JOHNSON CONTROLS INTERNATIONAL PLC

Annual Report

For the Year Ended September 30, 2018

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JOHNSON CONTROLS INTERNATIONAL PLC
DIRECTORS' REPORT
For the Financial Year Ended September 30, 2018

The directors present their report and the audited consolidated financial statements for the financial year ended September 30, 2018, which are set out on pages 45 to 120, and audited parent company financial statements for the financial year ended September 30, 2018, which are set out on pages 121 to 132.

The directors have elected to prepare the consolidated financial statements of Johnson Controls International plc and its subsidiaries (hereinafter referred to as "Johnson Controls" or 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 Johnson Controls International plc parent company ("Johnson Controls Ireland" or "Parent 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 Parent Company's compliance with its relevant obligations.

The directors confirm that the Parent Company has:

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

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

3. Conducted a review during the financial year ended September 30, 2018 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 giving a true and fair view of the Group's assets, liabilities and financial position at the end of the financial year and the profit or loss of the Group for the financial year. Under that law the directors have prepared the 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 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 judgements and estimates that are reasonable and prudent;
- state whether the financial statements have been prepared in accordance with applicable accounting standards and identify the standards in question, subject to any material departures from those standards being disclosed and explained in the notes to the financial statements; and
- prepare the financial statements on a going concern basis unless it is inappropriate to presume that the Group 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 Group;
- enable, at any time, the assets, liabilities, financial position and profit or loss of the Group 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 Group 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 Group's website. Legislation in Ireland governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

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 2018 and 2017 are to Johnson Control's financial years ending September 30, 2018 ("fiscal 2018") and 2017 ("fiscal 2017"), respectively.

PRINCIPAL ACTIVITIES

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 creates intelligent buildings, efficient energy solutions, integrated infrastructure and next generation transportation systems that work seamlessly together to deliver on the promise of smart cities and communities. The Group is committed to helping our customers win and creating greater value for all of its stakeholders through strategic focus on our buildings and energy growth platforms.

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 1978, the Group acquired Globe-Union, Inc., a Wisconsin-based manufacturer of automotive batteries for both the replacement and original equipment markets. The Group entered the automotive seating industry in 1985 with the acquisition of Michigan-based Hoover Universal, Inc. 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. ("ADTi"), one of the largest independent providers of air distribution and ventilation products in North America. On October 1, 2015, the Group formed a joint venture with Hitachi to expand its building related product offerings.

In the fourth quarter of fiscal 2016, Johnson Controls, Inc. ("JCI Inc.") and Tyco International plc ("Tyco") completed their combination with JCI Inc. merging with a wholly owned, indirect subsidiary of Tyco (the "Merger"). Following the Merger, Tyco changed its name to "Johnson Controls International plc" and JCI Inc. is a wholly-owned subsidiary of Johnson Controls International plc. The Merger was accounted for as a reverse acquisition using the acquisition method of accounting in accordance with Accounting Standards Codification ("ASC") 805, "Business Combinations." JCI Inc. was the accounting acquirer for financial reporting purposes. Accordingly, the historical consolidated financial statements of JCI Inc. for periods prior to this transaction are considered to be the historic financial statements of the Company.

The acquisition of Tyco brings together best-in-class product, technology and service capabilities across controls, fire, security, HVAC and power solutions, to serve various end-markets including large institutions, commercial buildings, retail, industrial, small business and residential. The combination of the Tyco and Johnson Controls buildings platforms creates opportunities for near-term growth through cross-selling, complementary branch and channel networks, and expanded global reach for established businesses. The new Company benefits by combining innovation capabilities and pipelines involving new products, advanced solutions for smart buildings and cities, value-added services driven by advanced data and analytics.

On October 31, 2016, the Group completed the spin-off of its Automotive Experience business by way of the transfer of the Automotive Experience Business from Johnson Controls to Adient plc ("Adient") and the issuance of ordinary shares of Adient directly to holders of Johnson Controls ordinary shares on a pro rata basis. Prior to the open of business on October 31, 2016, each of the Group's shareholders received one ordinary share of Adient plc for every 10 ordinary shares of Johnson Controls held as of the close of business on October 19, 2016, the record date for the distribution. Group shareholders received cash in lieu of fractional shares of Adient, if any. Following the separation and distribution, Adient plc is now an independent public company trading on the New York Stock Exchange ("NYSE") under the symbol "ADNT." The Group did not retain any equity interest in Adient plc. Adient's historical financial statements are reflected in the Group's consolidated financial statements as a discontinued operation.

The Building Technologies & Solutions ("Buildings") business is a global market leader in engineering, developing, manufacturing and installing building products and systems around the world, including HVAC equipment, HVAC controls, energy-management systems, security systems, fire detection systems and fire suppression solutions. The Buildings business further serves customers by providing technical services (in the HVAC, security and fire-protection space), energy-management consulting and data-driven solutions via its data-enabled business. Finally, the Group has a strong presence in the North American residential air conditioning and heating systems market and is a global market leader in industrial refrigeration products.

The Power Solutions business is a leading global supplier of lead-acid automotive batteries for virtually every type of passenger car, light truck and utility vehicle. The Group serves both automotive original equipment manufacturers ("OEMs") and the general vehicle battery aftermarket. The Group also supplies advanced battery technologies to power start-stop, hybrid and electric vehicles.

On November 13, 2018, the Group entered into a Stock and Asset Purchase Agreement (“Purchase Agreement”) with BCP Acquisitions LLC (“Purchaser”). The Purchaser is a newly-formed entity controlled by investment funds managed by Brookfield Capital Partners LLC. Pursuant to the Purchase Agreement, on the terms and subject to the conditions therein, the Group has agreed to sell, and Purchaser has agreed to acquire, the Group’s Power Solutions business for a purchase price of $13.2 billion. Net cash proceeds are expected to be $11.4 billion after tax and transaction-related expenses. The transaction is expected to close by June 30, 2019, subject to customary closing conditions and required regulatory approvals. The operating results of the Power Solutions business will be reported as a discontinued operation beginning in the first quarter of fiscal 2019.

Products/Systems and Services

Building Technologies & Solutions

Building Technologies & Solutions sells its integrated control systems, security systems, fire-detection systems, equipment and services primarily through the Group’s extensive global network of sales and service offices, with operations in approximately 70 countries. Significant sales are also generated through global third-party channels, such as distributors of air-conditioning, security, fire-detection and commercial HVAC systems. The Group’s large base of current customers leads to significant repeat business for the retrofit and replacement markets. In addition, the new commercial construction market is also important. Trusted Buildings brands, such as YORK®, Hitachi Air Conditioning, *Metasys*®, Ansul, *Ruskin*®, Titus®, Frick®, PENN®, Sabroe®, Simplex® and Grinnell® give the Group the most diverse portfolio in the building technology industry.

