which have and may continue to negatively impact the Group's revenues and margins. Challenges in reaching sufficient vaccination levels and the introduction of new variants of COVID-19 have caused some governments to extend or reinstitute lockdowns and similar restrictive measures, which, in some cases, have limited the Group's ability to access customer sites to install and maintain its products and deliver services. In addition, the Group has experienced and continues to experience labor shortages at certain facilities as the Group expands its production capacity to meet increased customer demand. Although the Group is mitigating these shortages through focused recruitment efforts and competitive compensation packages, the Group could continue to experience such shortages in the future. Recently, the U.S. Government has promulgated orders mandating vaccinations or regular COVID-19 testing for large employers and federal contractors. Similar mandates have also been imposed by local governments and certain of the Group's customers. The Group's efforts to comply with these mandates, including requiring that some or all of its employees be fully vaccinated against COVID-19, could result in increased labor attrition or disruption, and could adversely impact the Group's ability to deliver services to its customers.

The extent to which the COVID-19 pandemic continues to impact the Group's results of operations and financial condition will depend on future developments that are highly uncertain and cannot be predicted, including the resurgence of COVID-19 and its variants in regions recovering from the impacts of the pandemic, the effectiveness of COVID-19 vaccines and the speed at which populations are vaccinated around the globe, the impact of COVID-19 on economic activity, and regulatory actions taken to contain its impact on public health and the global economy. See the section entitled "Principal Risks and Uncertainties" for an additional discussion of risks related to COVID-19.

Restructuring and Cost Optimization Initiatives

To better align its resources with its growth strategies and reduce the cost structure of its global operations in certain underlying markets, the Group has committed to various restructuring plans. In fiscal 2021, the Group announced its plans to optimize its cost structure through broad-based SG&A actions focused on simplification, standardization and centralization, with the intent to deliver annualized savings of $300 million by fiscal 2023. Additionally, the Group announced cost of sales actions to drive $250 million in annual run rate savings by fiscal 2023. For more information on the Group's restructuring plans, see "Liquidity and Capital Resources—Restructuring."

Net Sales

	Year Ended September 30,		
(in millions)	2021	2020	Change
Net sales	$ 23,668	$ 22,317	6%

The increase in net sales was due to higher organic sales ($932 million), the favorable impact of foreign currency translation ($447 million) and incremental sales from acquisitions ($253 million), partially offset by lower sales due to business divestitures ($275 million) and the impact of nonrecurring purchase accounting adjustments ($6 million). Excluding the impact of foreign currency translation, business acquisitions and divestitures and nonrecurring adjustments, consolidated net sales increased 4% as compared to the prior year, primarily attributable to the increased demand generated by the COVID-19 pandemic recovery. Refer to the "Segment Analysis" below for a discussion of net sales by segment.

Cost of Sales / Gross Profit

	Year Ended September 30,		
(in millions)	2021	2020	Change
Cost of sales	$ 15,609	$ 14,906	5%
Gross profit	8,059	7,411	9%
% of sales	34.1%	33.2%	

Cost of sales and gross profit both increased and gross profit as a percentage of sales increased by 90 basis points. Gross profit increased due to organic sales growth, favorable year-over-year impact of net pension mark-to-market adjustments ($207 million) and business acquisitions, partially offset by the unfavorable impact of foreign currency translation ($307 million) and business divestitures. Refer to the "Segment Analysis" below for a discussion of segment earnings before interest, taxes and amortization ("EBITA").

Selling, General and Administrative Expenses

(in millions)	Year Ended September 30, 2021	Year Ended September 30, 2020	Change
Selling, general and administrative expenses	$ 5,258	$ 5,665	-7%
% of sales	22.2%	25.4%	

Selling, general and administrative expenses ("SG&A") decreased by $407 million, and SG&A as a percentage of sales decreased by 320 basis points. The decrease in SG&A was primarily due to favorable year-over-year impact of net mark-to-market adjustments on pension plans ($453 million) and favorable impacts of cost mitigation actions and reductions in discretionary spend in the current year, partially offset by the unfavorable impact of foreign currency translation ($97 million). Refer to the "Segment Analysis" below for a discussion of segment EBITA.

Restructuring and Impairment Costs

(in millions)	Year Ended September 30, 2021	Year Ended September 30, 2020	Change
Restructuring and impairment costs	$ 242	$ 783	-69%

Refer to Note 17, "Significant Restructuring and Impairment Costs," Note 18, "Impairment of Long-Lived Assets," and Note 8, "Goodwill and Other Intangible Assets," of the notes to consolidated financial statements for further disclosure related to the Group's restructuring plans and impairment costs.

Net Financing Charges

(in millions)	Year Ended September 30, 2021	Year Ended September 30, 2020	Change
Net financing charges	$ 206	$ 231	-11%

Refer to Note 10, "Debt and Financing Arrangements," of the notes to consolidated financial statements for further disclosure related to the Group's net financing charges.

Equity Income

(in millions)	Year Ended September 30, 2021	Year Ended September 30, 2020	Change
Equity income	$ 261	$ 171	53%

The increase in equity income was primarily due to higher income at certain partially-owned affiliates of the Johnson Controls - Hitachi joint venture. Foreign currency translation had a favorable impact on equity income of $12 million. Refer to the "Segment Analysis" below for a discussion of segment EBITA.

Income Tax Provision

(in millions)	Year Ended September 30, 2021	Year Ended September 30, 2020	Change
Income tax provision	$ 868	$ 108	*
Effective tax rate	33%	12%	

* Measure not meaningful

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

For fiscal 2021, the effective tax rate for continuing operations was 33% and was higher than the statutory tax rate primarily due to the tax impacts of an intercompany transfer of certain of the Group’s intellectual property rights, valuation allowance adjustments, the income tax effects of mark-to-market adjustments and tax rate differentials, partially offset by the benefits of continuing global tax planning initiatives.

For fiscal 2020, the effective 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.

The fiscal 2021 effective tax rate increased as compared to fiscal 2020 primarily due to the discrete tax items. The fiscal year 2021 and 2020 global tax planning initiatives related primarily to changes in entity tax status, global financing structures and alignment of the Group's global business functions in a tax efficient manner. Refer to Note 19, "Income Taxes," of the notes to consolidated financial statements for further details.

In October 2021, 136 out of 140 countries in the Organization for Economic Co-operation and Development ("OECD") Inclusive Framework on Base Erosion and Profit Shifting ("IF"), including Ireland, politically committed to potentially fundamental changes to the international corporate tax system, including the potential implementation of a global minimum corporate tax rate. While the details of these pronouncements presently remain unclear and timing of implementation uncertain, the impact of local country IF adoption could have a material impact on our effective tax rate in future periods. It is also possible that jurisdictions in which we do business could react to such IF developments unilaterally by enacting tax legislation that could adversely affect us or our affiliates.

Income From Discontinued Operations, Net of Tax

	Year Ended September 30,		
(in millions)	2021	2020	Change
Income from discontinued operations, net of tax	$ —	$ 124	*

* 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)	2021	2020	Change
Income from continuing operations attributable to noncontrolling interests	$ 233	$ 164	42%

The increase in income from continuing operations attributable to noncontrolling interests was primarily due to higher net income at certain partially-owned affiliates within the Global Products segment.

Net Income Attributable to Johnson Controls

(in millions)	Year Ended September 30, 2021	2020	Change
Net income attributable to Johnson Controls	$ 1,513	$ 755	*

* Measure not meaningful

The increase in net income attributable to Johnson Controls was primarily due to higher gross profit, lower restructuring and impairment costs and lower SG&A, partially offset by higher income tax provision. Fiscal 2021 diluted earnings per share attributable to Johnson Controls was $2.10 compared to $1.00 in fiscal 2020.

Comprehensive Income Attributable to Johnson Controls

(in millions)	Year Ended September 30, 2021	2020	Change
Comprehensive income attributable to Johnson Controls	$ 1,855	$ 774	*

* Measure not meaningful

The increase in comprehensive income attributable to Johnson Controls was due to higher net income attributable to Johnson Controls ($758 million) and an increase in other comprehensive income attributable to Johnson Controls ($323 million) resulting primarily from foreign currency translation adjustments. The favorable foreign currency translation adjustments were primarily driven by the strengthening of the Brazilian real, Canadian dollar and Mexican peso against the U.S. dollar in the current 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)	2021	2020	Change	2021	2020	Change
Building Solutions North America	$ 8,685	$ 8,605	1%	$ 1,204	$ 1,157	4%
Building Solutions EMEA/LA	3,727	3,440	8%	391	338	16%
Building Solutions Asia Pacific	2,654	2,403	10%	349	319	9%
Global Products	8,602	7,869	9%	1,441	1,134	27%
	$ 23,668	$ 22,317	6%	$ 3,385	$ 2,948	15%

Net Sales:

- The increase in Building Solutions North America was due to the favorable impact of foreign currency translation ($49 million), higher volumes ($27 million) and incremental sales related to business acquisitions ($4 million). The increase in volumes was primarily attributable to a strong recovery in service sales across all domains, partially offset by a modest decline in installation sales driven by a decline in the new construction market.

- The increase in Building Solutions EMEA/LA was primarily attributable to the favorable impact of foreign currency translation ($135 million), higher volumes ($115 million) and incremental sales related to business acquisitions ($37 million). The increase in volumes was primarily attributable to higher service and, to a lesser extent, installation sales. By region, growth in Europe was partially offset by a decline in the Middle East.

- The increase in Building Solutions Asia Pacific was due to favorable volumes ($143 million) and the favorable impact of foreign currency translation ($117 million), partially offset by business divestitures ($9 million). The increase in volumes was primarily attributable to higher installation and service sales. Growth was led by a strong recovery in China.

- The increase in Global Products was due to favorable volumes ($647 million), incremental sales related to business acquisitions ($212 million) and the favorable impact of foreign currency translation ($146 million), partially offset by business divestitures ($266 million) and the impact of nonrecurring purchase accounting adjustments ($6 million). The increase in volumes was primarily attributable to growth across Commercial and Residential HVAC as well as Fire & Security products. This growth was partially offset by a decline in Industrial Refrigeration.

Segment EBITA:

- The increase in Building Solutions North America was due to favorable volumes and productivity savings, net of prior year temporary cost mitigation actions ($31 million), prior year integration costs ($11 million) and the favorable impact of foreign currency translation ($5 million).

- The increase in Building Solutions EMEA/LA was due to favorable volumes and productivity savings, net of prior year temporary cost mitigation actions ($41 million), the favorable impact of foreign currency translation ($7 million), higher income due to business acquisitions ($5 million) and prior year integration costs ($2 million), partially offset by lower equity income ($2 million).

- The increase in Building Solutions Asia Pacific was due to the favorable impact of foreign currency translation ($13 million), favorable volumes, net of prior year temporary cost mitigation actions ($12 million) and prior year integration costs ($7 million), partially offset by lower income due to business divestitures ($2 million).

- The increase in Global Products was due to favorable volumes and productivity savings, net of prior year temporary cost mitigation actions ($176 million), higher equity income ($72 million) driven primarily by certain partially-owned affiliates of the Johnson Controls - Hitachi joint venture, a prior year compensation charge related to a noncontrolling interest acquisition ($39 million), the favorable impact of foreign currency translation ($30 million), prior year integration costs ($13 million) and incremental income related to business acquisitions ($13 million), partially offset by lower income due to business divestitures ($23 million) and Silent-Aire transaction costs and nonrecurring purchase accounting adjustments ($13 million).

Liquidity and Capital Resources

Working Capital

(in millions)	September 30, 2021	September 30, 2020	Change
Current assets	$ 9,998	$ 10,053	
Current liabilities	(9,098)	(8,098)	
	900	1,955	-54%
Less: Cash and cash equivalents	(1,336)	(1,951)	
Add: Short-term debt	8	31	
Add: Current portion of long-term debt	226	262	
Working capital (as defined)	$ (202)	$ 297	*
Accounts receivable - net	$ 5,613	$ 5,294	6%
Inventories	2,057	1,773	16%
Accounts payable	3,746	3,120	20%

* Measure not meaningful

- The Group defines working capital as current assets less current liabilities, excluding cash and cash equivalents, 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 Group's operating performance.

- The decrease in working capital at September 30, 2021 as compared to September 30, 2020, was primarily due to an increase in accounts payable, accrued compensation and benefits liabilities, deferred revenue and lower income tax assets, partially offset by an increase in accounts receivable, an increase in inventory, and the favorable resolution of certain post-closing working capital and net debt adjustments related to the Power Solutions sale.

- The Group's days sales in accounts receivable at September 30, 2021 were 58, a decrease from 63 at September 30, 2020. There has been no significant adverse change in the level of overdue receivables or significant changes in revenue recognition methods.

- The Group's inventory turns for the year ended September 30, 2021 were lower than the comparable period ended September 30, 2020 primarily due to changes in inventory production levels.

- Days in accounts payable at September 30, 2021 were 76 days, higher from 69 days for the comparable period ended September 30, 2020, primarily due to timing.

Cash Flows From Continuing Operations

	Year Ended September 30,	
(in millions)	2021	2020
Cash provided by operating activities	$ 2,551	$ 2,479
Cash used by investing activities	(1,090)	(258)
Cash used by financing activities	(2,131)	(2,824)

- The increase in cash provided by operating activities was primarily due to favorable changes in accounts payable and accrued liabilities and higher pre-tax income, net of non-cash adjustments, partially offset by prior year income tax refunds and increases in accounts receivable and inventory.

- The increase in cash used by investing activities was primarily due to higher cash payments made for Silent-Aire and other acquisitions.

- The decrease in cash used by financing activities was primarily due to lower levels of share repurchases in fiscal year 2021, partially offset by lower long-term debt borrowings, net of repayments.

Capitalization

(in millions)	September 30, 2021	September 30, 2020	Change
Short-term debt	$ 8	$ 31	
Current portion of long-term debt	226	262	
Long-term debt	7,506	7,526	
Total debt	7,740	7,819	-1%
Less: Cash and cash equivalents	1,336	1,951	
Total net debt	6,404	5,868	9%
Shareholders' equity attributable to Johnson Controls ordinary shareholders	17,562	17,571	—%
Total capitalization	$ 23,966	$ 23,439	2%
Total net debt as a % of total capitalization	26.7%	25.0%	

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

- The Group's material cash requirements primarily consist of working capital requirements, repayments of long-term debt and related interest, operating leases, dividends, capital expenditures and potential acquisitions and stock repurchases.

- Refer to Note 10, "Debt and Financing Arrangements," of the notes to consolidated financial statements for additional information on debt obligations and maturities. Interest payable on long-term debt was $218 million due in the twelve months following September 30, 2021 and $3,468 million due thereafter.

- Refer to Note 9, "Leases," of the notes to consolidated financial statements for additional information on lease obligations and maturities.

- As of September 30, 2021, purchase obligations were $1,276 million payable in the next twelve months and $168 million payable thereafter. These purchase obligations represent commitments under enforceable and legally binding agreements, and do not represent the entire anticipated purchases in the future.

- As of September 30, 2021, the Group expects to contribute $45 million and $495 million to the global pension and postretirement plans in the next twelve months and thereafter, respectively.

- As of September 30, 2021, approximately $5.1 billion remains available under the Group's share repurchase authorization, which does not have an expiration date and may be amended or terminated by the Board of Directors at any time without prior notice. The Group expects to repurchase outstanding shares from time to time depending on market conditions, alternate uses of capital, liquidity and economic environment.

- In the second quarter of fiscal 2021, the Group raised its quarterly dividend to $0.27 per share. In December 2021, the Group further raised its quarterly dividend to $0.34 per share. The Group intends to continue paying quarterly dividends in fiscal 2022.

- The Group believes its capital resources and liquidity position at September 30, 2021 are adequate to meet projected needs. The Group believes requirements for working capital, capital expenditures, dividends, stock repurchases, minimum pension contributions, debt maturities and any potential acquisitions in fiscal 2022 will continue to be funded from operations, supplemented by short- and long-term borrowings, if required. The Group currently manages its short-term debt position in the U.S. and euro commercial paper markets and bank loan markets. In the event the Group 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 364-day revolving credit facility which expires in December 2022. There were no draws on the revolving credit facilities as of September 30, 2021 and 2020. The Group also selectively makes use of short-term credit lines other than its revolving credit facility. The Group, as of September 30, 2021, could borrow up to $3.0 billion based on committed credit lines. In addition, the Group held cash and cash equivalents of $1.3 billion as of September 30, 2021. As such, the Group believes it has sufficient financial resources to fund operations and meet its obligations for the foreseeable future.

- The Group's ability to access the global capital markets and the related cost of financing is dependent upon, among other factors, the Group's credit ratings. As of September 30, 2021, the Group's credit ratings and outlook were as follows:

Rating Agency	Short-Term Rating	Long-Term Rating	Outlook
S&P	A-2	BBB+	Stable
Moody's	P-2	Baa2	Stable

  The security ratings set forth above are issued by unaffiliated third party rating agencies and are not a recommendation to buy, sell or hold securities. The ratings may be subject to revision or withdrawal by the assigning rating organization at any time.

- In September 2021, the Group and its wholly-owned subsidiary, Tyco Fire & Security Finance S.C.A. ("TFSCA"), issued $500 million of sustainability-linked senior notes with an initial interest rate of 2.0%, which are due in 2031. Beginning in March 2026, the interest rate payable on the note will be increased by an additional 12.5 basis points per annum if the Scope 1 and Scope 2 emissions sustainability performance target is not met and an additional 12.5 basis points per annum if the Scope 3 emissions sustainability performance target is not met. The proceeds were used for general corporate purposes, including the repayment of near-term indebtedness. In September 2021, the Group repaid $193 million of notes which were due in December 2021 and a €200 million bank term loan which was issued in March 2021 and due in March 2022. The Group repaid $257 million in principal amount, plus accrued interest, of 4.25% fixed rate notes when they expired in March 2021. Additionally, during the fiscal year 2021 the Group repaid €43 million in principal amount, plus accrued interest, of 1.0% fixed rate notes which were due in September 2023.

- Financial covenants in the Group'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, 2021, the Group was in compliance with all covenants and other requirements set forth in its credit agreements and the indentures, governing its outstanding notes, and expect to remain in compliance for the foreseeable future. None of the Group's debt agreements limit access to stated borrowing levels or require accelerated repayment in the event of a decrease in the Group's credit rating.

- The Group 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 Group provided income tax expense related to a change in the Group's assertion over the outside basis differences of the Group's investment in certain subsidiaries as a result of the planned divestiture of the Power Solutions business. Except as noted, the Group's intent is to reduce basis differences only when it would be tax efficient. The Group expects existing U.S. cash and liquidity to continue to be sufficient to fund the Group'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 Group require more capital than is generated by its operations, the Group could elect to raise capital in the U.S. through debt or equity issuances. The Group 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 Group expects existing non-U.S. cash, cash equivalents, short-term investments and cash flows from operations to continue to be sufficient to fund the Group'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 Group require more capital at the Luxembourg and Ireland holding and financing entities, other than amounts that can be provided in tax efficient methods, the Group could also elect to raise capital through debt or equity issuances. These alternatives could result in increased interest expense or other dilution of the Group's earnings.

- The Group may from time to time purchase our outstanding debt through open market purchases, privately negotiated transactions or otherwise. Purchases or retirement of debt, if any, will depend on prevailing market conditions, liquidity requirements, contractual restrictions and other factors. The amounts involved may be material.

- Refer to Note 10, "Debt and Financing Arrangements," of the notes to consolidated financial statements for additional information on items impacting capitalization.

Restructuring

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

- In fiscal 2021, the Group announced its plans to optimize its cost structure through broad-based SG&A actions focused on simplification, standardization and centralization, with the intent to deliver annualized savings of $300 million by fiscal 2023. Additionally, the Group announced cost of sales actions to drive $250 million in annual run rate savings by fiscal 2023. The one-time pre-tax costs associated with these actions are estimated to be approximately $385 million across all segments and at Corporate. During the year ended September 30, 2021, the Group recorded $242 million of costs resulting from the 2021 restructuring plan. The restructuring action is expected to be substantially complete in fiscal 2023. The Group has outstanding restructuring reserves of $65 million at September 30, 2021, all of which is expected to be paid in cash.

- In fiscal 2020, the Group recorded $297 million of costs resulting from the 2020 restructuring plan. The Group 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 annual restructuring activities are substantially completed, and final payments are expected to be made in fiscal 2022. The Group has outstanding restructuring reserves of $37 million at September 30, 2021, all of which is expected to be paid in cash.

FINANCIAL RISK MANAGEMENT

The Group 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 Group 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 Group 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 statement 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 Group aligns most of the critical terms of its derivatives with the supply contracts.

For net investment hedges, the Group 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 Group'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 Group's accounting policies for derivative financial instruments is included in Note 1, "Basis of Presentation and 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 11, "Derivative Instruments and Hedging Activities," and Note 12, "Fair Value Measurements," of the notes to consolidated financial statements.

Foreign Exchange

The Group 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 Group'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 Group hedges 70% to 90% of the nominal amount of each of its known foreign exchange transactional exposures. The Group 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 Group 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 Group 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 Group's net investments globally.

At September 30, 2021 and 2020, the Group estimates that an unfavorable 10% change in the exchange rates would have decreased net unrealized gains by approximately $213 million and $363 million, respectively.

Interest Rates

Substantially all of the Group's outstanding debt has fixed interest rates. A 10% increase in the average cost of the Group's variable rate debt would have had an immaterial impact on pre-tax interest expense for the years ended September 30, 2021 and 2020.

Commodities

The Group 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.

ACQUISITION AND CANCELLATION OF OWN SHARES

The Company held 28.4 million and 27.7 million of its own shares as of September 30, 2021 and 2020, respectively, which amounted to 3.85% and 3.67% of total shares issued as of September 30, 2021 and 2020, respectively. The Company acquires its own shares based on capital allocation strategies. The par value of each ordinary share is $0.01.