In fiscal 2018, approximately 26% of its sales originated from its service offerings. In fiscal 2018, Building Technologies & Solutions accounted for 75% of the Group’s consolidated net sales.

Power Solutions

Power Solutions services both automotive OEMs and the battery aftermarket by providing advanced battery technology, coupled with systems engineering, marketing and service expertise. The Group is the largest producer of lead-acid automotive batteries in the world, producing and distributing approximately 154 million lead-acid batteries annually in approximately 70 wholly- and majority-owned manufacturing or assembly plants, distribution centers and sales offices in approximately 20 countries worldwide. Investments in new product and process technology have expanded product offerings to absorbent glass mat ("AGM") and enhanced flooded battery ("EFB") technologies that power start-stop vehicles, as well as lithium-ion battery technology for certain hybrid and electric vehicles. The business has also invested to develop sustainable lead and poly recycling operations in the North American and European markets. Approximately 75% of unit sales worldwide in fiscal 2018 were to the automotive replacement market, with the remaining sales to the OEM market.

Power Solutions accounted for 25% of the Group’s fiscal 2018 consolidated net sales. Batteries and key components are manufactured at wholly- and majority-owned plants in North America, South America, Asia and Europe.

Competition

Building Technologies & Solutions

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

Power Solutions

Power Solutions is the principal supplier of batteries to many of the largest merchants in the battery aftermarket, including Advance Auto Parts, AutoZone, Robert Bosch GmbH, DAISA S.A., Costco, O'Reilly/CSK, Interstate Battery System of America and Wal-Mart stores. Automotive batteries are sold throughout the world under private labels and under the Group's brand names (Optima®, Varta®, LTH® and Heliar®) to automotive replacement battery retailers and distributors and to automobile manufacturers as original equipment. The Power Solutions business competes with a number of major U.S. and non-U.S. manufacturers and distributors of lead-acid batteries, as well as a large number of smaller, regional competitors. The Power Solutions business primarily competes in the battery market with Exide Technologies, GS Yuasa Corporation, Camel Group Company Limited, East Penn Manufacturing Company and Banner Batteries GB Limited. The North American, European and Asian lead-acid battery markets are highly competitive. The manufacturers in these markets compete on price, quality, technical innovation, service and warranty.

Backlog

The Group's backlog relating to the Building Technologies & Solutions business is applicable to its sales of systems and services. At September 30, 2018, the backlog was $8.7 billion, of which $8.4 billion is attributable to the field business. The majority of backlog relates to fiscal 2019. At September 30, 2017, the backlog was $8.5 billion, of which $8.2 billion is 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.

Raw Materials

Raw materials used by the businesses in connection with their operations, including lead, steel, tin, aluminum, urethane chemicals, brass, copper, sulfuric acid, polypropylene and certain flurochemicals used in our fire suppression agents, were readily available during fiscal 2018, and the Group expects such availability to continue. In fiscal 2019, commodity prices could fluctuate throughout the year and could significantly affect the 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.

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.

Environmental Capital Expenditures

The Group's ongoing environmental compliance program often results in capital expenditures. Environmental considerations are a part of all significant capital expenditure decisions; however, expenditures in fiscal 2018 related solely to environmental compliance were not material. It is management's opinion that the amount of any future capital expenditures related solely to environmental compliance will not have a material adverse effect on the Group's financial results or competitive position in any one year.

Government Regulation and Supervision

The Group's operations are subject to numerous federal, state and local laws and regulations, both within and outside the U.S., in areas such as: consumer protection, government contracts, international trade, environmental protection, labor and employment, tax, licensing and others. For example, most U.S. states and non-U.S. jurisdictions in which the 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. 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, refer to the "Principal Risks and Uncertainties" section.

Employees

As of September 30, 2018, the Group employed approximately 122,000 people worldwide, of which approximately 48,000 were employed in the United States and approximately 74,000 were outside the United States. Approximately 31,000 employees are covered by collective bargaining agreements or works councils and we believe that our relations with the labor unions are generally good.

Seasonal Factors

Certain of Building Technologies & Solutions sales are seasonal as the demand for residential air conditioning equipment generally increases in the summer months. This seasonality is mitigated by the other products and services provided by the Building Technologies & Solutions business 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.

Retrospective Changes

Certain amounts as of September 30, 2017 have been revised to conform to the current year's presentation.

In March 2016, the FASB issued Accounting Standards Update ("ASU") No. 2016-09, "Compensation - Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting." ASU No. 2016-09 impacts certain aspects of the accounting for share-based payment transactions, including income tax consequences, classification of awards as either equity or liabilities, and classification on the statements of cash flows. During the quarter ended December 31, 2017, the Group adopted ASU No. 2016-09. As a result, the Group recognized deferred tax assets of $179 million in the consolidated statement of financial position related to certain operating loss carryforwards resulting from the exercise of employee stock options and vested restricted stock on a modified retrospective basis through a cumulative-effect adjustment to retained earnings as of October 1, 2017. Additionally, employee withholding taxes paid to taxing authorities for equity-based compensation transactions, previously classified as cash flows from operating activities, were reclassified to financing activities in the consolidated statement of cash flows for the fiscal years ended September 30, 2017 for comparative purposes. The remaining provisions of ASU No. 2016-09 did not have a material impact on the Group's consolidated financial statements.

CAUTIONARY STATEMENTS FOR FORWARD-LOOKING INFORMATION

Unless otherwise indicated, references to "Johnson Controls," the "Group," "we," "our" and "us" in this Annual Report refer to Johnson Controls International plc and its consolidated subsidiaries.

The Group has made statements in this document that are forward-looking and therefore are subject to risks and uncertainties. All statements in this document other than statements of historical fact are, or could be, "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. In this document, statements regarding Johnson Controls' future financial position, sales, costs, earnings, cash flows, other measures of results of operations, synergies and integration opportunities, capital expenditures and debt levels are forward-looking statements. Words such as "may," "will," "expect," "intend," "estimate," "anticipate," "believe," "should," "forecast," "project" or "plan" and terms of similar meaning are also generally intended to identify forward-looking statements. However, the absence of these words does not mean that a statement is not forward-looking. Johnson Controls cautions that these statements are subject to numerous important risks, uncertainties, assumptions and other factors, some of which are beyond Johnson Controls' control, that could cause Johnson Controls' actual results to differ materially from those expressed or implied by such forward-looking statements, including, among others, risks related to: any delay or inability of Johnson Controls to realize the expected benefits and synergies of recent portfolio transactions such as the merger with Tyco, the spin-off of Adient, changes in tax laws (including but not limited to the Tax Cuts and Jobs Act enacted in December 2017), regulations, rates, policies or interpretations, the loss of key senior management, the tax treatment of recent portfolio transactions, significant transaction costs and/or unknown liabilities associated with such transactions, the outcome of actual or potential litigation relating to such transactions, the risk that disruptions from recent transactions will harm Johnson Controls' business, the strength of the U.S. or other economies, changes to laws or policies governing foreign trade, including increased tariffs or trade restrictions, automotive vehicle production levels, mix and schedules, energy and commodity prices, the availability of raw materials and component products, currency exchange rates, cancellation of or changes to commercial arrangements, and with respect to the divestiture of the Power Solutions business, the expected financial impact and timing of the Power Solutions divestiture, whether and when the required regulatory approvals for the Power Solutions disposal will be obtained, the possibility that closing conditions for the Power Solutions divestiture may not be satisfied or waived, and whether the strategic benefits of the Power Solutions transaction can be achieved. A detailed discussion of risks related to Johnson Controls' business is included in the section entitled "Principal Risks and Uncertainties." The forward-looking statements included in this document are made only as of the date of this document, unless otherwise specified, and, except as required by law, Johnson Controls assumes no obligation, and disclaims any obligation, to update such statements to reflect events or circumstances occurring after the date of this document.

PRINCIPAL RISKS AND UNCERTAINTIES

Risks Relating to Business Operations

General economic, 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 conditions affect each of our primary businesses. As we discuss in greater detail in the specific risk factors for each of our businesses that appear below, any future financial distress 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.

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.

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

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

Many of our customers 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 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.

Decreased demand from our customers in the automotive industry may adversely affect our results of operations.

Our financial performance in the Power Solutions business depends, in part, on conditions in the automotive industry. Sales to OEMs accounted for approximately 25% of the total sales of the Power Solutions business in fiscal 2018. Declines in the North American, European and Asian automotive production levels could reduce our sales and adversely affect our results of operations. In addition, if any OEMs reach a point where they cannot fund their operations, we may incur write-offs of accounts receivable, incur impairment charges or require additional restructuring actions beyond our current restructuring plans, which, if significant, would have a material adverse effect on our business and results of operations.

An inability to successfully respond to competition and pricing pressure from other companies in the Power Solutions business may adversely impact our business.

Our Power Solutions business competes with a number of major U.S. and non-U.S. manufacturers and distributors of lead-acid batteries, as well as a large number of smaller, regional competitors. The North American, European and Asian lead-acid battery markets are highly competitive. The manufacturers in these markets compete on price, quality, technical innovation, service and warranty. If we are unable to remain competitive and maintain market share in the regions and markets we serve, our business, financial condition and results of operations may be adversely affected.

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 we cannot adjust for changes in certain commodity prices. 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.

In our Power Solutions business, lead is a major component of lead-acid batteries, and the price of lead may be highly volatile. We attempt to manage the impact of changing lead prices through the recycling of used batteries returned to us by our aftermarket customers, commercial terms and commodity hedging programs. Our ability to mitigate the impact of lead price changes can be impacted by many factors, including customer negotiations, inventory level fluctuations and sales volume/mix changes, any of which could have an adverse effect on our results of operations.

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

Unlike many of our competitors, the Group relies on a direct sales channel for a substantial portion of our revenue. The direct channel provides for the installation of fire and security solutions, and HVAC equipment manufactured by the Group. 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 future growth is dependent upon our ability to develop or acquire new 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 and services 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. In addition, the markets for our products and services may not develop or grow as we anticipate. As a result, the failure of our technology, products or services to gain market acceptance, the potential for product defects, product quality issues, or the obsolescence of our products and services 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.

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 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 non-U.S. operations and therefore on our business and results of operations.

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, data privacy restrictions, 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, some foreign data privacy regulations are more stringent than those in the U.S. and continue to evolve. In May 2018, the General Data Protection Regulation ("GDPR") superseded prior European Union data protection legislation, and it imposes more stringent European Union data protection requirements, and provides for greater penalties for noncompliance. Under the GDPR, fines of up to 20 million euro or up to 4% of the annual global turnover of the infringer, whichever is greater, could be imposed. Further, existing free trade laws and regulations, such as the North American Free Trade Agreement, or any successor agreement, provide certain beneficial duties and tariffs for qualifying imports and exports, subject to compliance with the applicable classification and other requirements. Changes in laws or policies governing the terms of foreign trade, and in particular increased trade restrictions, tariffs or taxes on imports from countries where we manufacture products or from where we import products or raw materials (either directly or through our suppliers) could have an impact on our competitive position, business and financial results. For example, certain of our businesses have a significant presence in the United Kingdom (the “U.K.”), where the success of the Brexit referendum in 2016 has continued to cause political and economic uncertainty. Although it is unknown what the full terms of the U.K.’s future relationship with the European Union will be, it is possible that the U.K. may be at risk of losing access to free trade agreements for goods and services with the EU and other countries, which may result in increased tariffs on U.K. imports and exports that could have an adverse effect on our profitability.

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

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.

Infringement or expiration of our intellectual property rights, or allegations that we have infringed 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 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. If it became necessary for us to resort to litigation to protect our intellectual property rights, any proceedings could 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, and 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.

Global climate change could negatively affect our business.

Increased public awareness and concern regarding global climate change may result in more regional and/or federal requirements to reduce or mitigate the effects of greenhouse gas emissions. There continues to be a lack of consistent climate legislation, which creates economic and regulatory uncertainty. Such regulatory uncertainty extends to incentives, that if discontinued, could adversely impact the demand for energy efficient buildings and batteries for energy efficient vehicles, and could increase costs of compliance. These factors may impact the demand for our products, obsolescence of our products and our results of operations.

There is a growing consensus that greenhouse gas emissions are linked to global climate changes. Climate changes, such as extreme weather conditions, create financial risk to our business. For example, the demand for our products and services, such as residential air conditioning equipment and automotive replacement batteries, may be affected by unseasonable weather conditions. Climate changes 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. The Group could also face indirect financial risks passed through the supply chain, and process disruptions due to physical climate changes could result in price modifications for our products and the resources needed to produce them.

Potential liability for environmental contamination could result in substantial costs.

We have projects underway at multiple current and former manufacturing facilities to investigate and remediate environmental contamination resulting from past operations by us or by other businesses that previously owned or used the properties. These projects relate to a variety of activities, including solvent, oil, metal, lead, perfluorooctane sulfonate ("PFOS"), perfluorooctanoic acid ("PFOA") 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 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.

We are subject to requirements relating to environmental and safety regulations and environmental remediation matters, including those related to the manufacturing and recycling of lead-acid batteries, 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, including as it pertains to lead, the primary material used in the manufacture of lead-acid batteries. 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.

Federal, state and local authorities also regulate a variety of matters, including, but not limited to, health, safety and permitting in addition to the environmental matters discussed above. 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 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.

The amounts we have recorded for asbestos-related liabilities and insurance-related assets in the consolidated statement of financial position are based on our current strategy for resolving asbestos claims, currently available information, and a number of variables, 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 and 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 our calculations vary significantly from actual results. If actual liabilities are significantly higher than those recorded, the cost of resolving such liabilities could have a material adverse effect on our financial position, results of operations and cash flows.