The Company's own shares activity for the fiscal years ended September 30, 2021 and September 30, 2020 was as follows (in millions):

	Year Ended September 30, 2021		Year Ended September 30, 2020	
	Shares	Amount	Shares	Amount
Balance at beginning of period	27.7	$ 1,119	26.9	$ 1,086
Payments to acquire own shares	23.5	1,307	55.2	2,204
Cancellation of own shares	(23.5)	(1,307)	(55.2)	(2,204)
Other	0.7	33	0.8	33
Balance at end of period	28.4	$ 1,152	27.7	$ 1,119

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 will be determined by the Company's Board of Directors and will depend upon many factors, including the Group's financial condition and results of operations, the capital requirements of the Group's businesses, industry practice and any other relevant factors.

Under Irish Company 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. Additionally, on April 27, 2018, the Irish High Court approved the Company's conversion of approximately $26.0 billion of share premium to distributable reserves. As of September 30, 2021, the Company's profit and loss account balance was approximately $21.2 billion.

During fiscal 2021 and 2020, the Company declared four quarterly dividends totaling $1.07 and $1.04 per ordinary share, respectively. Dividends of $762 million and $790 million were paid by the Company to shareholders during fiscal years 2021 and 2020, respectively. As of September 30, 2021, there were $192 million of outstanding dividends declared. As of September 30, 2020, there were $189 million of outstanding dividends declared.

FUTURE DEVELOPMENTS

The directors do not anticipate any significant changes in the Group's activities following the date of this report, except as disclosed in the "Significant Events Since Year End" section.

SIGNIFICANT EVENTS SINCE YEAR END

Subsequent events have been evaluated through January 20, 2022, the date this report was approved by the Audit Committee of the Board of Directors and the Board of Directors. During the first quarter of fiscal 2022, the Group reorganized its reportable segments to align with its new management reporting structure and business activities. Certain businesses previously included in Building Solutions Asia Pacific and Global Products reportable segments are now part of Building Solutions EMEA/LA reportable segment. Refer to Note 10, "Debt and Financing Arrangements" and Note 23, "Commitments and Contingencies," for details of other subsequent events.

DIRECTORS

For the year ended September 30, 2021, the directors of Johnson Controls Ireland were George R. Oliver, Jean S. Blackwell, Pierre Cohade, Michael E. Daniels, Juan Pablo del Valle Perochena, Roy Dunbar, Gretchen R. Haggerty, Simone Menne, Jürgen Tinggren, Mark P. Vergnano, R. David Yost and John D. Young.

On December 8, 2021, Juan Pablo del Valle Perochena notified the Board of Directors that he will not seek re-election at the end of his term and will retire at the 2022 Annual General Meeting scheduled to be held on March 9, 2022.

DIRECTORS' AND CORPORATE SECRETARY INTERESTS IN SHARES

The interests in the ordinary shares of the Company of the directors and corporate secretary of Johnson Controls Ireland holding office at the end of the fiscal year 2021 and at either the beginning of the fiscal year or date of appointment if later, were as follows:

	September 30,			
	2021		2020	
Directors	Ordinary Shares	Share Units/ Options(1)	Ordinary Shares	Share Units/ Options(1)
George R. Oliver(2)	1,021,518	3,202,424	891,200	3,519,299
Jean S. Blackwell	6,493	2,887	4,088	4,604
Pierre Cohade	5,339	2,887	2,924	4,604
Michael E. Daniels	70,340	2,887	67,790	4,604
Juan Pablo del Valle Perochena	9,071	2,887	6,585	4,604
Roy Dunbar	8,729	2,887	6,223	4,604
Gretchen R. Haggerty	13,378	2,887	10,868	4,604
Simone Menne	7,047	2,887	4,590	4,604
Jürgen Tinggren	26,550	2,887	24,131	4,604
Mark P. Vergnano	21,318	2,887	18,913	4,604
R. David Yost	51,888	2,887	49,483	4,604
John Young	7,748	2,887	5,227	4,604
Corporate Secretaries				
John Donofrio(3)	6,675	405,660	—	376,548
Richard Dancy	—	4,434	—	—

(1) Share units/options include unvested restricted stock share units, unvested performance-based share units, and vested and unvested stock options.
(2) Number of share units/options held includes 2,708,668 and 2,985,189 options as of September 30, 2021 and 2020, respectively.
(3) Number of share units/options held includes 295,054 and 236,294 options as of September 30, 2021 and 2020, respectively.

POLITICAL DONATIONS

No political donations that require disclosure under Irish Company Law were made during fiscal 2021.

SUBSIDIARY COMPANIES AND UNDERTAKINGS

Refer to Note 31, "Subsidiary Undertakings," of the notes to consolidated financial statements for information regarding subsidiary undertakings, unconsolidated subsidiaries and branches.

GOING CONCERN

The Board has formed a judgment at the time of approving the financial statements that there is a reasonable expectation that the Group and the Company have adequate resources to continue in operational existence for at least the next twelve month period extending from the time of approving the financial statements. The Board has considered the current and anticipated uncertainties driven by COVID-19 in its going concern assessment. These uncertainties include, but are not limited to, customer demand, temporary closure of production facilities, disruptions or delays in the supply chain and customers' and suppliers' financial condition. The extent to which the COVID-19 outbreak continues to impact the Group's results of operations, financial condition, liquidity position and availability of financing sources will depend on future developments that are highly uncertain and cannot be predicted, including the resurgence of COVID-19 and its variants in regions recovering from the impacts of the pandemic, the effectiveness of COVID-19 vaccines and the speed at which populations are vaccinated around the globe, the impact of COVID-19 on economic activity, and regulatory actions taken to contain its impact on public health and the global economy.

The Group initially 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, during portions of fiscal 2020, the Group 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 Group's customers. In fiscal 2021, the Group has experienced increases in both demand and volumes as governments have distributed vaccines and lifted COVID-19-related restrictions, leading to increases in retrofit activity and, to a lesser extent, commercial building construction. The global pandemic has also provided the Group 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. As a result of the pandemic, the Group 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.

The Group has experienced, and expects to continue to experience, increased input material cost inflation and component shortages, as well as disruptions and delays in its supply chain, as a result of global macroeconomic trends (including increased global demand), government-mandated actions in response to COVID-19 and labor shortages. Actions taken by the Group to mitigate supply chain disruptions and inflation, including expanding and redistributing its supplier network, supplier financing, price increases and productivity improvements, have generally been successful in offsetting some, but not all, of the impact of these trends. As a result, these trends have negatively impacted the Group's revenue and margins. The Group expects that these trends will continue in fiscal year 2022. Therefore, the Group could experience further disruptions, shortages and price increases in the future, the effect of which will depend on the Group's ability to successfully mitigate and offset the impact of these events.

In assessing the potential impact of these uncertainties on its liquidity, the Group prepared cash flow forecasts covering a period of at least twelve months from the date of approval of these financial statements. This assessment included consideration of the forecasted business performance, the cash and financial facilities available to the Group and the potential impact of COVID-19 on economic activity. The Group continues to expect that existing cash and cash equivalents of $1.3 billion as of September 30, 2021, the cash generated by its operations, the available revolving credit facilities $3.0 billion as well as the Group's ability to access the capital and debt markets will be sufficient to fund the Group's operating and capital needs for at least the next twelve months and thereafter for the foreseeable future. To its knowledge, the Board reasonably believes these uncertainties would not have a material impact on the Group's ability to continue as a going concern as of the financial statements' approval date.

Given the Group's assessment of its ability to fund its expected operating and capital needs, the directors have a reasonable expectation that the Group and Company have adequate resources to continue in operational existence for the foreseeable future. Accordingly, they continue to adopt the going concern basis in preparing the financial statements.

AUDIT COMMITTEE

An Audit Committee as required by the Companies Act 2014, Section 167, has been in place for the fiscal years ended September 30, 2021 and 2020.

STATUTORY AUDITORS

The statutory auditors, PricewaterhouseCoopers, have indicated their willingness to continue in office, and a resolution that they be re-appointed will be proposed at the Annual General Meeting.

NON-FINANCIAL STATEMENT

A copy of the Non-Financial Statement will be published at the Investor Relations section of the Group's Internet website at http://www.johnsoncontrols.com prior to the Annual General Meeting.

STATEMENT ON RELEVANT AUDIT INFORMATION

The directors in office at the date of this report have each confirmed that:

- As far as he/she is aware, there is no relevant audit information of which the Group's statutory auditors are unaware; and
- He/she has taken all the steps that he/she ought to have taken as a director in order to make himself/herself aware of any relevant audit information and to establish that the Group's statutory auditors are aware of that information.

On behalf of the directors

/s/ George R. Oliver	/s/ Gretchen R. Haggerty
George R. Oliver	Gretchen R. Haggerty
Chairman and Chief Executive Officer	Director

January 20, 2022

Independent auditors' report to the members of Johnson Controls International plc

Report on the audit of the financial statements

Opinion

In our opinion:

- Johnson Controls International plc's Consolidated financial statements and Company financial statements (the "financial statements") give a true and fair view of the Group's and the Company's assets, liabilities and financial position as at 30 September 2021 and of the Group's net income and cash flows for the year then ended;
- the Consolidated financial statements have been properly prepared in accordance with accounting principles generally accepted in the United States of America ("US GAAP"), as defined in Section 279 of the Companies Act 2014, to the extent that the use of those principles in the preparation of consolidated financial statements does not contravene any provision of Part 6 of the Companies Act 2014;
- the Company financial statements have been properly prepared in accordance with Generally Accepted Accounting Practice in Ireland (accounting standards issued by the Financial Reporting Council of the UK, including Financial Reporting Standard 102 "The Financial Reporting Standard applicable in the UK and Republic of Ireland" and Irish law); and
- the financial statements have been properly prepared in accordance with the requirements of the Companies Act 2014.

We have audited the financial statements, included within the Annual Report, which comprise:

- the Consolidated statement of financial position as at 30 September 2021;
- the Company balance sheet as at 30 September 2021;
- the Consolidated statement of income for the year then ended;
- the Consolidated statement of comprehensive income/(loss) for the year then ended;
- the Consolidated statement of cash flows for the year then ended;
- the Consolidated statement of shareholders' equity attributable to Johnson Controls ordinary shareholders for the year then ended;
- the Company statement of changes in equity for the year then ended;
- the notes to the Consolidated financial statements and the notes to the Company financial statements, which include a description of the significant accounting policies.

Basis for opinion

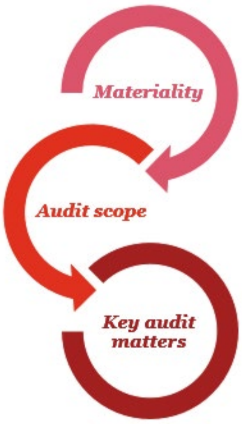
We conducted our audit in accordance with International Standards on Auditing (Ireland) ("ISAs (Ireland)") and applicable law. Our responsibilities under ISAs (Ireland) are further described in the Auditors' responsibilities for the audit of the financial statements section of our report. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Independence

We remained independent of the Group in accordance with the ethical requirements that are relevant to our audit of the financial statements in Ireland, which includes IAASA's Ethical Standard as applicable to listed entities, and we have fulfilled our other ethical responsibilities in accordance with these requirements.

Our audit approach

Overview

	Materiality · $100 million (2020: $100 million) - Consolidated financial statements - this equates to circa 5% of income from continuing operations before income taxes, adjusted for net mark-to-market gains of $402 million. In respect of the prior financial year this equated to circa 5% of income from continuing operations before income taxes, adjusted for net mark-to-market charges of $274 million and other discrete charges amounting to $783 million. · $340 million (2020: $347 million) - Company financial statements - this represents circa 1% of total assets. Financial statement line items that do not eliminate on consolidation have been audited to overall materiality for the consolidated financial statements.
	Audit scope · We conducted work on sixteen reporting components. We paid particular attention to these components due to their size or characteristics and to ensure appropriate audit coverage. A full scope audit was performed on one component. Audit procedures were performed on specific account balances or classes of transactions on a further fifteen components. · Taken together, we obtained coverage of circa 63% of Group net sales, circa 63% of income from continuing operations before income taxes, adjusted for net mark-to-market gains and circa 87% of Group total assets.
	Key audit matters · Uncertain Tax Positions.

The scope of our audit

As part of designing our audit, we determined materiality and assessed the risks of material misstatement in the financial statements. In particular, we looked at where the directors made subjective judgments, for example in respect of significant accounting estimates that involved making assumptions and considering future events that are inherently uncertain. As in all of our audits we also addressed the risk of management override of internal controls, including evaluating whether there was evidence of bias by the directors that represented a risk of material misstatement due to fraud.

Key audit matters

Key audit matters are those matters that, in the auditors' professional judgment, were of most significance in the audit of the financial statements of the current period and include the most significant assessed risks of material misstatement (whether or not due to fraud) identified by the auditors, including those which had the greatest effect on: the overall audit strategy; the allocation of resources in the audit; and directing the efforts of the engagement team. These matters, and any comments we make on the results of our procedures thereon, were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters. This is not a complete list of all risks identified by our audit.

Key audit matter	*How our audit addressed the key audit matter*
Uncertain Tax Positions *Refer to note 1 ("Basis of Presentation and Summary of Significant Accounting Policies" - "Use of Estimates" & "Income Taxes") and note 19 ("Income Taxes").* The Group has an Uncertain Tax Positions ("UTP") provision of $2,726 million, as of September 30, 2021. Johnson Controls International plc ("JCI plc") is subject to income taxes in the U.S. and numerous foreign jurisdictions. Judgment is required in determining JCI plc's worldwide provision for UTP. In the ordinary course of business, there are many transactions and calculations where the ultimate tax determination is a result of highly subjective management judgments. We determined that UTP was a key audit matter due to the quantitative significance and the highly subjective judgments used by management when estimating the UTP reserve.	We evaluated and tested the effectiveness of key internal controls related to the identification and estimation of probable loss for UTP. We tested the completeness of management's assessment of the identification of uncertain tax positions. We tested 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. This included evaluating the status and results of income tax audits by the relevant tax authorities, as applicable. PwC professionals with specialized skill and knowledge were used to assist in the evaluation of the completeness and measurement of the Group's uncertain tax positions, including evaluating the reasonableness of management's assessment of whether tax positions are more-likely-than-not to be sustained and the application of relevant tax laws. We also evaluated the appropriateness of management's disclosures.

How we tailored the audit scope

The Consolidated financial statements are a consolidation of four reportable segments and approximately 900 legal entities. Reporting components are structured by individual plants, grouping of plants or on a country basis depending on their management team and structure. The majority of the Group's components are supported by shared service centres across five different territories; Slovakia, Mexico, China, Luxembourg and India.

We tailored the scope of our audit to ensure that we performed enough work to be able to give an opinion on the financial statements as a whole, taking into account the structure of the Group, the accounting processes and controls, including those performed at the Group's shared service centres and the industry in which the Group operates.

In determining our audit scope, we first focused on individual reporting components and determined the type of work that needed to be performed at the reporting components by us, as the Irish group engagement team, PwC US as the global engagement team, or other component auditors within other PwC network firms. Further work was performed on a centralised basis at the shared service centres by other PwC network firms. Where the work was performed by PwC US and other component auditors, we determined the level of involvement we needed to have in the audit work of those reporting components to be able to conclude whether sufficient appropriate audit evidence had been obtained as a basis for our opinion on the financial statements as a whole.

Overall, through the use of full scope audits and performance of audit procedures on specific account balances or classes of transactions we obtained coverage of circa 63% of Group net sales, circa 63% of income from continuing operations before income taxes, adjusted for net mark-to-market gains and circa 87% of Group total assets. We allocated materiality levels and issued instructions to each component auditor. In addition to the audit report from each of the component auditors, we received detailed memoranda of examinations on work performed and relevant findings which supplemented our understanding of the component, its results and the audit findings and we participated in a number of audit clearance meetings with the component teams. The above coverage includes other reporting components where audit procedures on specific account balances or classes of transactions were performed. This, together with additional procedures performed at Group level, gave us the evidence we needed for our opinion on the financial statements as a whole.

Materiality

The scope of our audit was influenced by our application of materiality. We set certain quantitative thresholds for materiality. These, together with qualitative considerations, helped us to determine the scope of our audit and the nature, timing and extent of our audit procedures on the individual financial statement line items and disclosures and in evaluating the effect of misstatements, both individually and in aggregate on the financial statements as a whole.

Based on our professional judgment, we determined materiality for the financial statements as a whole as follows:

	Consolidated financial statements	***Company financial statements***
Overall materiality	$100 million (2020: $100 million).	$340 million (2020: $347 million).
How we determined it	Based on circa 5% of income from continuing operations before income taxes, adjusted for net mark-to-market gains of $402 million . In respect of the prior financial year this equated to circa 5% of income from continuing operations before income taxes, adjusted for net mark-to-market charges of $274 million and other discrete charges amounting to $783 million.	Based on circa 1% of total assets.
Rationale for benchmark applied	We deem income from continuing operations before income taxes, adjusted for the items described above to be the most appropriate performance measure to assess the continuing performance of the Group.	As the Company is a holding company, whose main activity is the management of investments in subsidiaries, it is deemed that total assets are the most appropriate benchmark to calculate materiality. For financial statement line items that do not eliminate on consolidation, they have been audited to the overall consolidated materiality levels.

We agreed with the Audit Committee that we would report to them misstatements identified during our audit above $10 million (Consolidated and Company financial statements) (2020: $10 million) as well as misstatements below that amount that, in our view, warranted reporting for qualitative reasons.

Conclusions relating to going concern

Our evaluation of the directors' assessment of the Group and Company's ability to continue to adopt the going concern basis of accounting included:

- obtaining management's going concern assessment for a period of at least twelve months from the date on which the financial statements are authorised for issue;
- agreeing that the cash flow projections underlying management's going concern assessment are materially consistent with the board approved forecasts, assessing how these forecasts are compiled, and evaluating the key assumptions;
- considering available facilities and the maturity profile of the Group's debt to assess liquidity and considering expected compliance with the long term debt covenants for the going concern assessment period;
- evaluation of management's assessment of the impact which COVID-19 may continue to have through the going concern assessment period; and
- reviewing the going concern disclosures within note 1 of the Consolidated and Company financial statements in order to assess whether the disclosures were appropriate and in accordance with reporting standards.

Based on the work we have performed, we have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on the Group's or the Company's ability to continue as a going concern for a period of at least twelve months from the date on which the financial statements are authorised for issue.

In auditing the financial statements, we have concluded that the directors' use of the going concern basis of accounting in the preparation of the financial statements is appropriate.

However, because not all future events or conditions can be predicted, this conclusion is not a guarantee as to the Group's or the Company's ability to continue as a going concern.

Our responsibilities and the responsibilities of the directors with respect to going concern are described in the relevant sections of this report.

Reporting on other information

The other information comprises all of the information in the Annual Report other than the financial statements and our auditors' report thereon. The directors are responsible for the other information. Our opinion on the financial statements does not cover the other information and, accordingly, we do not express an audit opinion or, except to the extent otherwise explicitly stated in this report, any form of assurance thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. If we identify an apparent material inconsistency or material misstatement, we are required to perform procedures to conclude whether there is a material misstatement of the financial statements or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report based on these responsibilities.

With respect to the Directors' Report, we also considered whether the disclosures required by the Companies Act 2014 (excluding the information included in the "Non-Financial Statement" as defined by that Act on which we are not required to report) have been included.

Based on the responsibilities described above and our work undertaken in the course of the audit, ISAs (Ireland) and the Companies Act 2014 require us to also report certain opinions and matters as described below:

- In our opinion, based on the work undertaken in the course of the audit, the information given in the Directors' Report (excluding the information included in the "Non-Financial Statement" on which we are not required to report) for the year ended 30 September 2021 is consistent with the financial statements and has been prepared in accordance with the applicable legal requirements.
- Based on our knowledge and understanding of the Group and Company and their environment obtained in the course of the audit, we have not identified any material misstatements in the Directors' Report (excluding the information included in the "Non-Financial Statement" on which we are not required to report).

Responsibilities for the financial statements and the audit

Responsibilities of the directors for the financial statements

As explained more fully in the Statement of Directors' Responsibilities set out on page 4, the directors are responsible for the preparation of the financial statements in accordance with the applicable framework and for being satisfied that they give a true and fair view.

The directors are also responsible for such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the directors are responsible for assessing the Group's and the Company's ability to continue as a going concern, disclosing as applicable, matters related to going concern and using the going concern basis of accounting unless the directors either intend to liquidate the Group or the Company or to cease operations, or have no realistic alternative but to do so.

Auditors' responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (Ireland) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

Our audit testing might include testing complete populations of certain transactions and balances, possibly using data auditing techniques. However, it typically involves selecting a limited number of items for testing, rather than testing complete populations. We will often seek to target particular items for testing based on their size or risk characteristics. In other cases, we will use audit sampling to enable us to draw a conclusion about the population from which the sample is selected.

A further description of our responsibilities for the audit of the financial statements is located on the IAASA website at:

https://www.iaasa.ie/getmedia/b2389013-1cf6-458b-9b8f-a98202dc9c3a/Description of auditors responsibilities for audit.pdf

This description forms part of our auditors' report.

Use of this report

This report, including the opinions, has been prepared for and only for the Company's members as a body in accordance with section 391 of the Companies Act 2014 and for no other purpose. We do not, in giving these opinions, accept or assume responsibility for any other purpose or to any other person to whom this report is shown or into whose hands it may come save where expressly agreed by our prior consent in writing.

Other required reporting

Companies Act 2014 opinions on other matters

- We have obtained all the information and explanations which we consider necessary for the purposes of our audit.
- In our opinion the accounting records of the Company were sufficient to permit the Company financial statements to be readily and properly audited.
- The Company Balance Sheet is in agreement with the accounting records.

Other exception reporting

Directors' remuneration and transactions

Under the Companies Act 2014 we are required to report to you if, in our opinion, the disclosures of directors' remuneration and transactions specified by sections 305 to 312 of that Act have not been made. We have no exceptions to report arising from this responsibility.

Prior financial year Non-Financial Statement

We are required to report if the Company has not provided the information required by Regulation 5(2) to 5(7) of the European Union (Disclosure of Non-Financial and Diversity Information by certain large undertakings and groups) Regulations 2017 in respect of the prior financial year. We have nothing to report arising from this responsibility.