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

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

We may be unable to realize the expected benefits of our restructuring actions, which could adversely affect our profitability and operations.

To align our resources with our growth strategies, operate more efficiently and control costs, we periodically announce restructuring plans, which may include workforce reductions, global plant closures and consolidations, asset impairments and other cost reduction initiatives. We may undertake additional restructuring actions and workforce reductions in the future. As these plans and actions are complex, unforeseen factors could result in expected savings and benefits to be delayed or not realized to the full extent planned, and our operations and business may be disrupted.

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.

Future changes in U.S. tax law could adversely affect us or our affiliates.

On December 22, 2017, the President of the United States signed into law a bill commonly referred to as the "Tax Cuts and Jobs Act" (the "TCJA"), which made significant changes to certain U.S. tax laws relevant to us and our affiliates. While the provisions of the TCJA are new, their interpretation is subject to uncertainty, and regulatory guidance on many aspects of the TCJA has not yet been issued, the TJCA is expected to have an adverse effect on the U.S. federal income taxation of our and our affiliates' operations, including limiting or eliminating various deductions or credits (including interest expense deductions and deductions relating to employee compensation), imposing taxes on certain cross-border payments or transfers, imposing taxes on certain earnings of non-U.S. entities on a current basis, changing the timing of the recognition of income or its character, limiting asset basis under certain circumstances, and imposing additional corporate taxes under certain circumstances to combat perceived base erosion issues, among other changes.

The TCJA and any related legislation or regulations, as well as any other future changes in U.S. tax laws, could adversely affect the U.S. federal income taxation of our and our affiliates' ongoing operations and may also adversely affect the integration efforts relating to, and potential synergies from, past strategic transactions, as described below. Any such changes and related consequences could have a material adverse impact on our financial results and cash flows. See Note 17, "Income Taxes," of the notes to consolidated financial statements for additional information on the impact the TCJA had on our business, financial performance and results of operations.

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. We have also been named as a defendant in a number of actions where third party use of our products has allegedly resulted in contamination to groundwater and drinking water supplies. Plaintiffs in these cases are generally seeking damages for personal injuries, medical monitoring and diminution in property values, and are also seeking punitive damages and injunctive relief to address remediation of the alleged contamination. There is a possibility that such claims may have an adverse impact on our results of operations and cash flows that is greater than we anticipate and/or negatively affect our reputation. See Note 21, "Commitments and Contingencies," of this report for a further discussion of these matters.

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. Future tightening in the credit markets and a reduced level of liquidity in many financial markets due to turmoil in the financial and banking industries could affect our access to the debt capital markets or the price we pay to issue debt. 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.

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. 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.

We may be unable to complete or integrate acquisitions or joint ventures effectively, which may adversely affect our growth, profitability and results of operations.

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. Additionally, we may not be successful in integrating acquired businesses or joint ventures into our existing operations and achieving projected synergies which could result in impairment of assets, including goodwill and acquired intangible assets. Given the significance of the Group's recent acquisitions, the goodwill and intangible assets recorded were significant and impairment of such assets could result in a material adverse impact on our financial condition and results of operation. 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. If we were to use equity securities to finance a future acquisition, our then-current shareholders would experience dilution. We are also subject to applicable antitrust laws and must avoid anticompetitive behavior. These and other factors related to acquisitions and joint ventures may negatively and adversely impact our growth, profitability 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.

We are subject to business continuity risks associated with centralization of certain administrative functions.

We have been regionally centralizing certain administrative functions, primarily in North America, Europe and Asia, to improve efficiency and reduce costs. To the extent that these central locations are disrupted or disabled, key business processes, such as invoicing, payments and general management operations, could be interrupted, which could have an adverse impact on our business.

A failure of our information technology ("IT") and data security infrastructure could adversely impact our business and 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. If we experience a problem with the functioning of an important IT system 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.

We and certain of our third-party vendors receive and store personal information in connection with our human resources operations and other aspects of our business, including our Buildings controls business and our Fire and Security business. Despite our implementation of security measures, our IT systems, like those of other companies, are vulnerable to damages from computer viruses, natural disasters, unauthorized access, cyber attack and other similar disruptions. Any system failure, accident or security breach could result in disruptions to our operations or those of our customers. A material network breach in the security of our IT systems could include the theft of our intellectual property, trade secrets, customer information, human resources information or other confidential matter or the theft of the confidential information of our customers. To the extent that any disruptions or security breach results in a loss or damage to our or our customers' data, or an inappropriate disclosure of confidential, proprietary or customer information, it could cause significant damage to our reputation, affect our relationships with our customers, lead to claims against the Group and ultimately harm our business. In addition, we may be required to incur significant costs to protect against damage caused by these disruptions or security breaches in the future.

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

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

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

Our business success depends on attracting and retaining qualified personnel.

Our ability to sustain and grow our business requires us to hire, retain and develop a highly skilled and diverse management team and workforce. Failure to ensure that we have the leadership capacity with the necessary skill set and experience could impede our ability to deliver our growth objectives and execute our strategic plan. Organizational and reporting changes resulting from the Merger, or as a result of 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 business may be adversely affected by work stoppages, union negotiations, labor disputes and other matters associated with our labor force.

We employ approximately 122,000 people worldwide. Approximately 26% of these employees are covered by collective bargaining agreements or works council. 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 council, 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. In an attempt to reduce this risk, our installation, service and monitoring agreements and other contracts contain provisions limiting our liability in such circumstances, and we typically maintain product liability insurance to mitigate the risk that our products and services fail to operate as expected. However, in the event of litigation, it is possible that contract limitations may be deemed not applicable or unenforceable, that our insurance coverage is not adequate, or that insurance carriers deny coverage of our claims. 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 Tyco has entered 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.

Police departments could refuse to respond to calls from monitored security service companies.

Police departments in a limited number of jurisdictions do not respond to calls from monitored security service companies, either as a matter of policy or by local ordinance. We have offered affected customers the option of receiving responses from private guard companies, in most cases through contracts with us, which increases the overall cost to customers. If more police departments, whether inside or outside the U.S., were to refuse to respond or be prohibited from responding to calls from monitored security service companies, our ability to attract and retain customers could be negatively impacted and our results of operations and cash flow could be adversely affected.

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

Any of the following could materially and adversely impact the results of operations of our Power Solutions business: loss of, or changes in, automobile battery supply contracts with our large original equipment and aftermarket customers; the increasing quality and useful life of batteries or use of alternative battery technologies, both of which may adversely impact the lead-acid battery market, including replacement cycle; delays or cancellations of new vehicle programs; market and financial consequences of any recalls that may be required on our products; delays or difficulties in new product development, including lithium-ion technology; impact of potential increases in lithium-ion battery volumes on established lead-acid battery volumes as lithium-ion battery technology grows and costs become more competitive; financial instability or market declines of our customers or suppliers; slower than projected market development in emerging markets; interruption of supply of certain single-source components; changing nature of our joint ventures and relationships with our strategic business partners; unseasonable weather conditions in various parts of the world; our ability to secure sufficient tolling capacity to recycle batteries; price and availability of battery cores used in recycling; and the pace of the development of the market for hybrid and electric vehicles.