Enda McDonagh

Enda McDonagh

for and on behalf of PricewaterhouseCoopers
Chartered Accountants and Statutory Audit Firm
Dublin, Ireland
January 20, 2022

Johnson Controls International plc
Consolidated Statement of Income

(in millions, except per share data)	Note	Year Ended September 30, 2021	2020
Net sales			
Products and systems	4	$ 17,202	$ 16,253
Services	4	6,466	6,064
	4	23,668	22,317
Cost of sales			
Products and systems		11,848	11,401
Services		3,761	3,505
		15,609	14,906
Gross profit		8,059	7,411
Selling, general and administrative expenses		(5,258)	(5,665)
Restructuring and impairment costs	17	(242)	(783)
Net financing charges	10	(206)	(231)
Equity income		261	171
Income from continuing operations before income taxes		2,614	903
Income tax provision	19	868	108
Income from continuing operations		1,746	795
Income from discontinued operations, net of tax	3	—	124
Net income		1,746	919
Income from continuing operations attributable to noncontrolling interests		233	164
Income from discontinued operations attributable to noncontrolling interests		—	—
Net income attributable to Johnson Controls		$ 1,513	$ 755
Amounts attributable to Johnson Controls ordinary shareholders:			
Income from continuing operations		$ 1,513	$ 631
Income from discontinued operations		—	124
Net income		$ 1,513	$ 755
Basic earnings per share attributable to Johnson Controls			
Continuing operations		$ 2.11	$ 0.84
Discontinued operations		—	0.17
Net income		$ 2.11	$ 1.01
Diluted earnings per share attributable to Johnson Controls			
Continuing operations		$ 2.10	$ 0.84
Discontinued operations		—	0.16
Net income		$ 2.10	$ 1.00

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

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

(in millions)	Note	Year Ended September 30, 2021	Year Ended September 30, 2020
Net income		$ 1,746	$ 919
Other comprehensive income (loss), net of tax:			
Foreign currency translation adjustments	15	376	25
Realized and unrealized gains (losses) on derivatives	15	(18)	8
Pension and postretirement plans	15	4	8
Other comprehensive income	15	362	41
Total comprehensive income		2,108	960
Comprehensive income attributable to noncontrolling interests		253	186
Comprehensive income attributable to Johnson Controls		$ 1,855	$ 774

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

Johnson Controls International plc
Consolidated Statement of Financial Position

(in millions, except par value and share data)	Note	September 30, 2021	September 30, 2020
Assets			
Cash and cash equivalents		$ 1,336	$ 1,951
Accounts receivable - net		5,613	5,294
Inventories	6	2,057	1,773
Other current assets	25	992	1,035
Current assets		9,998	10,053
Property, plant and equipment - net	7	3,228	3,059
Goodwill	8	18,335	17,932
Other intangible assets - net	8	5,549	5,356
Investments in partially-owned affiliates		1,066	914
Noncurrent assets held for sale	3	156	147
Other noncurrent assets	25	3,558	3,328
Total assets		$ 41,890	$ 40,789
Liabilities and Equity			
Short-term debt	10	$ 8	$ 31
Current portion of long-term debt	10	226	262
Accounts payable		3,746	3,120
Accrued compensation and benefits		982	800
Deferred revenue	4	1,637	1,435
Current provisions	27	594	603
Other current liabilities	25	1,905	1,847
Current liabilities		9,098	8,098
Long-term debt	10	7,506	7,526
Noncurrent provisions	27	4,457	4,675
Other noncurrent liabilities	25	2,076	1,833
Long-term liabilities		14,039	14,034
Ordinary shares (par value $0.01; 2.0 billion shares authorized; shares issued: 2021 - 737,090,363; 2020 - 753,907,315)	15	7	8
Ordinary A shares (par value €1.00; 40,000 shares authorized, none outstanding as of September 30, 2021 and 2020)	15	—	—
Preferred shares (par value $0.01; 200,000,000 shares authorized, none outstanding as of September 30, 2021 and 2020)	15	—	—
Ordinary shares held in treasury, at cost (shares held: 2021 - 28,356,889; 2020 - 27,684,632)	15	(1,152)	(1,119)
Share premium	15	17,116	16,865
Retained earnings	15	2,025	2,593
Accumulated other comprehensive loss	15	(434)	(776)
Shareholders' equity attributable to Johnson Controls		17,562	17,571
Noncontrolling interests	15	1,191	1,086
Total equity		18,753	18,657
Total liabilities and equity		$ 41,890	$ 40,789

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

Approved by the Board of Directors on January 20, 2022 and signed on its behalf by:

/s/ George R. Oliver
George R. Oliver
Chairman and Chief Executive Officer

/s/ Gretchen R. Haggerty
Gretchen R. Haggerty
Director

Johnson Controls International plc
Consolidated Statement of Cash Flows

	Year Ended September 30,	
(in millions)	**2021**	**2020**
Operating Activities of Continuing Operations		
Net income from continuing operations attributable to Johnson Controls	$ 1,513	$ 631
Income from continuing operations attributable to noncontrolling interests	233	164
Net income from continuing operations	1,746	795
Adjustments to reconcile net income from continuing operations to cash provided by operating activities:		
Depreciation and amortization	845	822
Pension and postretirement benefit expense (income)	(551)	118
Pension and postretirement contributions	(68)	(61)
Equity in earnings of partially-owned affiliates, net of dividends received	(117)	(36)
Deferred income taxes	36	(537)
Non-cash restructuring and impairment charges	98	582
Equity-based compensation	76	74
Other - net	(85)	(90)
Changes in assets and liabilities, excluding acquisitions and divestitures:		
Accounts receivable	(143)	534
Inventories	(219)	45
Other assets	(164)	(52)
Restructuring reserves	(44)	(29)
Accounts payable and accrued liabilities	813	(717)
Accrued income taxes	328	1,031
Cash provided by operating activities from continuing operations	2,551	2,479
Investing Activities of Continuing Operations		
Capital expenditures	(552)	(443)
Sale of property, plant and equipment	124	127
Acquisition of businesses, net of cash acquired	(725)	(77)
Business divestitures, net of cash divested	19	135
Changes in long-term investments	8	—
Proceeds from equity swap	35	—
Other - net	1	—
Cash used by investing activities from continuing operations	(1,090)	(258)
Financing Activities of Continuing Operations		
Decrease in short-term debt - net	(17)	(33)
Increase in long-term debt	496	1,804
Repayment of long-term debt	(507)	(1,386)
Debt financing costs	(3)	(12)
Stock repurchases and retirements	(1,307)	(2,204)
Payment of cash dividends	(762)	(790)
Proceeds from the exercise of stock options	178	75
Dividends paid to noncontrolling interests	(142)	(114)
Cash received related to prior acquisitions and divestitures, net	1	2
Employee equity-based compensation withholding taxes	(33)	(34)
Cash paid to acquire a noncontrolling interest	(14)	(132)
Other - net	(21)	—
Cash used by financing activities from continuing operations	(2,131)	(2,824)
Discontinued Operations		
Cash used by operating activities	(64)	(260)
Cash used by financing activities	—	(113)
Cash used by discontinued operations	(64)	(373)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	116	115
Increase (decrease) in cash, cash equivalents and restricted cash	(618)	(861)
Cash, cash equivalents and restricted cash at beginning of period	1,960	2,821
Cash, cash equivalents and restricted cash at end of period	1,342	1,960
Less: Restricted cash	6	9
Cash and cash equivalents at end of period	$ 1,336	$ 1,951

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

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

(in millions, except per share data)	Note	Total	Ordinary Shares	Share Premium	Retained Earnings	Treasury Stock, at Cost	Accumulated Other Comprehensive Income (Loss)
At September 30, 2019	15	19,766	8	16,812	4,827	(1,086)	(795)
Comprehensive income	15	774	—	—	755	—	19
Cash dividends	15						
Ordinary ($1.04 per share)		(780)	—	—	(780)	—	—
Repurchases and retirements of ordinary shares	15	(2,204)	—	—	(2,204)	—	—
Adoption of ASC 842	15	(5)	—	—	(5)	—	—
Change in noncontrolling interest share	15	(83)	—	(83)	—	—	—
Other, including options exercised	15	103	—	136	—	(33)	—
At September 30, 2020	15	17,571	8	16,865	2,593	(1,119)	(776)
Comprehensive income	15	1,855	—	—	1,513	—	342
Cash dividends	15						
Ordinary ($1.07 per share)		(771)	—	—	(771)	—	—
Repurchases and retirements of ordinary shares	15	(1,307)	(1)	—	(1,306)	—	—
Adoption of ASU 2016-13	15	(4)	—	—	(4)	—	—
Change in noncontrolling interest share	15	(8)	—	(8)	—	—	—
Other, including options exercised	15	226	—	259	—	(33)	—
At September 30, 2021	15	**$ 17,562**	**$ 7**	**$ 17,116**	**$ 2,025**	**$ (1,152)**	**$ (434)**

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

1. BASIS OF PRESENTATION AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Presentation

The consolidated financial statements include the consolidated accounts of Johnson Controls International plc, a corporation registered at One Albert Quay, Cork, Ireland and organized under the laws of Ireland under registered number 543654, and its subsidiaries (Johnson Controls International plc and all its subsidiaries, hereinafter collectively referred to as the "Group," "Johnson Controls" or "JCI plc").

The Directors have elected to prepare the consolidated financial statements in accordance with Section 279 (1) of the Companies Act 2014, which provides that a true and fair view of the state of affairs and profit or loss may be given by preparing the financial statements in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP"), as defined in Section 279 of the Companies Act 2014, to the extent that the use of those principles in the preparation of the consolidated financial statements does not contravene any provision of the Companies Act or of any regulations made thereunder.

Consolidated financial statements and notes prepared in accordance with U.S. GAAP were included in the Group's Annual Report on Form 10-K for the year ended September 30, 2021, filed with the U.S. Securities and Exchange Commission ("SEC"). These consolidated financial statements were prepared in accordance with Irish Company Law, to present to shareholders and file with the Companies Registration Office in Ireland. Accordingly, these consolidated financial statements include presentation and disclosures required by Ireland's Companies Act 2014 in addition to those disclosures required under U.S. GAAP.

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 Group'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 Group 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 Group sold its Power Solutions business to BCP Acquisitions LLC ("Purchaser"), an entity controlled by investment funds managed by Brookfield Capital Partners LLC, completing the Group'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 Group 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 Group 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, a corporation organized under the laws of Ireland, and its subsidiaries. The financial statements have been prepared in United States dollars ("USD") and in accordance with U.S. GAAP as defined in Section 279 (1) of the Companies Act 2014. 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 Group's interest exceeds 20% and the Group does not have a controlling interest.

The Group consolidates variable interest entities ("VIE") in which the Group 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 Group did not have a significant variable interest in any consolidated or nonconsolidated VIEs in its continuing operations for the presented reporting periods.

Going Concern

The Board has formed a judgment at the time of approving the financial statements that there is a reasonable expectation that the Group has adequate resources to continue in operational existence for at least the next twelve month period extending from the time of approving the financial statements. The Board has considered the current and anticipated uncertainties driven by COVID-19 pandemic in its going concern assessment. These uncertainties include, but are not limited to, customer demand, temporary closure of production facilities, disruptions or delays in the supply chain and customers' and suppliers' financial condition. The extent to which the COVID-19 pandemic continues to impact the Group's results of operations, financial condition, liquidity position and availability of financing sources will depend on future developments that are highly uncertain and cannot be predicted, including the resurgence of COVID-19 and its variants in regions recovering from the impacts of the pandemic, the effectiveness of COVID-19 vaccines and the speed at which populations are vaccinated around the globe, the impact of COVID-19 on economic activity, and regulatory actions taken to contain its impact on public health and the global economy.

The Group initially 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, during portions of fiscal 2020, the Group 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 Group's customers. In fiscal 2021, the Group has experienced increases in both demand and volumes as governments have distributed vaccines and lifted COVID-19-related restrictions, leading to increases in retrofit activity and, to a lesser extent, commercial building construction. The global pandemic has also provided the Group 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. As a result of the pandemic, the Group 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.

The Group has experienced, and expects to continue to experience, increased input material cost inflation and component shortages, as well as disruptions and delays in its supply chain, as a result of global macroeconomic trends (including increased global demand), government-mandated actions in response to COVID-19 and labor shortages. Actions taken by the Group to mitigate supply chain disruptions and inflation, including expanding and redistributing its supplier network, supplier financing, price increases and productivity improvements, have generally been successful in offsetting some, but not all, of the impact of these trends. As a result, these trends have negatively impacted the Group's revenue and margins. The Group expects that these trends will continue in fiscal year 2022. Therefore, the Group could experience further disruptions, shortages and price increases in the future, the effect of which will depend on the Group's ability to successfully mitigate and offset the impact of these events.

In assessing the potential impact of these uncertainties on its liquidity, the Group prepared cash flow forecasts covering a period of at least twelve months from the date of approval of these financial statements. This assessment included consideration of the forecasted business performance, the cash and financial facilities available to the Group and the potential impact of COVID-19 on economic activity. The Group continues to expect that existing cash and cash equivalents of $1.3 billion as of September 30, 2021, the cash generated by its operations, the available revolving credit facilities of $3.0 billion as well as the Group's ability to access the capital and debt markets will be sufficient to fund the Group's operating and capital needs for at least the next twelve months and thereafter for the foreseeable future. To its knowledge, the Board reasonably believes these uncertainties would not have a material impact on the Group's ability to continue as a going concern as of the financial statements' approval date.

Given the Group's assessment of its ability to fund its expected operating and capital needs, the going concern basis continues to be adopted in the preparation of the Group's financial statements.

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 11, "Derivative Instruments and Hedging Activities," and Note 12, "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 Group 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 Group'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.

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

Cash and Cash Equivalents

The Group 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, 2021 and September 30, 2020, the Group held restricted cash of approximately $6 million and $9 million, respectively all of which was recorded within other current assets in the consolidated statement 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 Group extends credit to customers in the normal course of business and maintains an allowance for expected credit losses resulting from the inability or unwillingness of customers to make required payments. The allowance for expected credit losses is based on historical experience, existing economic conditions, reasonable and supportable forecasts, and any specific customer collection issues the Group has identified. The Group enters into various factoring agreements to sell certain accounts receivable to third-party financial institutions. For ease of administration, the Group collects customer payments related to certain factored receivables on behalf of the financial institutions but otherwise maintains no other continuing involvement with respect to the factored receivables. Sales of accounts receivable are reflected as a reduction of accounts receivable in the consolidated statement of financial position and the proceeds are included in cash flows from operating activities in the consolidated statement of cash flows.

Inventories

Inventories are stated at the lower of cost or net realizable value 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 Group 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

Irish Company Law requires indefinite-lived intangible assets and goodwill to be amortized. However, amortization of indefinite-lived assets and goodwill may not give a true and fair view because not all goodwill and intangible assets decline in value. In addition, since goodwill that does decline in value rarely does so on a straight-line basis, straight-line amortization of goodwill over an arbitrary period may not reflect the economic reality. Therefore, in accordance with U.S. GAAP, goodwill and indefinite-lived intangible assets are not amortized. Rather, the Group assesses the impairment of goodwill and indefinite-lived intangible assets on an annual basis or more frequently if triggering events occur.

Goodwill reflects the cost of an acquisition in excess of the fair values assigned to identifiable net assets acquired. The Group 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 Group performs impairment reviews for its reporting units, which have been determined to be the Group'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 Group uses the multiples of earnings approach based on the average of published multiples of earnings of comparable entities with similar operations and economic characteristics and applies the multiples to the Group's average of historical and future financial results for each reporting unit. In certain instances, the Group 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 Group is subject to financial statement risk to the extent that the carrying amount exceeds the estimated fair value. Refer to Note 8, "Goodwill and Other Intangible Assets," of the notes to consolidated financial statements for information regarding the goodwill impairment testing performed in fiscal years 2021 and 2020.

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 Group 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 Group 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 Group 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 Group'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 Group's leases do not provide an implicit interest rate, to determine the present value of lease payments, the Group uses its incremental borrowing rate based on information available on the lease commencement date and uses the implicit rate when readily determinable. The Group determines its incremental borrowing rate based on a comparable market yield curve consistent with its credit rating, term of the lease and relative economic environment. The Group has elected to combine lease and nonlease components for its leases.

Lessor arrangements

The Group's monitoring services and maintenance agreements within its security business that include subscriber system assets for which the Group retains ownership contain both lease and nonlease components. The Group has elected 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 Group 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 Group 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 Group 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 Group 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 Group 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 18, "Impairment of Long-Lived Assets," of the notes to consolidated financial statements for information regarding the impairment testing performed in fiscal years 2021 and 2020.

Revenue Recognition

The Group 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 Group 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 Group 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 Group does not adjust the promised amount of consideration for the effects of a significant financing component as at contract inception the Group expects to receive the payment within twelve months of transfer of goods or services.

The Group 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 Group 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 Group 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 Group estimates the standalone selling price using an adjusted market assessment approach or expected cost plus margin approach. For transactions in which the Group 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 Group recognizes revenue at the point in time when control over the goods or services transfers to the customer.

The Group 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 Group 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 Group 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 Group 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 Group 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 Group 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 Group 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 Group 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 Group.

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 statement 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 Group has a large number of customers that behave in a similar manner over time, the Group 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 Group 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 Group 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 Group to the dealer for the full amount of the contract purchase price. The Group 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 statement of income. Such expenditures for the years ended September 30, 2021 and 2020 were $275 million and $274 million, respectively.

Earnings Per Share

The Group 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 Group 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 Group has not yet recognized. For unvested restricted stock and unvested performance share awards, assumed proceeds under the treasury stock method include unamortized compensation cost. See Note 14, "Earnings per Share," of the notes to consolidated financial statements for the calculation of earnings per share.

Foreign Currency Translation

Substantially all of the Group’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, 2021 and 2020 were $56 million and $(32) million, respectively.

Derivative Financial Instruments

The Group 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 Group 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 statement 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 11, "Derivative Instruments and Hedging Activities," and Note 12, "Fair Value Measurements," of the notes to consolidated financial statements for disclosure of the Group’s derivative instruments and hedging activities.

Investments

The Group invests in debt and equity securities which are marked to market at the end of each accounting period. Unrealized gains and losses on these securities are recognized in the Group's consolidated statement of income. 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 statement of income.

Pension and Postretirement Benefits

The Group 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 16, "Retirement Plans," of the notes to consolidated financial statements for disclosure of the Group'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 Group records receivables from third party insurers when recovery has been determined to be probable.

The Group is subject to laws and regulations relating to protecting the environment. The Group provides for expenses associated with environmental remediation obligations when such amounts are probable and can be reasonably estimated. Refer to Note 23, "Commitments and Contingencies," of the notes to consolidated financial statements.

The Group 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 Group records receivables from third party insurers when recovery has been determined to be probable. The Group maintains captive insurance companies to manage its insurable liabilities.

Asbestos-Related Contingencies and Insurance Receivables

The Group 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 Group's estimate of the liability and corresponding insurance recovery for pending and future claims and defense costs is based on the Group'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 Group's reasonable best estimate of the actuarially determined time period through which asbestos-related claims will be filed against Group affiliates). Asbestos-related defense costs are included in the asbestos liability. The Group's legal strategy for resolving claims also impacts these estimates. The Group 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 Group 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 Group considers additional quantitative and qualitative factors such as changes in legislation, the legal environment, and the Group's defense strategy. The Group also evaluates the recoverability of its insurance receivable on an annual basis. The Group 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 Group records asbestos-related insurance recoveries that are probable. The Group's estimate of asbestos-related insurance recoveries represents estimated amounts due to the Group 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 Group considers available insurance, allocation methodologies, solvency and creditworthiness of the insurers. Refer to Note 23, "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 19, "Income Taxes," of the notes to consolidated financial statements.

Retrospective Changes

Certain amounts as of September 30, 2020 have been revised to conform to the current year's presentation.

New Accounting Pronouncements

Recently Adopted Accounting Pronouncements

In June 2016, the FASB issued ASU No. 2016-13, "Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments." ASU No. 2016-13 and its related amendments replace the previous expected credit loss methodology with a new incurred loss methodology. The new standard applies to financial instruments, including, but not limited to, trade receivables. Under the new standard, companies must consider historical information, current conditions and a reasonable forecast period when estimating credit losses. The Group adopted ASU No. 2016-13 and the related amendments effective October 1, 2020. The adoption did not have a material impact on the Group's consolidated financial statements. Refer to Note 5, “Accounts Receivable, Net,” of the notes to the consolidated financial statements for further information.

Recently Issued Accounting Pronouncements

In October 2021, the FASB issued ASU No. 2021-08, “Business Combinations (Topic 805), Accounting for Contract Assets and Contract Liabilities from Contracts with Customers,” which requires contract assets and contract liabilities (e.g. deferred revenue) acquired in a business combination to be recognized and measured by the acquirer on the acquisition date in accordance with ASC 606, “Revenue from Contracts with Customers.” Generally, this new guidance will result in the acquirer recognizing contract assets and contract liabilities at the same amounts recorded by the acquiree. Historically, such amounts were recognized by the acquirer at fair value in acquisition accounting. The guidance should be applied prospectively to acquisitions occurring on or after the effective date. The guidance is effective for fiscal years beginning after December 15, 2022, including interim periods within those fiscal years (October 1, 2023 for the Group). Early adoption is permitted, including in interim periods, for any financial statements that have not yet been issued. The impact of the new standard will depend on the magnitude of future acquisitions.

Other recently issued accounting pronouncements are not expected to have a material impact on the Group's consolidated financial statements.

2. ACQUISITIONS AND DIVESTITURES

Fiscal Year 2021

Silent-Aire Acquisition

In May 2021, the Group completed its acquisition of Silent-Aire, a global leader in hyperscale data center cooling and modular critical infrastructure solutions, for approximately $755 million, net of cash acquired, which is comprised of an upfront net cash payment of approximately $661 million, the estimated fair value of contingent earn-out liabilities of approximately $86 million and a working capital adjustment of $8 million. The contingent earn-out liabilities are based upon the achievement of certain defined operating results in each of the three years following the acquisition, with a maximum payout of approximately $250 million. The fair value of contingent earn-out liabilities is reassessed on a quarterly basis and could differ materially from the initial estimates. Subsequent changes in the estimated fair value of contingent earn-out liabilities will be recorded in the consolidated statement of income when incurred. The earn-out payments that are less than or equal to the contingent earn-out liabilities on the acquisition date are reflected as financing cash outflows and amounts paid in excess of the contingent earn-out liabilities on the acquisition date are reflected as operating cash outflows. The Silent-Aire business is reported within the Global Products segment.