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

Any of the following could materially and adversely impact the results of operations of our Buildings 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; the potential introduction of similar or superior technologies; financial instability or market declines of our major component suppliers; the unavailability of raw materials (primarily steel, copper and electronic components) necessary for production of our products; price increases of limited-source components, products and services that we are unable to pass on to the market; unseasonable weather conditions in various parts of the world; changes in energy costs or governmental regulations that would decrease the incentive for customers to update or improve their building control systems; revisions to energy efficiency or refrigerant legislation; and natural or man-made disasters or losses that impact our ability to deliver products and services to our customers.

Risks Relating to Strategic Transactions

We may fail to realize the anticipated benefits of the business combination between Johnson Controls, Inc. and Tyco International plc.

The success of the Merger will depend on, among other things, our ability to combine the legacy businesses of Johnson Controls and Tyco in a manner that realizes anticipated synergies and facilitates growth opportunities, and achieves the projected stand-alone cost savings and revenue growth trends identified by us. We expect to benefit from operational and general and administrative cost synergies resulting from the consolidation of capabilities and branch optimization, as well as greater tax efficiencies from global management and global cash movement. We may also enjoy revenue synergies, including product and service cross-selling, a more diversified and expanded product offering and balance across geographic regions. However, we must successfully combine the legacy businesses of Johnson Controls and Tyco in a manner that permits these cost savings and synergies to be realized. In addition, we must achieve the anticipated savings and synergies without adversely affecting current revenues and investments in future growth. If we are not able to successfully achieve these objectives, we may not realize fully, or at all, the anticipated benefits of the Merger, or it may take longer to realize the benefits than expected.

Other factors may prevent us from realizing the anticipated benefits of the Merger or impact our future performance. These include, among other items, the possibility that the contingent liabilities of either party (including contingent tax liabilities) are larger than expected, the existence of unknown liabilities, adverse consequences and unforeseen increased expenses associated with the Merger and possible adverse tax consequences pursuant to changes in applicable tax laws (including most recently the TCJA), regulations or other administrative guidance. In addition, we may be subject to additional restrictions resulting from Tyco’s incurrence of debt in connection with the Merger and as a result of the Group's Irish domicile.

We may encounter significant difficulties in combining the legacy Johnson Controls and Tyco businesses.

The combination of two independent businesses is a complex, costly and time-consuming process. As a result, we will be required to devote significant management attention and resources to combining the business practices and operations of the legacy Johnson Controls and Tyco businesses. This process may disrupt the businesses. The failure to meet the challenges involved in combining the two businesses and to realize the anticipated benefits of the transactions could cause an interruption of, or a loss of momentum in, the activities of the combined company and could adversely affect our results of operations. The overall combination of legacy Johnson Controls and Tyco businesses may also result in material unanticipated problems, expenses, liabilities, competitive responses, loss of customer and other business relationships and diversion of management attention. The difficulties of combining the operations of the companies include, among others:

- 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 between the two companies;

- 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 from the combination;
- difficulties in managing the expanded operations of a significantly larger and more complex company;
- contingent liabilities (including contingent tax liabilities) that are larger than expected; and
- potential unknown liabilities, adverse consequences and unforeseen increased expenses associated with the Merger, including possible adverse tax consequences to the combined company pursuant to changes in applicable tax laws or regulations.

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 the business, financial condition and results of operations of the combined company.

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

We continually evaluate the performance and strategic fit of all of our businesses and may sell businesses or product lines. For example, on October 31, 2016, we completed the spin-off of our Automotive Experience business and sold our Scott Safety business in October 2017. In addition, on November 13, 2018, we announced that we had entered into a definitive agreement to sell our Power Solutions business to BCP Acquisitions LLC. Divestitures involve risks, including difficulties in the separation of operations, services, products and personnel, the diversion of management's attention from other business concerns, the disruption of our business, the potential loss of key employees and the retention of uncertain environmental or other contingent liabilities related to the divested business. Some divestitures, like the Power Solutions divestiture, may be dilutive to earnings. In addition, divestitures may result in significant asset impairment charges, including those related to goodwill and other intangible assets, which could have a material adverse effect on our financial condition and results of operations. We cannot assure you that we will be successful in managing these or any other significant risks that we encounter in divesting a business or product line, and any divestiture we undertake could materially and adversely affect our business, financial condition, results of operations and cash flows, and may also result in a diversion of management attention, operational difficulties and losses. With respect to the Power Solutions divestiture, there can be no assurance whether and when the required regulatory approvals for the divestiture will be obtained, whether and when the closing conditions will be satisfied or waived, and whether the strategic benefits and expected financial impact of the divestiture will be achieved.

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 and may not agree that the our U.S. affiliates should not be subject to certain adverse U.S. federal income tax rules.

Under current U.S. federal tax law, a corporation is generally considered for U.S. federal tax purposes 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 (the "80% ownership test," and 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% (the "60% ownership test"), 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).

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 rules under Section 7874 are complex and there is limited guidance regarding their application. In particular, ownership for purposes of Section 7874 is subject to various adjustments under the Code and the Treasury regulations promulgated thereunder, and there is limited guidance regarding Section 7874, including with respect to the application of the ownership tests described therein. As a result, 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.

In addition, on January 13, 2017 and July 11, 2018, the U.S. Treasury and the IRS finalized certain Treasury regulations issued under Section 7874 and revised certain related temporary regulations (the "Section 7874 Regulations"), which, among other things, require certain adjustments that generally increase, for purposes of the Section 7874 ownership tests, the percentage of the stock of a foreign acquiring corporation deemed owned (within the meaning of Section 7874) by the former shareholders of an acquired U.S. corporation by reason of holding stock in such U.S. corporation. For example, these regulations disregard, for purposes of determining this ownership percentage, (1) any "non-ordinary course distributions" (within the meaning of the regulations) made by the acquired U.S. corporation (such as Johnson Controls, Inc.) during the 36 months preceding the acquisition, including certain dividends and share repurchases, (2) potentially any cash consideration received by the shareholders of such U.S. corporation in the acquisition to the extent such cash is, directly or indirectly, provided by the U.S. corporation, as well as (3) certain stock of the foreign acquiring corporation that was issued as consideration in a prior acquisition of another U.S. corporation (or U.S. partnership) during the 36 months preceding the signing date of a binding contract for the acquisition being tested. Taking into account the effect of these regulations, we believe that the Section 7874 ownership percentage of former Johnson Controls, Inc. shareholders in us was less than 60%. However, these regulations are complex and there is limited guidance regarding their application. Accordingly, there can be no assurance that the IRS will not successfully assert that either the 80% ownership test or the 60% ownership test was met after the Merger.

If the 80% ownership test was met after the Merger and we were accordingly treated as a U.S. corporation for U.S. federal tax purposes under Section 7874, we would be subject to substantial additional U.S. tax liability. Additionally, in such case, our non-U.S. shareholders would be subject to U.S. withholding tax on the gross amount of any dividends we pay to such shareholders (subject to an exemption or reduced rate available under an applicable tax treaty). 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.

If the 60% ownership test were met, several adverse U.S. federal income tax rules could apply to our U.S. affiliates. In particular, in such case, Section 7874 could limit the ability of such U.S. affiliates to utilize certain U.S. tax attributes (including net operating losses and certain tax credits) to offset any taxable income or gain resulting from certain transactions, including any transfers or licenses of property to a foreign related person during the 10-year period following the Merger. The Section 7874 Regulations generally expand the scope of these rules. If the 60% ownership test were met after the Merger, such current and future limitations would apply to our U.S. affiliates (including the U.S. affiliates historically owned by Tyco), and their application could limit their ability to utilize such U.S. tax attributes against any income or gain recognized in connection with the Adient spin-off. In such case, the application of such rules could result in significant additional U.S. tax liability. In addition, the Section 7874 Regulations (and certain related temporary regulations issued under other provisions of the Code) include rules that would apply if the 60% ownership test were met, which, in such situation, may 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.

Future potential changes to the tax laws could result in our being treated as a U.S. corporation for U.S. federal tax purposes or in us and our U.S. affiliates (including the U.S. affiliates historically owned by Tyco) being subject to certain adverse U.S. federal income tax rules.

As discussed above, under current law, we believe that we should be treated as a non-U.S. corporation for U.S. federal tax purposes and that Section 7874 does not otherwise apply as a result of the Merger. However, changes to Section 7874, or the U.S. Treasury regulations promulgated thereunder, could affect our status as a non-U.S. corporation for U.S. federal tax purposes or could result in the application of certain adverse U.S. federal income tax rules to us and our U.S. affiliates (including the U.S. affiliates historically owned by Tyco). Any such changes could have prospective or retroactive application, and may apply even though the Merger has been consummated. If we were to be treated as a U.S. corporation for federal tax purposes or if we or our U.S. affiliates (including the U.S. affiliates historically owned by Tyco) were to become subject to such adverse U.S. federal income tax rules, we and our U.S. affiliates could be subject to substantially greater U.S. tax liability than currently contemplated.

Certain legislative and other proposals have aimed to expand the scope of U.S. corporate tax residence, including in such a way as would cause us to be treated as a U.S. corporation if our place of management and control or the place of management and control of our non-U.S. affiliates were determined to be located primarily in the United States. In addition, certain legislative and other proposals have aimed to expand the scope of Section 7874, or otherwise address certain perceived issues arising in connection with so-called inversion transactions. For example, multiple proposals introduced by certain Democratic members of both houses of Congress, which, if enacted in their present form, would be effective retroactively to certain transactions (including the Merger), would, among other things, treat a foreign acquiring corporation as a U.S. corporation for U.S. federal tax purposes under Section 7874 if the former shareholders of a U.S. corporation acquired by such foreign acquiring corporation own more than 50% of the shares of the foreign acquiring corporation after the acquisition. These proposals, if enacted in their present form and made retroactive to a date before the date of the closing of the Merger, would cause us to be treated as a U.S. corporation for U.S. federal tax purposes. In such case, we would be subject to substantially greater U.S. tax liability than currently contemplated. It is presently uncertain whether any such proposals or other legislative action relating to the scope of U.S. tax residence, Section 7874 or so-called inversion transactions and inverted groups will be enacted into law.

Other legislative and/or other proposals relating to U.S. taxation could also have a material impact on our future financial results. The recently enacted TCJA introduced significant changes to certain U.S. tax laws relevant to us and our affiliates, including limitations on the deductibility of certain interest expense and employee compensation, limitations on various other deductions and credits, the imposition of taxes in respect of certain cross-border payments or transfers, the imposition of taxes on certain earnings of non-U.S. entities on a current basis, and changes in the timing of the recognition of income or its character. These changes, any future regulatory guidance implementing the TCJA, as well as any other legislative or other proposals or changes relating to U.S. taxation (which may or may not be adopted and may apply, on a prospective or retroactive basis), could have a significant adverse effect on us and our affiliates.

We may be unable to achieve some or all of the benefits that we expect to achieve from the spin-off of Adient plc.

On October 31, 2016, we completed the separation of our Automotive Experience business through the spin-off of Adient plc to shareholders. Following the spin-off, we are a smaller and less diversified company with a narrower business focus and, as a result, we may be more vulnerable to changing market conditions.

Although we believe that the spin-off of Adient plc will provide financial, operational, managerial and other benefits to us and shareholders, the spin-off may not provide such results on the scope or scale we anticipate, and we may not realize any or all of the intended benefits. In addition, we have and will continue to incur one-time costs and ongoing costs in connection with, or as a result of, the spin-off, including costs of operating as independent, publicly-traded companies that the two businesses are no longer able to share. Those costs may exceed our estimates or could negate some of the benefits we expect to realize. If we do not realize the intended benefits of the spin-off or if our costs exceed our estimates, we could suffer a material adverse effect on our business, financial condition, results of operations and cash flows.

Adient may fail to perform under various transaction agreements that we have executed as part of the Adient spin-off.

In connection with the spin-off of Adient, we and Adient have entered into a separation and distribution agreement and various other agreements, including a transition services agreement, a tax matters agreement, an employee matters agreement and a transitional trademark license agreement. Certain of these agreements provide for the performance of services by each company for the benefit of the other for a period of time after the spin-off. We will rely on Adient to satisfy its performance and payment obligations under these agreements. If Adient is unable to satisfy its obligations under these agreements, including its indemnification obligations, we could incur operational difficulties or losses.

Risks Relating to Our Jurisdiction of Incorporation

Legislative action in the U.S. could materially and adversely affect us.

Legislative action may be taken by the U.S. Congress which, if ultimately enacted, could limit the availability of tax benefits or deductions that we currently claim, override tax treaties upon which we rely, affect our status as a non-U.S. corporation for U.S. federal income tax purposes, impose additional taxes on payments made by our U.S. subsidiaries to non-U.S. affiliates, or otherwise affect the taxes that the U.S. imposes on our worldwide operations. Such changes could have retroactive effect and could have a material adverse effect on our effective tax rate and/or require us to take further action, at potentially significant expense, to seek to preserve our effective tax rate. In addition, if proposals were enacted that had the effect of disregarding or limiting our ability, as an Irish company, to take advantage of tax treaties with the U.S., we could incur additional tax expense and/or otherwise incur business detriment.