In connection with the acquisition, the Group recorded goodwill of $244 million in the Global Products segment. Goodwill is attributable primarily to expected synergies, expanded market opportunities and other benefits that the Group believes will result from combining its operations with the operations of Silent-Aire. The goodwill created in the acquisition is not deductible for tax purposes.

The fair values of the assets acquired and liabilities assumed related to Silent-Aire are as follows (in millions):

Cash and cash equivalents	$ 5
Accounts receivable	141
Inventories	60
Other current assets	4
Property, plant, and equipment - net	33
Goodwill	244
Intangible assets - net	497
Other noncurrent assets	84
Total assets acquired	$ 1,068
Accounts payable	62
Accrued compensation and benefits	6
Deferred revenue	32
Other current liabilities	12
Other noncurrent liabilities	196
Total liabilities acquired	$ 308
Net assets acquired	$ 760

The purchase price allocation to identifiable intangible assets acquired related to Silent-Aire are as follows:

	Fair Value (in millions)	Weighted Average Life (in years)
Customer relationships	$ 291	19
Technology	116	13
Other definite-lived intangibles	23	1
Indefinite-lived trademarks	67	
Total identifiable intangible assets	$ 497	

Other acquisitions and divestitures

During fiscal 2021, the Group completed certain additional acquisitions for a combined purchase price, net of cash acquired, of $81 million, of which $64 million was paid as of September 30, 2021. In connection with these acquisitions and final purchase price allocation adjustments from fiscal 2020 acquisitions, the Group recorded goodwill of $35 million within the Building Solutions EMEA/LA segment and $21 million within the Building Solutions North America segment. The acquisitions were not material to the Group's consolidated financial statements.

During fiscal 2021, the Group completed certain divestitures within the Buildings Solutions Asia Pacific segment. The combined selling price was $27 million, of which $19 million was received as of September 30, 2021. In connection with the divestitures, the Group reduced goodwill by $7 million.

Fiscal Year 2020

During fiscal 2020, the Group 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 Group 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 Group's consolidated financial statements.

Additionally, in the fourth quarter of fiscal 2020, the Group 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 Group recorded a compensation charge of $39 million related to the cash settlement of equity awards.

In the fourth quarter of fiscal 2020, the Group 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, 2021. In connection with the divestitures, the Group reduced goodwill by $11 million within the Building Solutions Asia Pacific segment. The divestitures were not material to the Group's consolidated financial statements.

3. DISCONTINUED OPERATIONS

Power Solutions

On April 30, 2019, the Group completed the sale of its Power Solutions business, which met the criteria to be classified as a discontinued operation, 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 Group 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 statement of income. The favorable resolution of certain post-closing working capital and net debt adjustments in December 2020 resulted in income from discontinued operations, net of tax, in fiscal 2020 of $124 million due to a reversal of a reserve established in connection with the sale of Power Solutions.

The following table summarizes the results of Power Solutions which are classified as discontinued operations for the fiscal years ended September 30, 2020 (in millions).

	Year Ended September 30, 2020
Net sales	$ —
Income from discontinued operations before income taxes	150
Provision for income taxes on discontinued operations	(26)
Income from discontinued operations attributable to noncontrolling interests, net of tax	—
Income from discontinued operations	$ 124

Assets and Liabilities Held for Sale

During the third quarter of fiscal 2020, the Group 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 $156 million at September 30, 2021 and $147 million at September 30, 2020.

The following table presents consolidated statement of income information on continuing and discontinued operation basis for the year ended September 30, 2020 (in millions):

(in millions, except per share data)	Year Ended September 30, 2020 Continuing Operations	Discontinued Operations	Total
Net sales			
Products and systems	$ 16,253	$ —	$ 16,253
Services	6,064	—	6,064
	22,317	—	22,317
Cost of sales			
Products and systems	11,401	—	11,401
Services	3,505	—	3,505
	14,906	—	14,906
Gross profit	7,411	—	7,411
Selling, general and administrative expenses	(5,665)	150	(5,515)
Restructuring and impairment costs	(783)	—	(783)
Net financing charges	(231)	—	(231)
Equity income	171	—	171
Income before income taxes	903	150	1,053
Income tax provision	108	26	134
Net income	795	124	919
Income attributable to noncontrolling interests	164	—	164
Net income attributable to Johnson Controls	$ 631	$ 124	$ 755
Earnings per share			
Basic	$ 0.84	$ 0.17	$ 1.01
Diluted	$ 0.84	$ 0.16	$ 1.00

The following tables present a reconciliation of the consolidated statement of financial position of the continuing operations of the Group to the total operations of the Group at September 30, 2021 and 2020 (in millions):

	September 30, 2021		
(in millions, except par value and share data)	**Continuing Operations**	**Assets and Liabilities Held for Sale**	**Total**
Assets			
Cash and cash equivalents	$ 1,336	$ —	$ 1,336
Accounts receivable - net	5,613	—	5,613
Inventories	2,057	—	2,057
Other current assets	992	—	992
Current assets	9,998	—	9,998
Property, plant and equipment - net	3,228	156	3,384
Goodwill	18,335	—	18,335
Other intangible assets - net	5,549	—	5,549
Investments in partially-owned affiliates	1,066	—	1,066
Noncurrent assets held for sale	156	(156)	—
Other noncurrent assets	3,558	—	3,558
Total assets	$ 41,890	$ —	41,890
Liabilities and Equity			
Short-term debt	$ 8	$ —	$ 8
Current portion of long-term debt	226	—	226
Accounts payable	3,746	—	3,746
Accrued compensation and benefits	982	—	982
Deferred revenue	1,637	—	1,637
Liabilities held for sale		—	—
Current provisions	594	—	594
Other current liabilities	1,905	—	1,905
Current liabilities	9,098	—	9,098
Long-term debt	7,506	—	7,506
Noncurrent provisions	4,457	—	4,457
Other noncurrent liabilities	2,076	—	2,076
Long-term liabilities	14,039	—	14,039
Ordinary shares (par value $0.01; 2.0 billion shares authorized; shares issued: 2021 - 737,090,363)	7	—	7
Ordinary A shares (par value €1.00; 40,000 shares authorized, none outstanding as of September 30, 2021)	—	—	—
Preferred shares (par value $0.01; 200,000,000 shares authorized, none outstanding as of September 30, 2021)	—	—	—
Ordinary shares held in treasury, at cost (shares held: 2021 - 28,356,889)	(1,152)	—	(1,152)
Share premium	17,116	—	17,116
Retained earnings	2,025	—	2,025
Accumulated other comprehensive loss	(434)	—	(434)
Shareholders’ equity attributable to Johnson Controls	17,562	—	17,562
Noncontrolling interests	1,191	—	1,191
Total equity	18,753	—	18,753
Total liabilities and equity	41,890	—	41,890

(in millions, except par value and share data)	September 30, 2020 Continuing Operations	Assets and Liabilities Held for Sale	Total
Assets			
Cash and cash equivalents	$ 1,951	$ —	$ 1,951
Accounts receivable, less allowance for doubtful accounts of $173	5,294	—	5,294
Inventories	1,773	—	1,773
Assets held for sale	—	—	—
Other current assets	1,035	—	1,035
Current assets	10,053	—	10,053
Property, plant and equipment - net	3,059	147	3,206
Goodwill	17,932	—	17,932
Other intangible assets - net	5,356	—	5,356
Investments in partially-owned affiliates	914	—	914
Noncurrent assets held for sale	147	(147)	—
Other noncurrent assets	3,328	—	3,328
Total assets	$ 40,789	$ —	$ 40,789
Liabilities and Equity			
Short-term debt	$ 31	$ —	$ 31
Current portion of long-term debt	262	—	262
Accounts payable	3,120	—	3,120
Accrued compensation and benefits	800	—	800
Deferred revenue	1,435	—	1,435
Liabilities held for sale	—	—	—
Current provisions	603	—	603
Other current liabilities	1,847	—	1,847
Current liabilities	8,098	—	8,098
Long-term debt	7,526	—	7,526
Noncurrent provisions	4,675		4,675
Other noncurrent liabilities	1,833		1,833
Long-term liabilities	14,034	—	14,034
Ordinary shares (par value $0.01; 2.0 billion shares authorized; shares issued: 2020 - 753,907,315)	8	—	8
Ordinary A shares (par value €1.00; 40,000 shares authorized, none outstanding as of September 30, 2020)	—	—	—
Preferred shares (par value $0.01; 200,000,000 shares authorized, none outstanding as of September 30, 2020)	—	—	—
Ordinary shares held in treasury, at cost (shares held: 2020 - 27,684,632)	(1,119)	—	(1,119)
Share premium	16,865	—	16,865
Retained earnings	2,593	—	2,593
Accumulated other comprehensive loss	(776)	—	(776)
Shareholders’ equity attributable to Johnson Controls	17,571	—	17,571
Noncontrolling interests	1,086	—	1,086
Total equity	18,657	—	18,657
Total liabilities and equity	$ 40,789	—	$ 40,789

4. REVENUE RECOGNITION

Disaggregated Revenue

The following table presents the Group's revenues disaggregated by segment and by products and systems versus services revenue for the years ended September 30, 2021 and 2020 (in millions):

	Year Ended September 30,					
	2021			2020		
	Products & Systems	Services	Total	Products & Systems	Services	Total
Building Solutions North America	$ 5,312	$ 3,373	$ 8,685	$ 5,371	$ 3,234	$ 8,605
Building Solutions EMEA/LA	1,772	1,955	3,727	1,644	1,796	3,440
Building Solutions Asia Pacific	1,516	1,138	2,654	1,369	1,034	2,403
Global Products	8,602	—	8,602	7,869	—	7,869
Total	$ 17,202	$ 6,466	$ 23,668	$ 16,253	$ 6,064	$ 22,317

The following table presents further disaggregation of Global Products segment revenues by product type for the years ended September 30, 2021 and 2020 (in millions):

	Year Ended September 30,	
	2021	2020
HVAC	$ 6,173	$ 5,685
Fire & Security	2,192	1,957
Industrial Refrigeration	237	227
Total	$ 8,602	$ 7,869

Contract Balances

Contract assets relate to the Group’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 Group's consolidated statement of financial position (in millions):

		September 30,	
	Location of contract balances	2021	2020
Contract assets - current	Accounts receivable - net	$ 1,718	$ 1,395
Contract assets - noncurrent	Other noncurrent assets	99	104
Contract liabilities - current	Deferred revenue	(1,637)	(1,435)
Contract liabilities - noncurrent	Other noncurrent liabilities	(269)	(245)
Total		$ (89)	$ (181)

For the year ended September 30, 2021, the Group recognized revenue of approximately $1.2 billion that was included in the beginning of period contract liability balance. For the year ended September 30, 2020, the Group recognized revenue of approximately $1.3 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, 2021, the aggregate amount of the transaction price allocated to remaining performance obligations was approximately $16.1 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 average 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 Group 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 Group 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.

The following table presents the location and amount of costs to obtain or fulfill a contract recorded in the Group's consolidated statement of financial position (in millions):

	September 30,	
	2021	2020
Other current assets	$ 149	$ 119
Other noncurrent assets	117	104
Total	$ 266	$ 223

During the year ended September 30, 2021, the Group recognized amortization of $173 million related to costs to obtain or fulfill a contract. There were no impairment losses recognized in the year ended September 30, 2021. During the year ended September 30, 2020, the Group recognized amortization 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.

5. ACCOUNTS RECEIVABLE

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 Group extends credit to customers in the normal course of business and maintains an allowance for expected credit losses resulting from the inability or unwillingness of customers to make required payments. The allowance for expected credit losses is based on historical experience, existing economic conditions, reasonable and supportable forecasts, and any specific customer collection issues the Group has identified. The Group evaluates the reasonableness of the allowance for credit losses on a quarterly basis. The Group enters into various factoring agreements to sell certain accounts receivable to third-party financial institutions. For ease of administration, the Group collects customer payments related to certain factored receivables on behalf of the financial institutions but otherwise maintains no other continuing involvement with respect to the factored receivables. During the year ended September 30, 2021, the Group sold $129 million of accounts receivable under such factoring agreements, and the costs of factoring such receivables were not material. As of September 30, 2021, the outstanding amount of accounts receivable sold under the factoring agreements was $127 million. No receivables were factored under such agreements in fiscal 2020. Sales of accounts receivable are reflected as a reduction of accounts receivable in the consolidated statement of financial position and the proceeds are included in cash flows from operating activities in the consolidated statement of cash flows.

Accounts receivable, net consisted of the following (in millions):

	September 30,	
	2021	2020
Accounts receivable	$ 5,723	$ 5,467
Less: Allowance for expected credit losses [1]	(110)	(173)
Accounts receivable, net	$ 5,613	$ 5,294

[1] Allowance for doubtful accounts as of September 30, 2020, prior to the adoption of ASU 2016-13.

The changes in the allowance for expected credit losses related to accounts receivable for the year ended September 30, 2021 were as follows (in millions):

	Year Ended September 30, 2021
Balance as of September 30, 2020	$ 173
Provision for expected credit losses	(3)
Write-offs charged against the allowance for expected credit losses	(65)
Currency translation	1
Other (including impact of adoption of ASU 2016-13)	4
Balance as of September 30, 2021	$ 110

6. INVENTORIES

Inventories consisted of the following (in millions):

	September 30,	
	2021	2020
Raw materials and supplies	$ 769	$ 629
Work-in-process	166	142
Finished goods	1,122	1,002
Inventories	$ 2,057	$ 1,773

7. PROPERTY, PLANT AND EQUIPMENT

The changes in property, plant and equipment by type for fiscal 2021 are as follows (in millions):

	Land	Buildings	Subscriber Systems	Machinery and Equipment	Construction in Progress	Total
Cost:						
At September 30, 2020	$ 241	$ 1,351	$ 679	$ 3,332	$ 327	$ 5,930
Capital expenditures and acquisitions	—	119	125	294	177	715
Disposals and divestitures	(11)	(125)	(8)	70	(1)	(75)
Impairments	—	(41)	—	(3)	—	(44)
Currency translation and other	1	9	6	(24)	(3)	(11)
At September 30, 2021	$ 231	$ 1,313	$ 802	$ 3,669	$ 500	$ 6,515
Accumulated depreciation:						
At September 30, 2020	$ —	$ (479)	$ (93)	$ (2,299)	$ —	$ (2,871)
Depreciation expense	—	(72)	(72)	(266)	—	(410)
Disposals and divestitures	—	66	(9)	(67)	—	(10)
Impairments	—	9	—	2	—	11
Currency translation and other	—	(2)	(8)	3	—	(7)
At September 30, 2021	$ —	$ (478)	$ (182)	$ (2,627)	$ —	$ (3,287)
Net book value:						
At September 30, 2020	$ 241	$ 872	$ 586	$ 1,033	$ 327	$ 3,059
At September 30, 2021	$ 231	$ 835	$ 620	$ 1,042	$ 500	$ 3,228

As of September 30, 2021 and 2020, no property, plant and equipment assets were pledged as collateral for a loan.

8. GOODWILL AND OTHER INTANGIBLE ASSETS

The changes in the carrying amount of goodwill in each of the Group's reportable segments for the fiscal year ended September 30, 2021 were as follows (in millions):

	September 30, 2020	Business Acquisitions	Business Divestitures	Currency Translation and Other	September 30, 2021
Building Solutions North America	$ 9,160	$ 21	$ —	$ 34	$ 9,215
Building Solutions EMEA/LA	1,967	35	—	19	2,021
Building Solutions Asia Pacific	1,226	—	(7)	21	1,240
Global Products	5,579	244	—	36	5,859
Total	$ 17,932	$ 300	$ (7)	$ 110	$ 18,335

At September 30, 2020, accumulated goodwill impairment charges included $471 million related to the North America Retail reporting unit ($424 million) and the Building Solutions EMEA/LA - Latin America reporting unit ($47 million).

The Group reviews goodwill for impairment during the fourth fiscal quarter or more frequently if events or changes in circumstances indicate the asset might be impaired. There were no goodwill impairments resulting from the fiscal 2021 annual impairment tests. No reporting unit was determined to be at risk of failing the goodwill impairment test as of September 30, 2021.

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

	Definite-Lived			Indefinite-Lived		
	Technology	Customer relationships	Miscellaneous	Trademarks and tradenames	Miscellaneous	Total
Cost:						
At September 30, 2020	$ 1,332	$ 2,773	$ 657	$ 2,248	$ 80	$ 7,090
Acquisitions and additions	121	310	127	67	—	625
Divestitures and disposals	—	(1)	(6)	—	—	(7)
Impairments	—	—	(52)	—	—	(52)
Currency translation and other	11	15	24	17	—	67
At September 30, 2021	$ 1,464	$ 3,097	$ 750	$ 2,332	$ 80	$ 7,723
Accumulated amortization:						
At September 30, 2020	$ (497)	$ (969)	$ (268)	$ —	$ —	$ (1,734)
Amortization expense	(130)	(220)	(85)	—	—	(435)
Divestitures and disposals	—	—	6	—	—	6
Impairments	—	—	5	—	—	5
Currency translation and other	(2)	(2)	(12)	—	—	(16)
At September 30, 2021	$ (629)	$ (1,191)	$ (354)	$ —	$ —	$ (2,174)
Net book value:						
At September 30, 2020	$ 835	$ 1,804	$ 389	$ 2,248	$ 80	$ 5,356
At September 30, 2021	$ 835	$ 1,906	$ 396	$ 2,332	$ 80	$ 5,549

The Group 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.

There were no indefinite-lived intangible asset impairments resulting from fiscal 2021 annual impairment tests. For fiscal 2021, 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 Group's Asia Pacific subscriber businesses. The estimated fair value for the Asia Pacific indefinite-lived trademark was consistent with its carrying value of $38 million.

Excluding the impact of any future acquisitions, the Group anticipates amortization for fiscal 2022, 2023, 2024, 2025 and 2026 will be approximately $457 million, $439 million, $424 million, $403 million and $335 million, respectively.

9. LEASES

The Group adopted ASU 2016-02, "Leases (Topic 842)" and the related amendments using a modified-retrospective approach as of October 1, 2019.

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

The Group has certain real estate leases that contain variable lease payments which are based on changes in the Consumer Price Index (CPI). Additionally, the Group'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 Group's lease costs for the fiscal years ended September 30, 2021 and 2020 (in millions):

	Year Ended September 30,	
	2021	2020
Operating lease cost	$ 384	$ 399
Variable lease cost	130	145
Total lease costs	$ 514	$ 544

The following table presents supplemental consolidated statement of financial position information as of September 30, 2021 and 2020 (in millions):

		September 30,	
	Location of lease balances	2021	2020
Operating lease right-of-use assets	Other noncurrent assets	$ 1,376	$ 1,190
Operating lease liabilities - current	Other current liabilities	319	332
Operating lease liabilities - noncurrent	Other noncurrent liabilities	1,055	875
Weighted-average remaining lease term		7 years	6 years
Weighted-average discount rate		1.8 %	2.2 %

The following table presents supplemental cash flow information related to operating leases for the fiscal years ended September 30, 2021 and 2020 (in millions):

	Year Ended September 30,	
	2021	2020
Cash paid for amounts included in the measurement of lease liability:		
Operating cash outflows from operating leases	$ 398	$ 397
Noncash operating lease activity:		
Right-of-use assets obtained in exchange for operating lease liabilities	515	467

The following table presents maturities of operating lease liabilities as of September 30, 2021 (in millions):

	September 30, 2021
2022	$ 337
2023	275
2024	226
2025	164
2026	115
After 2026	353
Total operating lease payments	1,470
Less: Interest	(96)
Present value of lease payments	$ 1,374

10. DEBT AND FINANCING ARRANGEMENTS

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

	September 30, 2021	September 30, 2020
Bank borrowings	$ 8	$ 31
Weighted average interest rate on short-term debt outstanding	0.2 %	3.4 %

The Group had no commercial paper outstanding as of September 30, 2021 and 2020.

As of September 30, 2021, the Group has 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 expired in December 2021. In December 2021, the Group entered into a syndicated $500 million committed revolving credit facility, which is scheduled to expire in December 2022. As of September 30, 2021, there were no draws on the facilities.

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

	September 30, 2021	September 30, 2020
Unsecured notes		
JCI plc - 4.25% due in 2021 ($204 million par value)	$ —	$ 204
JCI Inc. - 4.25% due in 2021 ($53 million par value)	—	53
JCI plc - 3.75% due in 2022 ($171 million par value)	—	171
JCI Inc. - 3.75% due in 2022 ($22 million par value)	—	22
JCI plc - 4.625% due in 2023 ($25 million par value)	25	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 (€846 million par value)	980	1,039
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)	496	503
TIFSA - 1.375% due in 2025 (€54 million par value)	63	64
JCI plc - 3.90% due in 2026 ($487 million par value)	510	516
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)	577	583
JCI plc and TFSCA - 1.75% due in 2030 ($625 million par value)	623	623
JCI plc and TFSCA - 2.00% due in 2031 ($500 million par value)	496	—
JCI plc and TFSCA - 1.00% due in 2032 (€500 million par value)	578	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)	560	564
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	223	237
Other	8	8
Gross long-term debt	7,764	7,822
Less: current portion	226	262
Less: debt issuance costs	32	34
Net long-term debt	$ 7,506	$ 7,526

The following table presents maturities of long-term debt as of September 30, 2021 (in millions):

2022	$ 226
2023	1,012
2024	484
2025	559
2026	561
After 2026	4,922
Total	$ 7,764

The Group’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, 2021 and 2020 was $242 million and $247 million, respectively.

Financing Arrangements

In September 2021, the Group and its wholly owned subsidiary, TFSCA issued $500 million of sustainability-linked bonds with an initial interest rate of 2.0%, which are due in 2031. Beginning in March 2026, the interest rate payable on the note will be increased by an additional 12.5 basis points per annum if the Scope 1 and Scope 2 emissions sustainability performance target is not met and an additional 12.5 basis points per annum if the Scope 3 emissions sustainability performance target is not met. The proceeds were used for general corporate purposes, including the repayment of near-term indebtedness.

In September 2021, the Group repaid $193 million of 3.75% notes which were due in December 2021, and a €200 million bank term loan which was issued in March 2021 and due in March 2022.

The Group repaid $257 million in principal amount, plus accrued interest, of 4.25% fixed rate notes when they expired in March 2021.

Additionally, during fiscal year 2021, the Group repaid €43 million in principal amount, plus accrued interest, of 1.0% fixed rate notes which were due in September 2023.

Net Financing Charges

The Group's net financing charges line item in the consolidated statement of income for the years ended September 30, 2021 and 2020 contained the following components (in millions):

	Year Ended September 30,	
	2021	2020
Interest expense, net of capitalized interest costs	$ 219	$ 240
Banking and other fees and amortization of bond costs, premiums and discounts	25	26
Loss on debt extinguishment	—	—
Interest income	(9)	(23)
Net foreign exchange results for financing activities	(29)	(12)
Net financing charges	$ 206	$ 231

Interest expense for the years ended September 30, 2021 and 2020 is comprised of (in millions):

	Year Ended September 30,	
	2021	2020
Interest on debt payable within five years	$ 59	$ 87
Interest on debt payable beyond five years	160	153
	$ 219	$ 240

11. DERIVATIVE INSTRUMENTS AND HEDGING ACTIVITIES

The Group selectively uses derivative instruments to reduce market risk associated with changes in foreign currency, commodities, stock-based compensation liabilities and interest rates. Under Group 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 Group to manage risk is included in the following paragraphs. In addition, refer to Note 12, "Fair Value Measurements," of the notes to consolidated financial statements for information related to the fair value measurements and valuation methods utilized by the Group for each derivative type.

Cash Flow Hedges

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

The Group selectively hedges anticipated transactions that are subject to commodity price risk, primarily using commodity hedge contracts, to minimize overall price risk associated with the Group’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, 2021 and 2020.

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

	Volume Outstanding as of	
Commodity	September 30, 2021	September 30, 2020
Copper	2,656	2,497
Aluminum	5,159	3,036

In April 2021, the Group entered into two forward-starting interest rate swaps with a combined notional amount of $500 million, in conjunction with its anticipated $500 million note issuance. In September 2021, the Group terminated the swaps as the debt was issued. The fair value of each interest rate swap, which is the difference between the swap's reference rate and the fixed rate of the note issuance, will be amortized to interest expense over the life of the respective note issuance.

Net Investment Hedges

The Group 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 Group’s net investments globally. At September 30, 2021, the Group had 2.3 billion of euro-denominated bonds designated as net investment hedges in Europe and 25 billion of yen-denominated debt designated as a net investment hedge in Japan. At

September 30, 2020, the Group had 2.4 billion of euro-denominated bonds designated as net investment hedges in Europe and 25 billion of yen-denominated debt designated as a net investment hedge in Japan.

Derivatives Not Designated as Hedging Instruments

The Group 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 Group's stock price increases and decrease as the Group's stock price decreases. In contrast, the value of the swap agreement moves in the opposite direction of these liabilities, allowing the Group to fix a portion of the liabilities at a stated amount. The Group hedged approximately 0.3 million of its ordinary shares, which have a cost basis of $23 million, as of September 30, 2021 and approximately 1.4 million ordinary shares, which had a cost basis of $60 million, as of September 30, 2020.

The Group 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 statement 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 Group's consolidated statement 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, 2021	September 30, 2020	September 30, 2021	September 30, 2020
Other current assets				
Foreign currency exchange derivatives	$ 15	$ 10	$ 17	$ 17
Commodity derivatives	2	2	—	—
Other noncurrent assets				
Equity swap	—	—	23	58
Total assets	$ 17	$ 12	$ 40	$ 75
Other current liabilities				
Foreign currency exchange derivatives	$ 11	$ 10	$ 6	$ —
Commodity derivatives	1	—	—	—
Long-term debt				
Foreign currency denominated debt	2,918	3,010	—	—
Total liabilities	$ 2,930	$ 3,020	$ 6	$ —

Counterparty Credit Risk

The use of derivative financial instruments exposes the Group to counterparty credit risk. The Group 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 Group deals with major banks worldwide having strong investment grade long-term credit ratings. To further reduce the risk of loss, the Group generally enters into International Swaps and Derivatives Association ("ISDA") master netting agreements with substantially all of its counterparties. The Group 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 Group has not elected to offset the fair value positions of the derivative contracts recorded in the consolidated statement of financial position.

The Group'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 Group or the counterparties. The Group'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 Group 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 Group.

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, 2021	September 30, 2020	September 30, 2021	September 30, 2020
Gross amount recognized	$ 57	$ 87	$ 2,936	$ 3,020
Gross amount eligible for offsetting	(16)	(10)	(16)	(10)
Net amount	$ 41	$ 77	$ 2,920	$ 3,010

Derivatives Impact on the Statement of Income and Statement 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, 2021 and 2020 (in millions):

	Year Ended September 30,	
Derivatives in ASC 815 Cash Flow Hedging Relationships	2021	2020
Foreign currency exchange derivatives	$ 15	$ 1
Commodity derivatives	4	6
Interest rate swap	(21)	—
Total	$ (2)	$ 7

The following table presents the location and amount of the pre-tax gains (losses) on cash flow hedges reclassified from AOCI into the Group’s consolidated statement of income for the fiscal years ended September 30, 2021 and 2020 (in millions):

		Year Ended September 30,	
Derivatives in ASC 815 Cash Flow Hedging Relationships	Location of Gain (Loss) Reclassified from AOCI into Income	2021	2020
Foreign currency exchange derivatives	Cost of sales	$ 11	$ (5)
Commodity derivatives	Cost of sales	3	2
Commodity derivatives	Income from discontinued operations	—	—
Total		$ 14	$ (3)

The following table presents the location and amount of pre-tax gains (losses) on derivatives not designated as hedging instruments recognized in the Group's consolidated statement of income for the fiscal years ended September 30, 2021 and 2020 (in millions):

Derivatives Not Designated as Hedging Instruments under ASC 815	Location of Gain (Loss) Recognized in Income on Derivative	Year Ended September 30, 2021	Year Ended September 30, 2020
Foreign currency exchange derivatives	Cost of sales	$ (6)	$ (1)
Foreign currency exchange derivatives	Net financing charges	174	87
Foreign currency exchange derivatives	Selling, general and administrative	(2)	—
Foreign currency exchange derivatives	Income tax provision	(1)	—
Foreign currency exchange derivatives	Income from discontinued operations	—	—
Equity swap	Selling, general and administrative	28	(4)
Total		$ 193	$ 82

The pre-tax gains (losses) recorded in foreign currency translation adjustment ("CTA") within other comprehensive income (loss) related to net investment hedges were $42 million and $(172) million for the years ended September 30, 2021 and 2020, respectively. For the years ended September 30, 2021 and 2020, no gains or losses were reclassified from CTA into income for the Group's outstanding net investment hedges.

12. 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 Group's fair value hierarchy for those assets and liabilities measured at fair value as of September 30, 2021 and 2020 (in millions):

		Fair Value Measurements Using:		
	Total as of September 30, 2021	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	$ 32	$ —	$ 32	$ —
Commodity derivatives	2	—	2	—
Other noncurrent assets				
Deferred compensation plan assets	63	63	—	—
Exchange traded funds (fixed income)[1]	146	146	—	—
Exchange traded funds (equity)[1]	168	168	—	—
Equity swap	23	—	23	—
Total assets	$ 434	$ 377	$ 57	$ —
Other current liabilities				
Foreign currency exchange derivatives	$ 17	$ —	$ 17	$ —
Commodity derivatives	1	—	1	—
Contingent earn-out liabilities	32	—	$ —	32
Other noncurrent liabilities				
Contingent earn-out liabilities	50	—	—	50
Total liabilities	$ 100	$ —	$ 18	$ 82

		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	$ —

[1]Classified as restricted investments for payment of asbestos liabilities. See Note 23, "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 Group'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 Group'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 statement 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 23, "Commitments and Contingencies," of the notes to consolidated financial statements for further information.

Contingent earn-out liabilities: The contingent earn-out liabilities related to the Silent-Aire acquisition were established using a Monte Carlo simulation based on the forecasted operating results and the earn-out formula specified in the purchase agreement.

The following table presents the portion of unrealized gains (losses) recognized in the consolidated statement of income for the years ended September 30, 2021 and 2020 that relate to equity securities still held at September 30, 2021 and 2020 (in millions):

	Year Ended September 30,	
	2021	2020
Deferred compensation plan assets	$ 7	$ 1
Investments in exchange traded funds	37	21

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, 2021, the fair value of long-term debt was $8.5 billion, including public debt of $8.3 billion and other long-term debt of $0.2 billion. 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. 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.

13. STOCK-BASED COMPENSATION

On March 10, 2021, the shareholders of the Group approved the Johnson Controls International plc 2021 Equity and Incentive Plan, which terminated the 2012 Share and Incentive Plan, as amended in September 2016 (collectively, the "Plans"). The Plans authorize stock options, stock appreciation rights, restricted (non-vested) stock/units, performance shares, performance units and other stock-based awards. The Compensation and Talent Development Committee of the Group'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, 2021, there were 55 million shares of the Group's common stock reserved and 54 million shares available for issuance under the 2021 Equity and Incentive Plan.

The Group has four share-based compensation awards, which are described below. For the fiscal years ended September 30, 2021 and 2020, compensation cost charged against income for continuing operations, excluding the offsetting impact of outstanding equity swaps, for those plans was approximately $97 million and $66 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 statement of income for share-based compensation arrangements was approximately $24 million and $16 million for the fiscal years ended September 30, 2021, and 2020, respectively. The tax impact from the exercise and vesting of equity settled awards was $12 million of tax benefit and less than $1 million of tax benefit for the fiscal years ended September 30, 2021 and 2020, respectively. The Group 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 Group'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 Group'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 Group's ordinary shares as of the grant date. The Group uses historical data to estimate option exercises and employee terminations within the valuation model.

	Year Ended September 30,	
	2021	2020
Expected life of option (years)	6.5	6.5
Risk-free interest rate	0.60%	1.67%
Expected volatility of the Group's stock	27.60%	22.40%
Expected dividend yield on the Group's stock	2.28%	2.49%

A summary of stock option activity at September 30, 2021, 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, 2020	$ 37.14	10,114,905		
Granted	45.69	932,678		
Exercised	36.70	(4,840,511)		
Forfeited or expired	37.16	(256,061)		
Outstanding, September 30, 2021	$ 38.84	5,951,011	5.9	$ 174
Exercisable, September 30, 2021	$ 37.01	3,536,889	4.3	$ 110

The weighted-average grant-date fair value of options granted during the fiscal years ended September 30, 2021 and 2020 was $9.36 and $7.29, respectively.

The total intrinsic value of options exercised during the fiscal years ended September 30, 2021 and 2020 was approximately $94 million and $30 million, respectively.

In conjunction with the exercise of stock options, the Group received cash payments for the fiscal years ended September 30, 2021 and 2020 of approximately $178 million and $75 million, respectively.

At September 30, 2021, the Group had approximately $10 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 1.6 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 Group's consolidated statement 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, 2021 were as follows:

Expected life of SAR (years)	0.01 - 4.29
Risk-free interest rate	0.07% - 0.88%
Expected volatility of the Group's stock	27.60%
Expected dividend yield on the Group's stock	2.28%

A summary of SAR activity at September 30, 2021, 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, 2020	$ 30.14	212,637		
Granted	45.69	35,254		
Exercised	28.16	(88,600)		
Forfeited or expired	32.45	(18,708)		
Outstanding, September 30, 2021	$ 34.99	140,583	3.1	$ 5
Exercisable, September 30, 2021	$ 31.40	105,329	1.0	$ 4

In conjunction with the exercise of SARs granted, the Group made payments of $3 million and $2 million during the fiscal years ended September 30, 2021 and 2020, 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, in which case the awards are settled in cash. Restricted awards typically vest over a period of three years from the grant date. The Plans allow for different vesting terms on specific grants with approval by the Compensation and Talent Development Committee. The fair value of each share-settled restricted award is based on the closing market value of the Group'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 Group'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, 2021, and changes for the fiscal year then ended, is presented below:

	Weighted Average Price	Shares/Units Subject to Restriction
Non-vested, September 30, 2020	$ 38.58	3,229,879
Granted	48.29	1,865,566
Vested	37.80	(1,439,284)
Forfeited	41.32	(321,724)
Non-vested, September 30, 2021	$ 44.06	3,334,437

At September 30, 2021, the Group had approximately $103 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 2.0 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 Group's ordinary shares following the completion of the performance period.

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 years ended 2021 and 2020, the expected volatility is based on the historical volatility of the Group's stock over the most recent three-year period as of the grant date.

	Year Ended September 30,	
	2021	2020
Risk-free interest rate	0.20%	1.60%
Expected volatility of the Group’s stock	30.90%	21.80%

A summary of the status of the Group’s non-vested PSUs at September 30, 2021, and changes for the fiscal year then ended, is presented below:

	Weighted Average Price	Shares/Units Subject to PSU
Non-vested, September 30, 2020	$ 39.06	1,617,944
Granted	50.53	410,934
Vested	38.75	(789,129)
Forfeited	41.86	(43,431)
Non-vested, September 30, 2021	$ 43.11	1,196,318

At September 30, 2021, the Group had approximately $29 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.

14. EARNINGS PER SHARE

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

	Year Ended September 30, 2021	Year Ended September 30, 2020
Income Available to Ordinary Shareholders		
Income from continuing operations	$ 1,513	$ 631
Income from discontinued operations	—	124
Basic and diluted income available to shareholders	$ 1,513	$ 755
Weighted Average Shares Outstanding		
Basic weighted average shares outstanding	716.6	751.0
Effect of dilutive securities:		
Stock options, unvested restricted stock and unvested performance share awards	4.5	2.6
Diluted weighted average shares outstanding	721.1	753.6
Antidilutive Securities		
Options to purchase shares	—	1.4

15. EQUITY AND NONCONTROLLING INTERESTS

Authorized Share Capital

As of September 30, 2021, the Group's authorized share capital amounted to $22 million and 40,000 euro, divided into 2 billion ordinary shares with a par value of $0.01 per share, 200 million preferred shares with a par value of $0.01 per share and 40,000 ordinary A shares with a par value of 1.00 euro per share. The authorized share capital includes 40,000 ordinary A shares with a par value of 1.00 euro per share in order to satisfy statutory requirements for the incorporation of all Irish public limited companies. Johnson Controls International plc may issue shares subject to the maximum prescribed by its authorized share capital contained in its memorandum of association. In connection with the re-domicile, the Group canceled all the outstanding treasury shares of JCI Inc., including shares held by subsidiaries, with an offsetting reduction in the share premium account.

Called-Up Share Capital

All ordinary shares issued at the effective time of the re-domicile were issued as fully paid-up and non-assessable. As of September 30, 2021, the Group's called-up share capital amounted to $7 million, which is recorded in ordinary shares within the consolidated statement of financial position, comprised of 737,090,363 ordinary shares with a par value of $0.01 per share. As of September 30, 2020, the Group's called-up share capital amounted to $8 million, which is recorded in ordinary shares within the consolidated statement of financial position, comprised of 753,907,315 ordinary shares with a par value of $0.01 per share. There were no preferred shares or ordinary A shares issued as of September 30, 2021 and 2020.

Share premium

The share premium reflects the fair value of consideration received in excess of the par value of shares issued for stock option exercises, vesting of restricted stock units and other issuances of shares and is recorded in share premium within the consolidated statement of financial position. It also includes Company share premium as defined by the Irish law of $675 million and $433 million as of September 30, 2021 and 2020, respectively.

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 Group's ordinary shares is determined by the Group's Board of Directors and depends upon many factors, including the Group's financial condition and results of operations, the capital requirements of the Group'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 2021, the Group's Board of Directors approved a $4.0 billion increase to the Group's share repurchase authorization, adding to the $2.0 billion remaining as of December 31, 2020 under the prior share repurchase authorization approved in 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, 2021, approximately $5.1 billion remains available under the share repurchase program.

During fiscal year 2021, the Group repurchased and retired approximately $1,307 million of its ordinary shares. During fiscal year 2020, the Group repurchased and retired approximately $2,204 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, 2019	$ 19,766	$ 1,063	$ 20,829
Total comprehensive income:			
Net income	755	164	919
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	774	186	960
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	17,571	1,086	18,657
Total comprehensive income (loss):			
Net income	1,513	233	1,746
Foreign currency translation adjustments	357	19	376
Realized and unrealized gains (losses) on derivatives	(19)	1	(18)
Pension and postretirement plans	4	—	4
Other comprehensive income	342	20	362
Comprehensive income	1,855	253	2,108
Other changes in equity:			
Cash dividends - ordinary shares ($1.07 per share)	(771)	—	(771)
Dividends attributable to noncontrolling interests	—	(142)	(142)
Repurchases and retirements of ordinary shares	(1,307)	—	(1,307)
Change in noncontrolling interest share	(8)	(6)	(14)
Adoption of ASU 2016-13	(4)	—	(4)
Other, including options exercised	226	—	226
At September 30, 2021	$ 17,562	$ 1,191	$ 18,753

The Group adopted ASU 2016-13 "Financial Instruments - Credit Losses" effective October 1, 2020. As a result the Group recorded $4 million to beginning retained earnings.

The Group adopted ASC 842, "Leases" effective October 1, 2019. As a result, the Group recorded $5 million to beginning retained earnings, which relates primarily to adoption day impairment of previously exited facilities.

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

	Year Ended September 30,	
	2021	2020
Foreign currency translation adjustments		
Balance at beginning of period	$ (778)	$ (785)
Aggregate adjustment for the period (net of tax effect of $0 and $1)	357	7
Balance at end of period	(421)	(778)
Realized and unrealized gains (losses) on derivatives		
Balance at beginning of period	2	(2)
Current period changes in fair value (net of tax effect of $5 and $1)	(8)	3
Reclassification to income (net of tax effect of $(3) and $0) (1)	(11)	1
Balance at end of period	(17)	2
Pension and postretirement plans		
Balance at beginning of period	—	(8)
Reclassification to income (net of tax effect of $0 and $(1))	(3)	(1)
Other changes (net of tax effect of $(1) and $4)	7	9
Balance at end of period	4	—
Accumulated other comprehensive loss, end of period	$ (434)	$ (776)

(1) Refer to Note 11, "Derivative Instruments and Hedging Activities," of the notes to consolidated financial statements for disclosure of the line items in the consolidated statement of income affected by reclassifications from AOCI into income related to derivatives.

16. RETIREMENT PLANS

Pension Benefits

The Group 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 Group'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 Group makes contributions to union-trusteed pension funds for construction and service personnel.

Information for pension plans with accumulated benefit obligations ("ABO") in excess of plan assets (in millions):

	September 30,	
	2021	2020
Accumulated benefit obligation	$ 4,402	$ 5,539
Fair value of plan assets	3,841	4,528

Information for pension plans with projected benefit obligations ("PBO") in excess of plan assets (in millions):

	September 30,	
	2021	2020
Projected benefit obligation	$ 4,519	$ 5,643
Fair value of plan assets	3,954	4,570

In fiscal 2021, total employer contributions to the defined benefit pension plans were $65 million, none of which were voluntary contributions made by the Group. The Group expects to contribute approximately $42 million in cash to its defined benefit pension plans in fiscal 2022. Projected benefit payments from the plans as of September 30, 2021 are estimated as follows (in millions):

2022	$ 329
2023	298
2024	285
2025	280
2026	284
2027 - 2031	1,387

Postretirement Benefits

The Group 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 Group 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 Group has reserved the right to modify these benefits.

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

Information for postretirement plans with accumulated postretirement benefit obligations ("APBO") in excess of plan assets (in millions):

	September 30,	
	2021	2020
Accumulated postretirement benefit obligation	$ 96	$ 105
Fair value of plan assets	38	34

In fiscal 2021, total employer contributions to the postretirement plans were $3 million. The Group expects to contribute approximately $3 million in cash to its postretirement plans in fiscal 2022 for continuing operations. Projected benefit payments from the plans as of September 30, 2021 are estimated as follows (in millions):

2022	$ 11
2023	11
2024	11
2025	10
2026	10
2027 - 2031	38

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 Group 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 Group 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 Group temporarily suspended contributions in fiscal 2021 and 2020 in response to the COVID-19 pandemic. Defined contribution plan contributions charged to expense for continuing and discontinued operations amounted to $118 million and $104 million for the fiscal years ended 2021 and 2020, respectively.

Multiemployer Benefit Plans

The Group 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 Group stops participating in some of its multiemployer benefit plans, the Group 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 Group participates in approximately 275 multiemployer benefit plans, none of which are individually significant to the Group. The number of employees covered by the Group’s multiemployer benefit plans has remained consistent over the past two years, and there have been no significant changes that affect the comparability of fiscal 2021 and 2020 contributions. The Group recognizes expense for the contractually-required contribution for each period. The Group contributed $67 million and $66 million to multiemployer benefit plans in fiscal 2021 and 2020, respectively.

Based on the most recent information available, the Group 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 Group is not aware of any significant multiemployer benefit plans for which it is probable or reasonably possible that the Group will be obligated to make up any shortfall in funds. Moreover, if the Group were to exit certain markets or otherwise cease making contributions to these funds, the Group could trigger a withdrawal liability. Currently, the Group is not aware of any multiemployer benefit plans for which it is probable or reasonably possible that the Group 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 Group’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 capitalization. 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 Group's diversification strategies, there are no significant concentrations of risk within the portfolio of investments.