Legislation relating to governmental contracts could materially and adversely affect us.

Various U.S. federal and state legislative proposals that would deny governmental contracts to U.S. companies that have moved their corporate location abroad may affect us. 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.

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 the combined company 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.

Our effective tax rate may increase.

There is uncertainty regarding the tax policies of the jurisdictions where we operate, which if enacted could result in an increase in our effective tax rate. Additionally, the tax laws of Ireland and other jurisdictions could change in the future, and such changes could cause a material increase in our effective tax rate.

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

On February 17, 2016, the U.S. Treasury released a revised U.S. model income tax convention (the "new model"), which is the baseline text used by the U.S. Treasury to negotiate tax treaties. The new model treaty provisions were preceded by draft versions released by the U.S. Treasury on May 20, 2015 (the "May 2015 draft") for public comment. The revisions made to the model address certain aspects of the model by modifying existing provisions and introducing entirely new provisions. Specifically, the new provisions target (i) permanent establishments subject to little or no foreign tax, (ii) special tax regimes, (iii) expatriated entities subject to Section 7874, (iv) the anti-treaty shopping measures of the limitation on benefits article and (v) subsequent changes in treaty partners' tax laws.

With respect to new model provisions pertaining to expatriated entities, because we do not believe that the Merger resulted in the creation of an expatriated entity as defined in Section 7874, payments of interest, dividends, royalties and certain other items of income by or to us and/or our U.S. affiliates to or from non-U.S. persons would not be expected to become subject to full withholding tax, even if applicable treaties were subsequently amended to adopt the new model provisions. In response to comments the U.S. Treasury received regarding the May 2015 draft, the new model treaty provisions pertaining to expatriated entities fix the definition of "expatriated entity" to the meaning ascribed to such term under Section 7874(a)(2)(A) as of the date the relevant bilateral treaty is signed. However, as discussed above, the rules under Section 7874 are relatively new, complex and are the subject of current and future legislative and regulatory changes. Accordingly, there can be no assurance that the IRS will agree with the position that the Merger did not result in the creation of an expatriated entity (within the meaning of Section 7874) under the law as in effect at the time the applicable treaty were to be amended or that such a challenge would not be sustained by a court, or that such position would not be affected by future or regulatory action which may apply retroactively to the Merger.

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 resident 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.

KEY PERFORMANCE INDICATORS

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

Net Sales

	Year Ended September 30,		
(in millions)	2018	2017	Change
Net sales	$ 31,400	$ 30,172	4%

The increase in consolidated net sales was due to higher sales in the Building Technologies & Solutions business ($1,004 million), the favorable impact of foreign currency translation ($512 million) and higher sales in the Power Solutions business ($467 million), partially offset by lower sales due to business divestitures ($755 million). The increased sales in the Building Technologies & Solutions business, net of divestitures, primarily related to higher volumes across all segments. Increased sales in the Power Solutions business primarily resulted from the impact of higher lead costs on pricing as well as favorable pricing and product mix. Excluding the impact of foreign currency translation, impact of lead costs on pricing and business divestitures, consolidated net sales also increased 4% as compared to the prior year. Refer to the "Segment Analysis" section below for a discussion of net sales by segment.

Cost of Sales / Gross Profit

	Year Ended September 30,		
(in millions)	2018	2017	Change
Cost of sales	$ 22,020	$ 20,833	6%
Gross profit	9,380	9,339	—%
% of sales	29.9%	31.0%	

Cost of sales increased in fiscal 2018 as compared to fiscal 2017, and gross profit as a percentage of sales decreased by 110 basis points. Gross profit in the Building Technologies & Solutions business increased due to prior year nonrecurring purchase accounting adjustments ($68 million), and higher volumes and favorable mix across all segments, partially offset by business divestitures and higher operating costs. Gross profit in the Power Solutions business was impacted by higher operating costs primarily driven by efforts to satisfy customer demand, partially offset by favorable pricing and product mix. Net mark-to-market adjustments on pension and postretirement plans had a net unfavorable year-over-year impact on cost of sales of $88 million ($16 million charge in fiscal 2018 compared to a $72 million gain in fiscal 2017) primarily due to a decrease in U.S. investment returns. Foreign currency translation had an unfavorable impact on cost of sales of approximately $383 million. Refer to the "Segment Analysis" section below for a discussion of segment earnings before interest, taxes and amortization ("EBITA") by segment.

Selling, General and Administrative Expenses

	Year Ended September 30,		
(in millions)	2018	2017	Change
Selling, general and administrative expenses	$ 6,010	$ 6,158	-2%
% of sales	19.1%	20.4%	

Selling, general and administrative expenses ("SG&A") decreased by $148 million year over year, and SG&A as a percentage of sales decreased by 130 basis points. The decrease in SG&A was primarily due to productivity savings and costs synergies, business divestitures and a gain on sale of the Scott Safety business in the Building Technologies & Solutions Global Products segment ($114 million). The net favorable year-over-year impact on SG&A resulting from transaction and integration costs was $177 million. Foreign currency translation had an unfavorable impact on SG&A of $78 million. The net mark-to-market adjustments on pension and postretirement plans had a net unfavorable year-over-year impact on SG&A of $322 million ($26 million gain in fiscal 2018 compared to a $348 million gain in fiscal 2017) primarily due to a decrease in U.S. investment returns. Refer to the "Segment Analysis" section below for a discussion of segment EBITA by segment.

Restructuring and Impairment Costs

	Year Ended September 30,		
(in millions)	2018	2017	Change
Restructuring and impairment costs	$ 263	$ 367	-28%

Refer to Note 15, "Significant Restructuring and Impairment Costs," of the notes to consolidated financial statements for further disclosure related to the Group's restructuring plans.

Net Financing Charges

	Year Ended September 30,		
(in millions)	2018	2017	Change
Net financing charges	$ 441	$ 496	-11%

Refer to Note 8, "Debt and Financing Arrangements," of the notes to consolidated financial statements for further disclosure related to the Group's net financing charges.

Equity Income

	Year Ended September 30,		
(in millions)	2018	2017	Change
Equity income	$ 235	$ 240	-2%

The decrease in equity income was primarily due to lower income at partially-owned affiliates in the Power Solutions business, partially offset by higher income at partially-owned affiliates in the Building Technologies & Solutions business. Refer to the "Segment Analysis" section below for a discussion of segment EBITA by segment.