The Group's actual asset allocations are in line with target allocations. The Group 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 Group'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 Group’s plan assets at September 30, 2021 and 2020, by asset category, are as follows (in millions):

		Fair Value Measurements Using:		
Asset Category	Total as of September 30, 2021	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	$ 75	$ —	$ 75	$ —
Equity Securities				
Large-Cap	185	185	—	—
Small-Cap	215	215	—	—
International - Developed	182	182	—	—
International - Emerging	34	34	—	—
Fixed Income Securities				
Government	286	98	188	—
Corporate/Other	1,279	1,279	—	—
Total Investments in the Fair Value Hierarchy	2,256	$ 1,993	$ 263	$ —
Real Estate Investments Measured at Net Asset Value*	280			
Due to Broker	(77)			
Total Plan Assets	$ 2,459			
Non-U.S. Pension				
Cash and Cash Equivalents	$ 151	$ 151	$ —	$ —
Equity Securities				
Large-Cap	197	23	174	—
International - Developed	128	30	98	—
International - Emerging	2	—	2	—
Fixed Income Securities				
Government	1,123	77	1,046	—
Corporate/Other	597	320	277	—
Hedge Fund	27	—	27	—
Real Estate	14	14	—	—
Total Investments in the Fair Value Hierarchy	2,239	$ 615	$ 1,624	$ —
Real Estate Investments Measured at Net Asset Value*	105			
Total Plan Assets	$ 2,344			
Postretirement				
Cash and Cash Equivalents	$ 5	$ 5	$ —	$ —
Equity Securities				
Large-Cap	24	—	24	—
Small-Cap	8	—	8	—
International - Developed	19	—	19	—
International - Emerging	12	—	12	—
Fixed Income Securities				
Government	20	—	20	—
Corporate/Other	56	—	56	—
Commodities	17	—	17	—
Real Estate	11	—	11	—
Total Plan Assets	$ 172	$ 5	$ 167	$ —

Asset Category	Total as of September 30, 2020	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	$ 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	$ —
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	$ —	$ —
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	$ —
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	$ —

* 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 Group 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 Group 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 Group's measurement date. The Group 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 and cash equivalents 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 Group and custodian review the methods used by the underlying managers to value the assets. The Group 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 Group 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, 2021 or 2020 or any Level 3 asset activity during fiscal 2021 or 2020.

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,	2021	2020	2021	2020	2021	2020
Accumulated Benefit Obligation	$ 2,629	$ 3,217	$ 2,540	$ 2,627	$ —	$ —
Change in Projected Benefit Obligation						
Projected benefit obligation at beginning of year	$ 3,217	$ 3,115	$ 2,726	$ 2,652	$ 146	$ 174
Service cost	—	—	27	25	1	1
Interest cost	47	67	32	36	2	4
Plan participant contributions	—	—	3	3	3	4
Other divestitures	—	—	—	(2)	—	—
Actuarial (gain) loss	(52)	298	(103)	7	(13)	(3)
Amendments made during the year	—	—	(6)	—	—	(13)
Benefits and settlements paid	(583)	(263)	(124)	(109)	(17)	(21)
Estimated subsidy received	—	—	—	—	—	1
Curtailment	—	—	(3)	(8)	—	—
Other	—	—	(2)	4	—	—
Currency translation adjustment	—	—	75	118	1	(1)
Projected benefit obligation at end of year	$ 2,629	$ 3,217	$ 2,625	$ 2,726	$ 123	$ 146
Change in Plan Assets						
Fair value of plan assets at beginning of year	$ 2,706	$ 2,736	$ 2,213	$ 2,098	$ 153	$ 163
Actual return on plan assets	333	228	125	75	30	4
Employer and employee contributions	3	5	65	56	6	7
Benefits paid	(108)	(112)	(79)	(73)	(17)	(21)
Settlement payments	(475)	(151)	(45)	(36)	—	—
Other	—	—	(1)	—	—	—
Currency translation adjustment	—	—	66	93	—	—
Fair value of plan assets at end of year	$ 2,459	$ 2,706	$ 2,344	$ 2,213	$ 172	$ 153
Funded status	$ (170)	$ (511)	$ (281)	$ (513)	$ 49	$ 7
Amounts recognized in the statement of financial position consist of:						
Prepaid benefit cost	$ 44	$ 32	$ 79	$ 29	$ 107	$ 78
Accrued benefit liability	(214)	(543)	(360)	(542)	(58)	(71)
Net amount recognized	$ (170)	$ (511)	$ (281)	$ (513)	$ 49	$ 7
Weighted Average Assumptions (1)						
Discount rate (2)	2.50 %	2.25 %	1.80 %	1.35 %	2.30 %	1.90 %
Rate of compensation increase	N/A	N/A	2.85 %	2.75 %	N/A	N/A
Interest crediting rate	N/A	N/A	1.45 %	1.50 %	N/A	N/A

(1) Plan assets and obligations are determined based on a September 30 measurement date at September 30, 2021 and 2020.

(2) The Group considers the expected benefit payments on a plan-by-plan basis when setting assumed discount rates. As a result, the Group 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 Group

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 Group consistently uses the relevant country specific benchmark indices for determining the various discount rates. The Group 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.

The fiscal 2021 net actuarial gains related to changes in the benefit obligation were the result of the increase in the discount rates globally. The fiscal 2020 net actuarial losses related to changes in the benefit obligation were primarily driven by the decrease in the U.S. discount rates.

Accumulated Other Comprehensive Income

The amounts in AOCI in the consolidated statement of financial position, exclusive of tax impacts, that have not yet been recognized as components of net periodic benefit credit at September 30, 2021 and 2020 related to pension and postretirement benefits are $8 million and $5 million, respectively.

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 statement of income (in millions):

	Pension Benefits					
	U.S. Plans		Non-U.S. Plans		Postretirement Benefits	
Year ended September 30,	2021	2020	2021	2020	2021	2020
Components of Net Periodic Benefit Cost (Credit):						
Service cost	$ —	$ —	$ 27	$ 25	$ 1	$ 1
Interest cost	47	67	32	36	2	4
Expected return on plan assets	(171)	(180)	(112)	(111)	(8)	(9)
Net actuarial (gain) loss	(214)	244	(115)	43	(35)	2
Amortization of prior service cost (credit)	—	—	1	1	(4)	(3)
Curtailment gain	—	—	(3)	(8)	—	—
Settlement (gain) loss	—	6	(1)	—	—	—
Special termination benefit cost	—	—	2	—	—	—
Net periodic benefit cost (credit)	(338)	137	(169)	(14)	(44)	(5)
Net periodic benefit cost related to discontinued operations	—	—	—	—	—	—
Net periodic benefit cost (credit) included in continuing operations	$ (338)	$ 137	$ (169)	$ (14)	$ (44)	$ (5)
Expense Assumptions:						
Discount rate	2.25 %	2.95 %	1.35 %	1.50 %	1.90 %	2.65 %
Expected return on plan assets	6.50 %	6.90 %	4.90 %	5.20 %	5.30 %	5.70 %
Rate of compensation increase	N/A	N/A	2.75 %	2.80 %	N/A	N/A
Interest crediting rate	N/A	N/A	1.50 %	1.50 %	N/A	N/A

17. 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 Group commits to various restructuring plans as necessary. Restructuring plans generally result in charges for workforce reductions, plant closures, asset impairments and other related costs which are reported as restructuring and impairment costs in the Group's consolidated statement of income. The other related costs consist primarily of consulting costs incurred as a direct result of the restructuring initiatives. The Group expects the restructuring actions to reduce cost of sales and SG&A due to reduced employee-related costs, depreciation and amortization expense.

In fiscal 2021, the Group committed to a significant restructuring plan ("2021 Plan"). During the year ended September 30, 2021, the Group recorded $242 million of restructuring and impairment costs in the consolidated statement of income. The total amount expected to be incurred for this restructuring plan is $385 million across all segments and at Corporate. Of the restructuring and impairment costs recorded in the year ended September 30, 2021, $91 million related to the Global Products segment, $70 million related to the Building Solutions North America segment, $29 million related to the Building Solutions EMEA/LA segment, $28 million related to the Building Solutions Asia Pacific segment and $24 million related to Corporate.

The following table summarizes the changes in the Group's 2021 Plan reserve, included primarily within current provisions in the consolidated statement of financial position (in millions):

	Employee Severance and Termination Benefits	Long-Lived Asset Impairments	Other	Total
Original reserve	$ 68	$ 98	$ 76	$ 242
Utilized—cash	(28)	—	(51)	(79)
Utilized—noncash	—	(98)	—	(98)
Balance at September 30, 2021	$ 40	$ —	$ 25	$ 65

In fiscal 2020, the Group committed to a significant restructuring plan ("2020 Plan") and recorded $297 million of restructuring and impairment costs in the consolidated statement 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 were substantially complete in fiscal 2021.

The following table summarizes the changes in the Group's 2020 Plan reserve, included within current provisions in the consolidated statement 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
Utilized—cash	(69)	—	(2)	(71)
Balance at September 30, 2021	$ 37	$ —	$ —	$ 37

Also included in restructuring and impairment costs in the consolidated statement 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 8, "Goodwill and Other Intangible Assets," of the notes to consolidated financial statements for further information regarding these impairments.

The Group's fiscal 2021 and 2020 restructuring plans included workforce reductions of approximately 10,000 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, 2021, approximately 7,800 of the employees have been separated from the Group pursuant to the restructuring plans.

Group 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.

18. IMPAIRMENT OF LONG-LIVED ASSETS

In fiscal 2021, the Group concluded it had triggering events requiring assessment of impairment for certain of its long-lived assets in conjunction with its restructuring actions announced in fiscal 2021. As a result, the Group reviewed the long-lived assets for impairment and recorded $98 million of asset impairment charges within restructuring and impairment costs in the consolidated statement of income. Of the total impairment charges, $50 million related to the Global Products segment, $33 million related to the Building Solutions North America segment, $6 million related to Corporate assets, $5 million related to the Building Solutions EMEA/LA segment and $4 million related to the Building Solutions Asia Pacific segment. Refer to Note 17, "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 Group 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 2020, the Group 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 Group performed a quantitative impairment analysis and determined there was no impairment of long-lived assets as of September 30, 2020.

In fiscal 2020, the Group 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 Group reviewed the long-lived assets for impairment and recorded $81 million of asset impairment charges within restructuring and impairment costs in the consolidated statement 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 Group 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 2020, the Group 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 Group recorded impairment charges of $15 million in fiscal 2020 within restructuring and impairment costs in the consolidated statement 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."

Refer to Note 17, "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 Group 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."

At September 30, 2021 and 2020, the Group concluded it did not have any other triggering events requiring assessment of impairment of its long-lived assets. Refer to Note 1, "Basis of Presentation and Summary of Significant Accounting Policies," and Note 8, "Goodwill and Other Intangible Assets," of the notes to consolidated financial statements for discussion of the Group’s goodwill and indefinite-lived intangibles impairment testing.

19. INCOME TAXES

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

	Year Ended September 30, 2021	Year Ended September 30, 2020
Tax expense at Ireland statutory rate	$ 327	$ 113
U.S. state income tax, net of federal benefit	34	8
Income subject to the U.S. federal tax rate	3	(92)
Income subject to rates different than the statutory rate	30	99
Reserve and valuation allowance adjustments	66	(70)
Intercompany intellectual property transfer	417	—
Restructuring and impairment costs	(9)	50
Income tax provision	$ 868	$ 108

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

For fiscal 2021, the effective tax rate for continuing operations was 33% and was higher than the statutory tax rate primarily due to the tax impacts of an intercompany transfer of certain of the Group's intellectual property rights, valuation allowance adjustments, the income tax effects of mark-to-market adjustments and tax rate differentials, partially offset by the benefits of continuing global tax planning initiatives.

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.

Valuation Allowances

The Group 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 Group's valuation allowances may be necessary.

In the fourth quarter of fiscal 2021, as a result of an intercompany transfer of certain of the Group's intellectual property rights, the Group determined that it is more likely than not that certain deferred tax assets of Switzerland would be realized, and it was more likely than not that certain deferred tax assets of Canada would not be realized. The valuation allowance adjustments resulted in a $39 million net benefit to income tax expense in the three month period ended September 30, 2021.

In the second quarter of fiscal 2021, due to changes in forecasted taxable income, the Group recorded a discrete tax charge of $105 million related to valuation allowances on certain Mexico deferred tax assets now considered unrealizable.

In the fourth quarter of fiscal 2020, the Group 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 Group 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.

Uncertain Tax Positions

The Group is subject to income taxes in the U.S. and numerous non-U.S. 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 Group's business, there are many transactions and calculations where the ultimate tax determination is uncertain. The Group is regularly under audit by tax authorities.

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

	Year Ended September 30,	
	2021	2020
Beginning balance, October 1	$ 2,528	$ 2,451
Additions for tax positions related to the current year	240	128
Additions for tax positions of prior years	33	129
Reductions for tax positions of prior years	(6)	(27)
Settlements with taxing authorities	(24)	(54)
Statute closings and audit resolutions	(45)	(99)
Ending balance, September 30	$ 2,726	$ 2,528

The amount of gross tax effected unrecognized tax benefits that, if recognized, would impact the effective tax rate was $2,268 million and $2,132 million as of September 30, 2021 and 2020, respectively. Total net accrued interest was approximately $252 million and $205 million (net of tax benefit) at September 30, 2021 and 2020, respectively.

During fiscal 2020, tax audit resolutions resulted in a $44 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 Group is currently under exam in the following major non-U.S. jurisdictions for continuing operations:

Tax Jurisdiction	Tax Years Covered
Belgium	2015 - 2020
China	2017 - 2019
Germany	2007 - 2018
Luxembourg	2017 - 2018
Mexico	2015 - 2020
United Kingdom	2014 - 2015, 2017 - 2018

It is reasonably possible that certain tax examinations and/or tax litigation will conclude within the next twelve months, which could have a material impact on tax expense. Based upon the circumstances surrounding these examinations, the impact is not currently quantifiable.

Other Tax Matters

In the fourth quarter of fiscal 2021, the Group completed an intercompany transfer of certain of the Group's intellectual property rights which resulted in a net tax charge of $417 million.

During fiscal 2021, the Group incurred charges for restructuring and impairment costs for continuing operations of $242 million. Refer to Note 17, "Significant Restructuring and Impairment Costs," and Note 18, "Impairment of Long-Lived Assets," of the notes to consolidated financial statements for additional information. These costs generated tax benefits of $39 million, which reflects the Group's current tax position in these jurisdictions.

During fiscal 2021 and 2020, the Group recorded mark-to-market gains (losses) of $402 million and $(274) million, respectively. These gains (losses) generated tax expense (benefit) of $93 million and $(65) million, respectively, which reflects the Group's current tax position in these jurisdictions.

During fiscal 2020, the Group incurred charges for restructuring and impairment costs for continuing operations of $783 million. Refer to Note 8, "Goodwill and Other Intangible Assets," Note 17, "Significant Restructuring and Impairment Costs," and Note 18, "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 Group's current tax position in these jurisdictions.

During fiscal 2020, the Group recorded transaction and integration costs for continuing operations of $135 million. These costs generated tax benefits of $18 million, which reflects the Group's current tax position in these jurisdictions.

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 Group 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 Group 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 Group on January 1, 2020. The impacts of the federal enactment did not have a material impact to the Group'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.

During the fiscal years ended 2021 and 2020, other tax legislation was adopted in various jurisdictions. These law changes did not have a material impact on the Group's consolidated financial statements.

Continuing Operations

Selected income tax data related to continuing operations were as follows (in millions):

	Year Ended September 30,	
	2021	2020
Components of income (loss) from continuing operations before income taxes:		
U.S.	$ 543	$ (385)
Non-U.S.	2,071	1,288
Income from continuing operations before income taxes	$ 2,614	$ 903
Components of the provision (benefit) for income taxes:		
Current		
U.S. federal	$ 459	$ 309
U.S. state	108	72
Non-U.S.	265	264
	832	645
Deferred		
U.S. federal	(7)	(382)
U.S. state	46	(43)
Non-U.S.	(3)	(112)
	36	(537)
Income tax provision	$ 868	$ 108
Income taxes paid (refunded)	$ 504	$ (386)

At September 30, 2021 and 2020, the Group recorded within the consolidated statement of financial position in other current assets approximately $120 million and $252 million, respectively, of income tax assets. At September 30, 2021 and 2020, the Group recorded within the consolidated statement of financial position in other current liabilities approximately $201 million and $243 million, respectively, of accrued income tax liabilities.

The Group has not provided U.S. or non-U.S. income taxes on approximately $22.8 billion of outside basis differences of consolidated subsidiaries of Johnson Controls International plc. The Group 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 Group'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 statement of financial position as follows (in millions):

	September 30,	
	2021	2020
Other noncurrent assets	$ 755	$ 836
Noncurrent provisions	(443)	(385)
Net deferred tax asset	$ 312	$ 451

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

	September 30,	
	2021	2020
Deferred tax assets		
Accrued expenses and reserves	$ 407	$ 448
Employee and retiree benefits	148	286
Property, plant and equipment	369	182
Net operating loss and other credit carryforwards	6,293	6,306
Research and development	42	112
Operating lease liabilities	334	304
Other, net	28	99
	7,621	7,737
Valuation allowances	(5,853)	(5,518)
	1,768	2,219
Deferred tax liabilities		
Subsidiaries, joint ventures and partnerships	346	730
Intangible assets	776	734
Operating lease right-of-use assets	334	304
	1,456	1,768
Net deferred tax asset	$ 312	$ 451

At September 30, 2021, the Group had available net operating loss carryforwards of approximately $23.7 billion, of which $13.2 billion will expire at various dates between 2022 and 2041, and the remainder has an indefinite carryforward period. The Group had available U.S. foreign tax credit carryforwards at September 30, 2021 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.

Deferred taxation activity for fiscal year 2021 is as follows:

At September 30, 2020	$	451
Provisions, net		(36)
Acquisitions		(115)
Currency translation and other		12
At September 30, 2021	$	312

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

Building Solutions EMEA/LA: Building Solutions EMEA/LA designs, sells, installs, and services HVAC, controls, building management, 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, building management, 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, manufactures and sells HVAC equipment, controls software and software services for residential and commercial applications to commercial, industrial, retail, residential, small business, institutional and governmental customers worldwide. In addition, Global Products designs, manufactures and sells refrigeration equipment and controls globally. The Global Products business also designs, manufactures and sells fire protection, fire suppression and security products, including intrusion security, anti-theft devices, access control, and video surveillance and management systems, for commercial, industrial, retail, residential, small business, institutional and governmental customers worldwide. Global Products includes the Johnson Controls-Hitachi joint venture.

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 Group’s reportable segments is as follows (in millions):

	Year Ended September 30,			
	2021		2020	
Net Sales				
Building Solutions North America	$	8,685	$	8,605
Building Solutions EMEA/LA		3,727		3,440
Building Solutions Asia Pacific		2,654		2,403
Global Products		8,602		7,869
Total net sales	$	23,668	$	22,317

	Year Ended September 30,	
	2021	2020
Segment EBITA		
Building Solutions North America (1)	$ 1,204	$ 1,157
Building Solutions EMEA/LA (2)	391	338
Building Solutions Asia Pacific (3)	349	319
Global Products (4)	1,441	1,134
Total segment EBITA	$ 3,385	$ 2,948
Amortization of intangible assets	(435)	(386)
Corporate expenses (5)	(290)	(371)
Net financing charges	(206)	(231)
Restructuring and impairment costs	(242)	(783)
Net mark-to-market adjustments	402	(274)
Income from continuing operations before income taxes	$ 2,614	$ 903

	September 30,	
	2021	2020
Assets		
Building Solutions North America (6)	$ 15,317	$ 15,215
Building Solutions EMEA/LA (7)	5,241	4,989
Building Solutions Asia Pacific (8)	2,783	2,720
Global Products (9)	15,328	13,882
	38,669	36,806
Assets held for sale	156	147
Unallocated	3,065	3,836
Total	$ 41,890	$ 40,789

	Year Ended September 30,	
	2021	2020
Depreciation/Amortization		
Building Solutions North America	$ 245	$ 233
Building Solutions EMEA/LA	103	102
Building Solutions Asia Pacific	25	24
Global Products	432	414
	805	773
Corporate	40	49
Continuing Operations	845	822
Discontinued Operations	—	—
Total	$ 845	$ 822

	Year Ended September 30, 2021	Year Ended September 30, 2020
Capital Expenditures		
Building Solutions North America	$ 87	$ 93
Building Solutions EMEA/LA	128	99
Building Solutions Asia Pacific	31	36
Global Products	265	191
	511	419
Corporate	41	24
Continuing Operations	552	443
Discontinued Operations	—	—
Total	$ 552	$ 443

(1) Building Solutions North America segment EBITA for the year ended September 30, 2021 and 2020 excludes $70 million and $520 million, respectively, of restructuring and impairment costs. For the year ended September 30, 2021, Building Solutions North America includes $5 million of equity income. 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, 2021 and 2020 excludes $29 million and $59 million, respectively, of restructuring and impairment costs. For the years ended September 30, 2021 and 2020, Building Solutions EMEA/LA segment EBITA includes $5 million and $6 million, respectively, of equity income.

(3) Building Solutions Asia Pacific segment EBITA for the year ended September 30, 2021 and 2020 excludes $28 million and $56 million, respectively, of restructuring and impairment costs. For the years ended September 30, 2021 and 2020, Building Solutions Asia Pacific segment EBITA includes $1 million and less than $1 million, respectively, of equity income.

(4) Global Products segment EBITA for the years ended September 30, 2021 and 2020 excludes $91 million and $143 million, respectively, of restructuring and impairment costs. For the years ended September 30, 2021 and 2020, Global Products segment EBITA includes $250 million and $166 million, respectively, of equity income.

(5) Corporate expenses for the year ended September 30, 2021 and 2020 excludes $24 million and $5 million, respectively, of restructuring and impairment costs.

(6) Buildings Solutions North America assets as of September 30, 2021 and 2020 include $8 million and $7 million, respectively, of investments in partially-owned affiliates.

(7) Building Solutions EMEA/LA assets as of September 30, 2021 and 2020 include $111 million and $108 million, respectively, of investments in partially-owned affiliates.

(8) Building Solutions Asia Pacific assets as of September 30, 2021 and 2020 include $2 million and $2 million, respectively, of investments in partially-owned affiliates.

(9) Global Products assets as of September 30, 2021 and 2020 include $945 million and $797 million, respectively, of investments in partially-owned affiliates.

In fiscal years 2021 and 2020, no customer exceeded 10% of consolidated net sales.

Geographic Segments

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

	Year Ended September 30,	
	2021	2020
Net Sales		
United States	$ 11,577	$ 11,371
Europe	4,069	3,523
Asia Pacific	5,748	5,285
Other Non-U.S.	2,274	2,138
Total	$ 23,668	$ 22,317
Long-Lived Assets (Year-end)		
United States	$ 1,638	$ 1,713
Europe	436	278
Asia Pacific	727	667
Other Non-U.S.	427	401
Total	$ 3,228	$ 3,059

In fiscal 2021, the Group changed the basis for the net sales attribution to geographic areas from the location of the assets producing the sales to the location where the sale originated to better align with the Group's business activities. The prior year amounts have been revised to conform to the current year presentation. Long-lived assets by geographic location consist of net property, plant and equipment.

21. 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 statement of financial position as of September 30, 2021 and 2020. Equity in the net income of nonconsolidated partially-owned affiliates is stated in the "Equity income" line in the consolidated statement of income for the years ended September 30, 2021 and 2020. None of the Group's nonconsolidated partially-owned affiliates were considered significant subsidiaries in fiscal 2021 or 2020.

22. GUARANTEES

Certain of the Group'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 Group's financial position, results of operations or cash flows.

The Group offers warranties to its customers depending upon the specific product and terms of the customer purchase agreement. A typical warranty program requires that the Group replace defective products within a specified time period from the date of sale. The Group 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 Group's warranty provisions are adjusted as necessary. The Group monitors its warranty activity and adjusts its reserve estimates when it is probable that future warranty costs will be different than those estimates.

The Group's product warranty liability for continuing operations is recorded in the consolidated statement 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 Group's total product warranty liability for continuing operations for the fiscal years ended September 30, 2021 and 2020 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,	
	2021	2020
Balance at beginning of period	$ 167	$ 156
Accruals for warranties issued during the period	91	71
Accruals related to pre-existing warranties	11	9
Settlements made (in cash or in kind) during the period	(77)	(71)
Currency translation	—	2
Balance at end of period	$ 192	$ 167

23. COMMITMENTS AND CONTINGENCIES

Environmental Matters

The Group 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, 2021, reserves for environmental liabilities for continuing operations totaled $102 million, of which $48 million was recorded within current provisions and $54 million was recorded within noncurrent provisions in the consolidated statement of financial position. Reserves for environmental liabilities for continuing operations totaled $130 million at September 30, 2020, of which $61 million was recorded within current provisions and $69 million was recorded within noncurrent provisions in the consolidated statement 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 fluoroalkyl 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 Group 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 Group 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 Group'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. On November 6, 2020, WDNR received further recommendations from WDHS regarding individual standards for 12 additional PFAS and a combined standard for four additional PFAS, PFOA, and PFOS.

In July 2019, the Group 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. In September 2021, the WDNR sent an additional "Notice of Noncompliance" to Tyco Fire Products and Johnson Controls, Inc. concerning land-applied biosolids, which reviewed and responded to the Group's biosolids investigation conducted to date. Tyco Fire Products responded to the WDNR's September 2021 notice by the December 27, 2021 deadline set by WDNR. Tyco Fire Products and Johnson Controls, Inc. believe that they have complied with all applicable environmental laws and regulations. The Group cannot predict what regulatory or enforcement actions, if any, might result from the WDNR's actions, or the consequences of any such actions.

In May 2021, as part of Tyco Fire Products' ongoing investigation and remediation program, WDNR approved Tyco Fire Products' proposed Groundwater Extraction and Treatment System ("GETS"), a permanent groundwater remediation system that will extract groundwater that contains PFAS, treat it using advanced filtration systems, and return the treated water to the environment. Tyco Fire Products has commenced construction on the GETS. Tyco Fire Products also has started the process of removing PFAS-affected soil from the FTC.

In December 2020, the Group received a notice from the Wisconsin Department of Justice ("WDOJ") that the WDOJ was considering a potential civil enforcement action against the Group relating to environmental matters at the FTC including, but not limited to, the investigation and remediation of PFAS at or near the FTC as discussed above and the Group's alleged failure to timely report the presence of PFAS chemicals at the FTC. Such enforcement action could seek civil monetary penalties and/or injunctive relief. The Group is presently unable to predict the duration, scope, or results of any potential civil enforcement action that may result, the consequences of any such action, or the nature of any resolution of these potential claims with the WDOJ.

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 in the third quarter of 2019 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 Group 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 Group 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 Group'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 Group's expectations with respect to future charges and cash outlays, and such changes could be material to the Group's future results of operations, financial condition or cash flows. Nevertheless, the Group does not currently believe that any claims, penalties or costs in addition to the amounts accrued will have a material adverse effect on the Group's financial position, results of operations or cash flows. In addition, the Group 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. The Group recorded conditional asset retirement obligations for continuing operations of $29 million at both September 30, 2021 and 2020.

Asbestos Matters

The Group 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, 2021, the Group's estimated asbestos-related net liability recorded on a discounted basis within the Group's consolidated statement of financial position was $80 million. The net liability within the consolidated statement of financial position was comprised of a liability for pending and future claims and related defense costs of $458 million, of which $58 million was recorded in current provisions and $400 million was recorded in noncurrent provisions. The Group also maintained separate cash, investments and receivables related to insurance recoveries within the consolidated statement of financial position of $378 million, of which $13 million was recorded in other current assets and $365 million was recorded in other noncurrent assets. Assets included $6 million of cash and $314 million of investments, which have all been designated as restricted. In connection with the recognition of liabilities for asbestos-related matters, the Group records asbestos-related insurance recoveries that are probable; the amount of such recoveries recorded at September 30, 2021 was $58 million.

As of September 30, 2020, the Group's estimated asbestos-related net liability recorded on a discounted basis within the Group's consolidated statement of financial position was $115 million. The net liability within the consolidated statement 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 current provisions and $434 million was recorded in noncurrent provisions. The Group also maintained separate cash, investments and receivables related to insurance recoveries within the consolidated statement 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 Group records asbestos-related insurance recoveries that are probable; the amount of such recoveries recorded at September 30, 2020 was $68 million.

The Group's estimate of the liability and corresponding insurance recovery for pending and future claims and defense costs is based on the Group'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 Group's reasonable best estimate of the actuarially determined time period through which asbestos-related claims will be paid by Group affiliates). Asbestos- related defense costs are included in the asbestos liability. The Group's legal strategy for resolving claims also impacts these estimates. The Group 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 paid through 2068. At least annually, the Group 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 Group considers additional quantitative and qualitative factors such as changes in legislation, the legal environment, and the Group's defense strategy. The Group also evaluates the recoverability of its insurance receivable on an annual basis. The Group 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 Group for asbestos-related liabilities and insurance-related assets are based on the Group'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 Group'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 Group'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 Group'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 Group's calculations vary significantly from actual results.

Insurable Liabilities

The Group 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, 2021 and

2020, the insurable liabilities totaled $325 million and $363 million, respectively, of which $77 million and $83 million was recorded within current provisions, $22 million and $22 million was recorded within accrued compensation and benefits, and $226 million and $258 million was recorded within noncurrent provisions in the consolidated statement of financial position, respectively. The Group records receivables from third party insurers when recovery has been determined to be probable. The amount of such receivables recorded at September 30, 2021 were $20 million, of which $5 million was recorded within other current assets and $15 million was recorded within other noncurrent assets, respectively. 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 Group maintains captive insurance companies to manage its insurable liabilities.

Aqueous Film-Forming Foam ("AFFF") Litigation

Two of the Group's subsidiaries, Chemguard and Tyco Fire Products, have been named, along with other defendant manufacturers, suppliers and distributors, and, in some cases, certain subsidiaries of the Group 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 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 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.

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 had initially 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. In March 2021, EPA published its final determination to regulate PFOS and PFOA in drinking water. The EPA also announced in January 2021 that it will issue an advance notice of proposed rulemaking to solicit public comment on whether the agency should take additional regulatory steps to address PFAS contamination, including designating PFOA and PFOS and other PFAS as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act and seeking comment on whether PFOA and PFOS and other PFAS should be subject to regulation as hazardous waste under the Resource Conservation and Recovery Act. The Agency reissued those actions in February 2021. 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.

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 32 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, Texas and South Dakota. All of these cases except one have been direct-filed in or transferred to the MDL.

AFFF Individual or Mass Actions

There are more than 1,800 individual or "mass" actions pending that were filed in state or federal court in various states including California, Colorado, New York, Pennsylvania, New Mexico, Missouri, Arizona, Texas, and South Carolina 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 plaintiffs from various states including approximately 7,000 plaintiffs in Colorado and more than 1,800 other plaintiffs.

The vast majority of these matters have been tagged for transfer to, transferred to, or directly-filed in the MDL, and it is anticipated that several newly filed state court actions will be similarly tagged and transferred. There are three matters that are proceeding in state court: One case, *Young v. Chemguard et al.*, was filed in superior court in Maricopa County, Arizona, removed to the United States District Court, District of Arizona, and tagged to the MDL, but was remanded to state court prior to being transferred to the MDL. The decision to remand the case to state court is currently being appealed. The second case, *Forbach et al. v. Chemguard et al.*, was filed in superior court in Coconino County, Arizona, and is proceeding with initial discovery. The third case, *Ellison-Wood v. Chemguard, Inc., et al.*, was filed recently in district court in Tarrant County, Texas.

AFFF Municipal Cases

Chemguard and Tyco Fire Products have been named as defendants in approximately 155 cases in federal and state courts involving municipal or water provider plaintiffs in Alaska, Alabama, Arizona, California, Colorado, Connecticut, Florida, Idaho, Illinois, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Virginia, Washington, West Virginia, Wisconsin, 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.

The Company has periodically been notified by other municipal entities that those entities may assert claims regarding PFOS and/or PFOA contamination allegedly resulting from the use of AFFF.

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 Group, 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 Group, 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 Group, 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 Group, 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 Group, 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 Group, 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 Group, 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 Group, 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 Group, 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 transferred to the MDL.

In December 2020, the State of Mississippi filed a lawsuit against a number of manufacturers and other defendants, including affiliates of the Group, with respect to PFOS and PFOA damage of the State's land and natural resources allegedly resulting from the use of firefighting foams at various locations throughout the State. This complaint was direct-filed in the MDL in South Carolina.

In April 2021, the State of Alaska filed a lawsuit in the superior court of the State of Alaska against a number of manufacturers and other defendants, including affiliates of the Group, with respect to PFOS and PFOA damage of the State's land and natural resources allegedly resulting from the use of firefighting foams at various locations throughout the State. The State's case has been removed to federal court and transferred to the MDL. The State of Alaska has also named a number of manufacturers and other defendants, including affiliates of the Group, as third-party defendants in two cases brought by individuals against the State. These two cases have also been transferred to the MDL.

In early November 2021, the Attorney General of the State of North Carolina filed four individual lawsuits in the superior courts of the State of North Carolina against a number of manufacturers and other defendants, including affiliates of the Group, with respect to PFOS and PFOA damage of the State's land, natural resources, and property allegedly resulting from the use of firefighting foams at four separate locations throughout the State. These four cases have been removed to federal court and transferred 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. On January 7, 2021, the parties agreed to settle the lawsuit. The court conducted a hearing regarding the proposed settlement in May 2021 and issued a final order approving an amended settlement agreement and dismissing the case with prejudice in August 2021. The final settlement provides that Tyco will pay up to $15 million to compensate Town of Peshtigo residents who live in the area affected by PFAS from the FTC for claims related to loss of real property value and/or exposure. The settlement does not constitute an admission of wrongdoing by Tyco or Chemguard.

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 Group, 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.

The Group 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 Group 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.

Other Matters

The Group 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 Group's financial position, results of operations or cash flows. Costs related to such matters were not material to the periods presented.

24. RELATED PARTY TRANSACTIONS

In the ordinary course of business, the Group 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, 2021 and 2020 (in millions):

	Year Ended September 30,	
	2021	2020
Net sales to related parties	$ 185	$ 194
Purchases from related parties	185	85

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

	September 30,	
	2021	2020
Receivable from related parties	$ 73	$ 48
Payable to related parties	45	11

Additionally, the Group leases certain facilities used in its operations from a related party. As of September 30, 2021, the right-of-use asset associated with these leases was $11 million and the lease liability was $10 million. Amounts paid for these leases were not material.

25. SUPPLEMENTAL BALANCE SHEET INFORMATION

As of September 30, 2021 and 2020, other current assets were comprised of (in millions):

	September 30,	
	2021	**2020**
Income tax asset (Note 19)	$ 120	$ 252
Non-income tax receivable	150	146
Derivative assets (Note 11)	34	29
Prepayments	211	184
Other	477	424
Other current assets	$ 992	$ 1,035

As of September 30, 2021 and 2020, other noncurrent assets were comprised of (in millions):

	September 30, 2021	September 30, 2020
Asbestos-related insurance receivables	$ 51	$ 56
Prepaid income taxes	304	302
Deferred income taxes (Note 19)	755	836
Prepaid retirement benefit (Note 16)	230	139
Financial assets (Note 26)	416	364
Equity swap (Note 11)	23	58
Operating lease right-of-use asset (Note 9)	1,376	1,190
Other	403	383
Other noncurrent assets	$ 3,558	$ 3,328

As of September 30, 2021 and 2020, other current liabilities were comprised of (in millions):

	September 30, 2021	September 30, 2020
Income taxes payable (Note 19)	$ 201	$ 243
Value-added taxes	55	100
Sales and use taxes	47	55
Other taxation	29	35
Dividends payable	192	189
Derivative liabilities (Note 11)	18	10
Accrued rebates	212	191
Operating lease liabilities (Note 9)	319	332
Other	832	692
Other current liabilities	$ 1,905	$ 1,847

Payroll taxes are recorded in the accrued compensation and benefits within the consolidated statement of financial position and were approximately $18 million and $59 million as of September 30, 2021 and 2020, respectively. Income taxes payable, sales and use taxes, payroll taxes and value added taxes are payable in the timeframe set in the relevant legislation.

Trade and other creditors are payable at various dates within a year after the end of the fiscal year in accordance with the creditors usual and customary credit terms.

As of September 30, 2021 and 2020, other noncurrent liabilities were comprised of (in millions):

	September 30, 2021	September 30, 2020
Income taxes payable	$ 317	$ 298
Deferred compensation	155	150
Operating lease liabilities (Note 9)	1,055	875
Other	549	510
Other noncurrent liabilities	$ 2,076	$ 1,833

26. FINANCIAL ASSETS

Financial assets are recorded in the investments in partially-owned affiliates and other noncurrent assets within the consolidated statement of financial position. The Group's activity for financial assets during fiscal year 2021 was as follows (in millions):

	Investments in Partially Owned Affiliates	Investments	Total
At September 30, 2020	$ 914	$ 364	$ 1,278
Income from equity investments	261	—	261
Dividends	(147)	—	(147)
Additions, including business acquisitions	3	76	79
Reductions, including business divestitures	—	(24)	(24)
Currency translation and other	35	—	35
At September 30, 2021	$ 1,066	$ 416	$ 1,482

27. PROVISIONS FOR LIABILITIES

As of September 30, 2021 and 2020, material provisions for liabilities were comprised of (in millions):

	September 30,	
	2021	2020
Pension and postretirement obligations (Note 16)	$ 632	$ 1,156
Deferred taxation and uncertain tax positions	2,982	2,668
Warranty reserves (Note 22)	192	167
Restructuring reserves (Note 17)	102	144
Other provisions (included below)	1,143	1,143
	$ 5,051	$ 5,278

Provisions for liabilities as of September 30, 2021 totaled $5,051 million, of which $594 million was recorded within current provisions and $4,457 million was recorded within noncurrent provisions in the consolidated statement of financial position. Provisions for liabilities as of September 30, 2020 totaled $5,278 million, of which $603 million was recorded within current provisions and $4,675 million was recorded within noncurrent provisions in the consolidated statement of financial position.

The activity in other provisions accounts for 2021 is as follows (in millions):

	Other Provisions	Environmental Reserves	Asset Retirement Obligation	Asbestos-Related and Insurable Liabilities	Total
At September 30, 2020	$ 138	$ 130	$ 29	$ 846	$ 1,143
Additions, including business acquisitions	120	12	2	107	241
Reductions, including business divestitures	(25)	(40)	(2)	(170)	(237)
Currency translation and other	(4)	—	—	—	(4)
At September 30, 2021	$ 229	$ 102	$ 29	$ 783	$ 1,143

28. DIRECTORS' REMUNERATION

Group's directors' remuneration for fiscal years 2021 and 2020 is set forth in the table below.

George Oliver, the Group's Chief Executive Officer and the Chairman of the Board has not been compensated for his service as director. Accordingly, the amounts below include compensation for Mr. Oliver's service as Chairman and Chief Executive Officer as well as compensation for all Group non-employee directors in their capacities as such ($ in millions):

	Year Ended September 30,	
	2021	2020
Emoluments paid for qualifying services	$ 7	$ 5
Benefits under long-term incentive schemes	13	7
Gain on exercise of share options	23	9
Other (1)	—	1
	$ 43	$ 22

(1) Amounts include reimbursements with respect to personal use of the Group aircraft, personal use of a vehicle, and retirement plan matching contributions. Retirement plan matching contributions, which are benefiting one director, totaled $0.2 million and $0.5 million for fiscal years 2021 and 2020, respectively.

29. AUDITORS' REMUNERATION

Auditors' remuneration to PricewaterhouseCoopers Ireland for fiscal years 2021 and 2020 included $1.5 million and $0.7 million of audit fees, respectively.

Auditors' remuneration to PricewaterhouseCoopers Ireland and its affiliates for fiscal years 2021 and 2020 was as follows ($ in millions):

	Year Ended September 30,	
	2021	2020
Audit fees	$ 22	$ 22
Audit related fees	1	1
Tax fees	3	3
All other fees	1	—
	$ 27	$ 26

See Note 5, "Auditors' Remuneration," of the notes to company financial statements for the Company's auditors' remuneration.

30. EMPLOYEES

The average number of persons, including executive directors, employed by the Group during the years ended September 30, 2021 and 2020 was as follows (in thousands):

	Year Ended September 30,	
	2021	2020
North America	28	30
EMEA LA	19	20
Asia Pacific	9	9
Global Products	36	38
Corporate	6	6
Total employees	98	103

Total employee costs expensed during the period consist of the following ($ in millions):

	Year Ended September 30,	
	2021	2020
Wages, salaries and fringe benefits	$ 6,040	$ 5,813
Social insurance costs	298	274
Stock based compensation	97	66
Other compensation costs	(483)	178
	$ 5,952	$ 6,331

Other retirement benefit costs (credits) included above were $(433) million and $222 million for the years ended September 30, 2021 and 2020, respectively. Refer to Note 16, "Retirement Plans," of the notes to consolidated financial statements for further information on the retirement plans.

In addition, employee costs of $1.0 billion were capitalized into inventories, intangible assets and property, plant & equipment - net during September 30, 2021 and September 30, 2020.

31. SUBSIDIARY UNDERTAKINGS

In accordance with section 316 (1) of the Act, the related undertakings that have been included below are restricted to significant subsidiaries as of September 30, 2021. The remaining entities are annexed to the annual return of the Group.

Name	**Nature of Business**	**Group Ordinary Share %**	**Registered Office and Country of Incorporation**
Johnson Controls Fire Protection LP	Building Technologies & Solutions	100%	c/o The Corporation Trust Company, 1209 Orange Street, Wilmington, Delaware, United States, 19801
Johnson Controls Security Solutions LLC	Holding Entity	100%	c/o The Corporation Trust Company, 1209 Orange Street, Wilmington, Delaware, United States, 19801
Johnson Controls, Inc.	Corporate	100%	c/o CT Corporation System, 301 S. Bedford Street, Suite 1, Madison, Wisconsin, United States, 53703

JOHNSON CONTROLS INTERNATIONAL PLC

Company Financial Statements

For the Year Ended September 30, 2021

JOHNSON CONTROLS INTERNATIONAL PLC

COMPANY BALANCE SHEET

(in millions)

		September 30,	
	Note	2021	2020
Fixed assets			
Financial assets	2	$ 33,327	$ 34,007
		33,327	34,007
Current assets			
Debtors	6	524	676
Cash at bank and in hand		—	5
		524	681
Creditors (amounts falling due within one year)	7	(2,933)	(3,432)
Net current liabilities		(2,409)	(2,751)
Total assets less current liabilities		30,918	31,256
Creditors (amounts falling due after more than one year)	8	(8,557)	(6,932)
Net assets		$ 22,361	$ 24,324
Capital and reserves			
Called-up share capital presented as equity	11	$ 7	$ 8
Share premium account	11	675	433
Profit and loss account	11	21,157	23,437
Share-based compensation reserve	11	522	446
Equity shareholders' funds		$ 22,361	$ 24,324

The Company’s loss for financial years 2021 and 2020 as determined in accordance with FRS 102 was $176 million and $713 million, respectively.

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

Approved by the Board of Directors on January 20, 2022 and signed on its behalf by:

/s/ George R. Oliver
George R. Oliver
Chairman and Chief Executive Officer

/s/ Gretchen R. Haggerty
Gretchen R. Haggerty
Director

JOHNSON CONTROLS INTERNATIONAL PLC

COMPANY STATEMENT OF CHANGES IN EQUITY

(in millions)

	Ordinary Share Number	Called-up Share Capital	Share Premium Account	Profit and Loss Account	Share-based Compensation Reserve	Equity Shareholders' Funds
Balance as of September 30, 2019	804	$ 8	$ 331	$ 27,162	$ 385	$ 27,886
Loss for the year	—	—	—	(713)	—	(713)
Dividends declared	—	—	—	(779)	—	(779)
Share vestings and option exercises	5	—	102	—	—	102
Share-based compensation	—	—	—	—	61	61
Repurchase and cancellation of ordinary shares	(55)	—	—	(2,204)	—	(2,204)
Other	—	—	—	(29)	—	(29)
Balance as of September 30, 2020	754	8	433	23,437	446	24,324
Loss for the year	—	—	—	(176)	—	(176)
Dividends declared	—	—	—	(770)	—	(770)
Share vestings and option exercises	7	—	242	—	—	242
Share-based compensation	—	—	—	—	76	76
Repurchase and cancellation of ordinary shares	(24)	(1)	—	(1,307)	—	(1,308)
Other	—	—	—	(27)	—	(27)
Balance as of September 30, 2021	**737**	**$ 7**	**$ 675**	**$ 21,157**	**$ 522**	**$ 22,361**

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

NOTES TO THE COMPANY FINANCIAL STATEMENTS

1. Basis of Preparation and Summary of Significant Accounting Policies

On September 2, 2016 (the "Merger date"), Johnson Controls Inc. ("JCI Inc.") organized under the laws of United States of America, reverse merged into Tyco International plc (the "Merger"). The Irish public limited company is now known as Johnson Controls International plc ("JCI plc"), registered at One Albert Quay, Cork, domiciled in Ireland, and incorporated under the laws of Ireland under registered number 543654 as a result of this reverse merger. Johnson Controls International plc and all its subsidiaries are hereinafter collectively referred to as the "Group" or "Johnson Controls."

The accompanying financial statements have been prepared in United States dollars ("USD") and reflect the operations of Johnson Controls International plc ("we," "us," "our," "plc," "JCI plc" or "the Company").

Financial Year - The Company's financial year end is September 30 of each year.

Statement of Compliance - The entity financial statements have been prepared on a going concern basis and in accordance with accounting standards issued by the UK Financial Reporting Council and the Companies Act 2014. The entity financial statements comply with Financial Reporting Standard 102, The Financial Reporting Standard applicable in the UK and Republic of Ireland ("FRS 102").

Basis of Preparation - The entity financial statements have been prepared under the historical cost convention. The preparation of financial statements in conformity with FRS 102 requires the use of certain key assumptions concerning the future, and other key sources of estimation uncertainty at the reporting date. It also requires the directors to exercise judgment in the process of applying the Company's accounting policies. The areas involving a higher degree of judgment or areas where assumptions and estimates have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are disclosed in this Note in the following paragraph "Use of Estimates."

Corresponding Amounts - Certain corresponding amounts have been adjusted so they are directly comparable with the amounts shown in respect of the current fiscal year.

Foreign currency - Functional and presentation currency - The Company's functional and presentation currency is the U.S. dollar ("USD"), denominated by the symbol "$" and unless otherwise stated, the financial statements have been presented in millions.

Foreign currency - Transactions and balances - Foreign currency transactions, including settlements of debtors and creditors, are translated into the functional currency using the prior month-end exchange rates at the dates of the transactions. Foreign currency monetary items are revalued to USD using the month-end exchange rate. Non-monetary items measured at historical cost are revalued using the exchange rate at the date of the transaction and non-monetary items measured at fair value are measured using the exchange rate when fair value was determined. Foreign exchange gains and losses resulting from the settlement of transactions and from the revaluation at period-end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognized in the profit and loss account, including the revaluation of intercompany permanent loans and foreign currency denominated debt.

Cash at Bank and in Hand - The Company considers all highly liquid investments purchased with maturities of three months or less from the time of purchase to be cash equivalents. Negative cash balances are reclassified to short term debt.

Share-Based Payment Accounting - The Company has applied the requirements of FRS 102 Share-Based Payment in accounting for all stock based compensation. Consequently, the measurement and recognition of compensation expense for all share-based payment awards made to employees and directors is based on estimated fair values. The Company issues equity-settled share-based payments to certain employees of its subsidiaries. Equity-settled share-based payments are measured at fair value at the date of grant and recognized over the vesting period, based on the Company's estimate of the shares that will eventually vest and adjusted for the effect of non-market-based vesting conditions. Since the Company grants its shares directly to employees of its subsidiaries, it accounts for share-based compensation payment as a capital contribution with an increase in the investment in the subsidiaries. The share-based compensation payment is recharged by the Company to its subsidiaries. The share based payment recharge to subsidiaries for the awards granted prior to the Tyco merger on September 2, 2016 is recorded to the share premium account on the Company balance sheet. The share based payment recharge to subsidiaries for the awards granted post the Tyco merger on September 2, 2016 is recorded to the financial asset account on the Company balance sheet. Amounts recharged to subsidiaries for JCI plc options in excess of the original capital contribution are recognized in the profit and loss account.

Contingencies - Contingent liabilities, arising as a result of past events, are not recognized as a liability because it is not probable that the Company will be required to transfer economic benefits in settlement of the obligation or the amount cannot be reliably measured at the end of the financial year. Possible but uncertain obligations are not recognized as liabilities but are contingent liabilities. Contingent liabilities are disclosed in the financial statements unless the probability of an outflow of resources is remote. Contingent assets are not recognized. Contingent assets are disclosed in the financial statements when an inflow of economic benefits is probable.

Financial Instruments - The Company has chosen to apply the provisions of Sections 11 and 12 of FRS 102 to account for all of its financial instruments.

Financial Assets - Basic financial assets, including cash and cash equivalents and short-term deposits, are initially recognized at transaction price (including transaction costs).

Cash and cash equivalents and financial assets from arrangements which constitute financing transactions are subsequently measured at amortized cost using the effective interest method.

At the end of each financial year, financial assets measured at amortized cost are assessed for objective evidence of impairment. If there is objective evidence that a financial asset measured at amortized cost is impaired, an impairment loss is recognized in profit or loss. The impairment loss is the difference between the financial asset's carrying amount and the present value of the financial asset's estimated cash inflows discounted at the asset's original effective interest rate.

If, in a subsequent financial year, the amount of an impairment loss decreases and the decrease can be objectively related to an event occurring after the impairment was recognized the previously recognized impairment loss is reversed. The reversal is such that the current carrying amount does not exceed what the carrying amount would have been had the impairment loss not previously been recognized. The impairment reversal is recognized in profit or loss.

Financial assets are derecognized when (a) the contractual rights to the cash flows from the asset expire or are settled, or (b) substantially all of the risks and rewards of ownership of the financial asset are transferred to another party or (c) control of the financial asset has been transferred to another party who has the practical ability to unilaterally sell the financial asset to an unrelated third party without imposing additional restrictions.

Certain other financial assets are initially measured at fair value, which is normally the transaction price. Such financial assets are subsequently measured at fair value and the changes in fair value are recognized in profit or loss.

Impairment of Financial Assets - The Company monitors the carrying value of financial assets, using judgment on the future cash flows to be generated from each acquisition, synergy benefits arising and the interest rate to be used to discount future cash flows. The carrying value of financial assets is assessed for impairment based on the presence of impairment indicators - where events or changes in circumstances indicate that the carrying amount may not be recoverable. Any shortfall in the carrying value (as compared to the lower of value in use and net realizable value) is recorded as an impairment charge.

Financial Liabilities - Basic financial liabilities, including bank loans and amounts due to subsidiary undertakings, are initially recognized at transaction price, unless the arrangement constitutes a financing transaction. Where the arrangement constitutes a financing transaction, the resulting financial liability is initially measured at the present value of the future payments discounted at a market rate of interest for a similar debt instrument. Bank loans, amounts due to subsidiary undertakings, and financial liabilities from arrangements which constitute financing transactions are subsequently carried at amortized cost, using the effective interest method. Financial liabilities are derecognized when the liability is extinguished, that is when the contractual obligation is discharged, canceled or expired.

Taxation - Current Tax - Current tax is the amount of income tax payable in respect of the taxable profit for the financial year or past financial years. Current tax is measured as the amount of current tax that is expected to be paid using tax rates and laws that have been enacted or substantively enacted by the end of the financial year.

Taxation - Deferred Tax - Deferred tax is recognized in respect of timing differences, which are differences between taxable profits and total comprehensive income as stated in the financial statements. These timing differences arise from the inclusion of income and expenses in tax assessments in financial years different from those in which they are recognized in financial statements. Deferred tax is recognized on all timing differences at the end of each financial year with certain exceptions. Unrelieved tax losses and other deferred tax assets are recognized only when it is probable that they will be recovered against the reversal of deferred tax liabilities or other future taxable profits. Deferred tax is measured using tax rates and laws that have been enacted or substantively enacted by the end of each financial year and that are expected to apply to the reversal of the timing difference.

Share Capital Presented as Equity - Equity shares issued are recognized at the proceeds received and presented as share capital and share premium. Incremental costs directly attributable to the issue of new equity shares or options are shown in equity as a deduction, net of tax, from the proceeds.

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 Group's financial condition and results of operations, the capital requirements of the Group's businesses, industry practice and any other relevant factors. Dividends may only be declared and paid out of the profits available for distribution ("distributable reserves") in accordance with accounting practice generally accepted in Ireland and applicable Irish Company Law. See the Company Statement of Changes in Equity. Any dividends, if and when declared, are expected to be declared and paid in USD.

Treasury Shares - These are Company owned shares following the share repurchase program approved by the Board of Directors and the repurchase from employees who have sold a portion of their vested restricted units to cover withheld taxes.

Going Concern - As the Company's operational existence relies on the activities of the Company and its subsidiaries as a group (collectively, the "Group"), a going concern assessment performed at the Group level was deemed relevant to support the Company's ability to continue as a going concern. The Company's Board of Directors formed a judgment at the time of approving these financial statements that there was a reasonable expectation that the Company has adequate resources to continue in operational existence for the next twelve months. In arriving at this conclusion, the Company's Board of Directors took account of current and anticipated uncertainties driven by the COVID-19 pandemic (as described in greater detail under the heading "Going Concern" on page 36 of the Directors' Report and in the accounting policies in Note 1, "Basis of Presentation and Summary of Significant Accounting Policies," of the notes to the consolidated financial statements) in its going concern assessment and believed that these uncertainties would not have a material impact on the Company's ability to continue as a going concern. For this reason, the going concern basis continues to be adopted in the preparation of the Company's financial statements.

Disclosure Exemptions for Qualifying Entities under FRS 102 - FRS 102 allows a qualifying entity to avail of certain disclosure exemptions. The Company has taken advantage of the below exemptions for qualifying entities. These exemptions are:

(i) the requirement to prepare a statement of cash flows. [Section 7 of FRS 102 and paragraph 3 17(d)]

(ii) certain financial instrument disclosures providing equivalent disclosures are included in the consolidated financial statements of the Group in which the entity is consolidated. [FRS 102 paragraph 11.39-11 48A, 12.26 - 12.29]

(iii) certain disclosure requirements of Section 26 in respect of share-based payments provided that (a) for a subsidiary, the share-based payment concerns equity instruments of another group entity; or (b) for an ultimate parent, the share-based payment concerns its own equity instruments and its separate financial statements are presented alongside the consolidated financial statements of the group; and in both cases, the equivalent disclosures are included in the consolidated financial statements of the group in which the entity is consolidated. [FRS 102 paragraph 26.18(b), 26.19 - 26.21, 26.23]

(iv) related party disclosures related to key management services provided by a separate management entity. [paragraph 18A of ISA24]

Critical Accounting Estimates and Judgments

Use of Estimates - Estimates and judgments are required when applying accounting policies. These are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. The Company makes estimates and assumptions concerning the future, which can involve a high degree of judgment or complexity. The resulting accounting estimates will, by definition, seldom equal the related actual results. The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are addressed below.

Investment in Subsidiary Undertakings - Investment in subsidiary undertakings is recorded at cost. This is the Company's cost basis for its investment in its subsidiary undertakings. The Company periodically evaluates whether current facts or circumstances indicate that the carrying values of its investment in subsidiary undertakings may not be recoverable. If such circumstances are determined to exist, an estimate of the recoverable amount is compared to the carrying value to determine whether an impairment exists. If the asset is determined to be impaired, the loss is measured based on the difference between the asset's recoverable amount and its carrying value. There were no circumstances or indicators suggesting impairment of the Company's investment in subsidiary undertakings in either the current or prior financial years.

2. Financial Fixed Assets

Financial fixed assets included on the Company balance sheet as of September 30, 2021 and 2020 were as follows ($ in millions):

	Investments in Subsidiaries
As of September 30, 2020	$ 34,007
Additions	76
Disposals and reductions	(756)
As of September 30, 2021	33,327

In September 2021, JSV Holding Sarl redeemed 61,204 of shares to the Company by distributing cash of $700 million.

The Company grants its shares directly to employees of its subsidiaries and accounts for share-based compensation payment as a capital contribution with an increase in the investment in the subsidiaries. The share-based compensation payment recognized in financial year 2021 was $76 million. The share-based payment recharged to subsidiaries for stock option exercises and restricted stock unit vesting of awards granted after the Tyco merger date that were initially recognized as a financial asset was $56 million.

The following schedule summarizes the Company's significant directly owned investments as of September 30, 2021:

Company	Registered Office Address	Country	Type	Ordinary Share Ownership %	Date of Acquisition
Tyco Fire & Security Finance SCA ("TFSCA")	29 avenue de la Porte Neuve, Luxembourg, Luxembourg (fr), Luxembourg, 2227	Luxembourg	Holding co.	99.924 (1)	August 2014
Tyco Fire & Security S.a.r.l	29 avenue de la Porte Neuve, Luxembourg, Luxembourg (fr), Luxembourg, 2227	Luxembourg	Holding co.	100	August 2014
JSV Holding S.a.r.l.	29 avenue de la Porte Neuve, Luxembourg, Luxembourg (fr), Luxembourg, 2227	Luxembourg	Holding co.	81.85	October 2016
Global Risk Underwriters (Bermuda) Ltd.	Clarendon House, 2 Church Street, Hamilton, Bermuda	Bermuda	Holding co.	100	September 2017
Johnson Controls International Finance Unlimited Company	One Albert Quay, Cork, Cork, Ireland	Ireland	Holding co.	100	December 2017
Johnson Controls Asia Investment Unlimited Company	One Albert Quay, Cork, Cork, Ireland	Ireland	Holding co.	100	September 2018
World Services Inc.	Ocean Centre, Montagu Foreshore East Bay Street, PO Box SS-19084, New Providence, Nassau, Bahamas	Bahamas	Holding co.	100	September 2019
Tyco Finance Corp	1209 Orange Street, Wilmington, Delaware 19801	United States	Holding co.	100	September 2020

(1) JCI plc holds common shares in TFSCA, registered at 29 Av Porte Neuve, L-2227 Luxembourg. It holds 49,999 shares directly and 2 common share indirectly through Tyco Fire & Security S.a.r.l ("TFSsarl") registered at the same address.

3. Guarantees and Contingencies

As of September 30, 2021 and 2020, JCI plc had parent guarantees of approximately $6.8 billion and $8.5 billion, respectively, which were primarily comprised of guarantees of subsidiaries' debt, credit facilities and lease obligations.

In September 2021, JCI plc and 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") jointly issued $500 million of sustainability-linked bonds with an initial interest rate of 2.0%, which are due in 2031. Beginning in March 2026, the interest rate payable on the note will be increased by an additional 12.5 basis points per annum if the Scope 1 and Scope 2 emissions sustainability performance target is not met and an additional 12.5 basis points per annum if the Scope 3 emissions sustainability performance target is not met.

In September 2020, JCI plc and TFSCA jointly issued $625 million aggregate principal amount of their 1.750% Senior Notes due 2030, €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.

TFSCA is a wholly-owned consolidated subsidiary of the company that is 99.924% owned directly by JCI plc and 0.076% owned by TFSCA's sole general partner and manager, Tyco Fire & Security S.à r.l.. The bonds and senior notes are JCI plc's and TFSCA's unsecured, unsubordinated obligations. As TFSCA recognized the proceeds of the debt issuances, it is considered the primary obligor for the related liabilities which are recognized in TFSCA's financial statements with JCI plc acting in substance as a guarantor.

4. Directors' Remuneration

Refer to Note 28, "Directors' Remuneration," of the notes to consolidated financial statements for details of directors' remuneration paid by the Company and Group.

5. Auditors' Remuneration

Auditors' remuneration was as follows ($ in millions):

	2021	2020
Audit of individual accounts	$ 0.1	$ 0.1

Amounts for financial year 2021 represent estimated fees and expenses. See Note 29 "Auditors' Remuneration," of the consolidated financial statements for details of fees for the Group.

6. Debtors

Debtors included on the Company Balance Sheet as of September 30, 2021 and 2020 were as follows ($ in millions):

	2021	2020
Amounts falling due within one year:		
Amounts due from subsidiary undertakings	$ 478	$ 592
Other debtors and prepayments	23	26
	501	618
Amounts falling due after one year:		
Equity swap (fair value)	23	58
	$ 524	**$ 676**

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.

7. Creditors (amounts falling due within one year)

Creditors (amounts falling due within one year) included on the Company Balance Sheet as of September 30, 2021 and 2020 were as follows ($ in millions):

	2021	2020
Amounts due to subsidiary undertakings		
World Services Inc. loan, interest free, payable on demand	$ 752	$ 1,152
Other	371	463
	1,123	1,615
Amounts owed to credit institutions		
Bank overdraft	1,351	1,375
Other	—	5
	1,351	1,380
Current portion of long-term debt	223	205
Accrued dividends	192	189
Other accruals	44	43
	$ 2,933	**$ 3,432**

Other amounts due to subsidiary undertakings are payable at various dates after the financial year end in accordance with Group's usual intercompany payment terms.

The Company had no commercial paper outstanding as of September 30, 2021 and 2020.

8. Creditors (amounts falling due after more than one year)

As of September 30, 2021 and 2020, creditors (amounts falling due after more than one year) were comprised of ($ in millions):

	2021	2020
Amounts falling due after more than one year:		
Amounts due to subsidiary undertakings	$ 3,560	$ 1,456
Long-term debt	4,997	5,476
	$ 8,557	**$ 6,932**

The amount due to subsidiary undertakings as of September 30, 2021 consisted of $1,460 million of unsecured, 1.05% interest-bearing loans to Obsidian Luxembourg Holding S.a.r.l, maturing on June 9, 2025 and $2,100 million of unsecured, 1.52% interest-bearing loans to Tyco Technology GmbH, maturing on January 28, 2026.

The amount due to subsidiary undertakings as of September 30, 2020 consisted of $1,456 million of unsecured, 1.05% interest-bearing loans to Obsidian HCM Med Holdings Ireland Unlimited Company, maturing on May 31, 2022. In December 2020, Obsidian HCM Med Holdings Ireland Unlimited Company contributed its loan receivable from the Company to Obsidian Luxembourg Holding S.a.r.l.

Long-term debt as of September 30, 2021 and 2020 was as follows ($ in millions; due dates by fiscal year):

	September 30,	
	2021	2020
Unsecured notes:		
4.25% due in 2021 ($204 million par value)	$ —	$ 205
3.75% due in 2022 ($171 million par value)	—	172
0.40% due in 2022 (JPY 25,000 million par value)	223	237
4.625% due in 2023 ($25 million par value)	25	25
1.00% due in 2023 (EUR 846 million par value)	979	1,038
3.625% due in 2024 ($453 million par value)	454	454
1.375% due in 2025 (EUR 423 million par value)	495	501
3.90% due in 2026 ($487 million par value)	489	490
6.00% due in 2036 ($342 million par value)	375	377
5.70% due in 2041 ($190 million par value)	210	211
5.25% due in 2042 ($155 million par value)	164	164
4.625% due in 2044 ($444 million par value)	435	435
5.125% due in 2045 ($477 million par value)	501	502
6.95% due in 2046 ($32 million par value)	42	42
4.50% due in 2047 ($500 million par value)	496	496
4.95% due in 2064 ($341 million par value)	332	332
Gross long-term debt	5,220	5,681
Less: current portion	223	205
Net long-term debt	**$ 4,997**	**$ 5,476**

During financial year 2021, the Company repaid $171 million in principal amount, plus accrued interest, of 3.75% notes due in December 2021, $204 million in principal amount, plus accrued interest, of 4.25% notes due in March 2021 and EUR 43 million in principal amount, plus accrued interest, of 1.0% fixed rate notes due in September 2023.

9. Related Party Transactions

The Company has availed of the exemption provided in FRS 102 Section 33, for disclosure of transactions with subsidiary undertakings, 100% of whose voting rights are controlled within the Group. Consequently, the financial statements do not contain disclosures of transactions with other related entities in the Group. During financial years 2021 and 2020, only transactions with subsidiaries which are fully owned have occurred.

10. Subsidiary Undertakings

Refer to Note 2, "Financial Assets," of the notes to Company financial statements.

11. Capital and Reserves

Called-up share capital is the number of issued ordinary shares of JCI plc. The par value of each ordinary share is $0.01.

The share premium account reflects the fair value of consideration received in excess of the par value of shares issued for stock option exercises, vesting of restricted stock units and other issuances of shares, including the consideration received from the subsidiaries for the issuance of stock for stock option exercises and vesting of restricted stock units for awards granted prior to the Merger date. In accordance with the requirements of FRS 102, the share-based payment recharge to subsidiaries for the awards granted post the Tyco Merger on September 2, 2016 is recorded as a reduction to the financial asset account. This treatment could differ from the legal substance of the transaction, which from a legal perspective may represent share premium.

The profit and loss account refers to the portion of net income which is retained by the Company rather than being distributed to shareholders as dividends. Treasury shares are accounted for in this account. The balance of these self owned shares as of September 30, 2021 and 2020 was $1,152 million and $1,119 million, respectively.

The share-based compensation reserve arises upon the granting of shares under the stock based compensation plan. The balance of this reserve as of September 30, 2021 and 2020 was $522 million and $446 million, respectively.

12. Dividends

Dividends of $762 million and $790 million were paid to external shareholders during financial years 2021 and 2020, respectively. As of September 30, 2021, there were $192 million of outstanding dividends declared. As of September 30, 2020, there were $189 million of outstanding dividends declared.

13. Loss Attributable to JCI plc

In accordance with Section 304(2) of the Companies Act 2014, the Company is availing of the exemption provided from presenting and filing its individual Profit and Loss Account.

14. Subsequent Events

Subsequent events have been evaluated through January 20, 2022, the date this report was approved by the Board of Directors. There were no subsequent events that would materially impact the Company's financial statements since the balance sheet, other than those noted in Note 10, "Debt and Financing Arrangements" and Note 23, "Commitments and Contingencies," of the notes to consolidated financial statements.

15. Approval of Financial Statements

The financial statements were approved and authorized for issue by the Board of Directors on January 20, 2022 and were signed on its behalf on that date.