Income Tax Provision

	Year Ended September 30,		
(in millions)	2018	2017	Change
Income tax provision	$ 518	$ 705	-27%
Effective tax rate	18%	28%	

The statutory tax rate in Ireland is being used as a comparison since the Group is domiciled in Ireland. The effective rate is above the statutory rate of 12.5% for fiscal 2018 primarily due to the discrete net impacts of U.S. Tax Reform, final income tax effects of the completed divestiture of the Scott Safety business, legal entity restructuring associated with the Power Solutions business, valuation allowance adjustments and tax rate differentials, partially offset by the benefits of continuing global tax planning initiatives, tax audit closures and tax benefits due to changes in entity tax status. The effective rate is above the statutory rate of 12.5% for fiscal 2017 primarily due to the establishment of a deferred tax liability on the outside basis difference of the Group's investment in certain subsidiaries related to the divestiture of the Scott Safety business, the income tax effects of pension mark-to-market gains and tax rate differentials, partially offset by the jurisdictional mix of significant restructuring and impairment costs, Tyco Merger transaction and integration costs, purchase accounting adjustments, tax audit closures, a tax benefit due to changes in entity tax status and the benefits of continuing global tax planning initiatives. The fiscal 2018 effective tax rate decreased as compared to the fiscal 2017 effective tax rate primarily due to discrete tax items and tax planning initiatives. The fiscal year 2018 and 2017 global tax planning initiatives related primarily to foreign tax credit planning, 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 17, "Income Taxes," of the notes to consolidated financial statements for further details.

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 2018, 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 Germany would not be realized. Therefore, the Group recorded $56 million of valuation allowances as income tax expense in the three month period ended September 30, 2018.

In the fourth quarter of fiscal 2017, the Group performed an analysis related to the realizability of its worldwide deferred tax assets. As a result, and after considering 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 in Canada, China and Mexico would not be able to be realized, and it was more likely than not that certain deferred tax assets in Germany would be realized. Therefore, the Group recorded $27 million of net valuation allowances as income tax expense in the three month period ended September 30, 2017.

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.

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

During fiscal 2017, the Group settled a significant number of tax examinations impacting fiscal years 2006 to fiscal 2014. In the fourth quarter of fiscal 2017, income tax audit resolutions resulted in a net $191 million benefit to income tax expense.

The Group’s federal income tax returns and certain non-U.S. income tax returns for various fiscal years remain under various stages of audit by the IRS and respective non-U.S. tax authorities. Although the outcome of tax audits is always uncertain, management believes that it has appropriate support for the positions taken on its tax returns and that its annual tax provisions included amounts sufficient to pay assessments, if any, which may be proposed by the taxing authorities. At September 30, 2018, the Group had recorded a liability for its best estimate of the probable loss on certain of its tax positions, the majority of which is included in other noncurrent liabilities in the consolidated statement of financial position. Nonetheless, the amounts ultimately paid, if any, upon resolution of the issues raised by the taxing authorities may differ materially from the amounts accrued for each year.

Other Tax Matters

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

In the fourth quarter of fiscal 2018, the Group recorded a tax charge of $129 million due to legal entity restructuring associated with the Power Solutions business.

In the first quarter of fiscal 2018, the Group completed the sale of its Scott Safety business to 3M Company. In connection with the sale, the Group recorded a pre-tax gain of $114 million and income tax expense of $30 million. In addition, during fiscal 2017, the Group recorded a discrete non-cash tax charge of $490 million related to establishment of a deferred tax liability on the outside basis difference of the Group's investment in certain subsidiaries of the Scott Safety business. Refer to Note 2, "Acquisitions and Divestitures," and Note 3, "Discontinued Operations," of the notes to consolidated financial statements for additional information.

During fiscal 2018 and 2017, the Group recorded transaction and integration costs of $234 million and $428 million, respectively. These costs generated tax benefits of $27 million and $69 million, respectively, which reflects the Group's current tax position in these jurisdictions.

During fiscal 2018 and 2017, the Group incurred significant charges for restructuring and impairment costs of $263 million and $367 million, respectively. Refer to Note 15, "Significant Restructuring and Impairment Costs," of the notes to consolidated financial statements for additional information. These costs generated tax benefits of $38 million and $63 million, respectively, which reflects the Group's current tax position in these jurisdictions.

During fiscal 2018 and 2017, the Group recorded pension mark-to-market gains of $10 million and $420 million, respectively. These gains generated tax expense (benefit) of $(3) million and $126 million, respectively, which reflects the Group's current tax position in these jurisdictions.

In the fourth quarter of fiscal 2017, the Group recorded a tax charge of $53 million due to a change in the deferred tax liability related to the outside basis of certain nonconsolidated subsidiaries.

In the first quarter of fiscal 2017, the Group recorded a discrete tax benefit of $101 million due to changes in entity tax status.

Impacts of Tax Legislation and Change in Statutory Tax Rates

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

In connection with the Group's analysis of the impact of the U.S. tax law changes, which is provisional and subject to change, the Group recorded a net tax charge of $108 million during fiscal 2018. This provisional net tax charge arises from a benefit of $108 million due to the remeasurement of U.S. deferred tax assets and liabilities, offset by the Group's tax charge relating to the one-time transition tax on deemed repatriated earnings, inclusive of all relevant taxes, of $216 million. The Group's estimated benefit of the remeasurement of U.S. deferred tax assets and liabilities increased from $101 million as of December 31, 2017 to $108 million as of September 30, 2018 due to calculation refinement of the Group's estimated impact. The Group remeasured certain deferred tax assets and liabilities based on the rates at which they are expected to reverse in the future. The Group's tax charge for transition tax decreased from $305 million as of December 31, 2017 to $216 million as of September 30, 2018 due to further analysis of the Group's post-1986 non-U.S. earnings and profits ("E&P") previously deferred from U.S. federal taxation and refinement of the estimated impact of tax law changes.

Based on the effective dates of certain aspects of the U.S. tax law changes, various applicable impacts of the enacted legislation could not be finalized as of September 30, 2018. While the Group made reasonable estimates of the impact of the transition tax, the final impact of the U.S. tax law changes may differ from these estimated impacts, due to, future treasury regulations, tax law technical corrections, notices, rulings, refined computations, and other items. The Group will finalize such provisional amounts within the time period prescribed by Staff Accounting Bulletin 118.

During the fiscal years ended 2018 and 2017, other tax legislation was adopted in various jurisdictions. These law changes did not have a material impact on the Group's consolidated financial statements.

Loss From Discontinued Operations, Net of Tax

	Year Ended September 30,		
(in millions)	2018	2017	Change
Loss from discontinued operations, net of tax	$ —	$ (34)	*

* Measure not meaningful

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

Income Attributable to Noncontrolling Interests

(in millions)	Year Ended September 30, 2018	2017	Change
Income from continuing operations attributable to noncontrolling interests	$ 221	$ 199	11%
Income from discontinued operations attributable to noncontrolling interests	—	9	*

* Measure not meaningful

The increase in income from continuing operations attributable to noncontrolling interests was primarily due to higher net income related to the Johnson Controls - Hitachi joint venture in the Building Technologies & Solutions business and higher net income at a Power Solutions partially-owned affiliate.

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

Net Income Attributable to Johnson Controls

(in millions)	Year Ended September 30, 2018	2017	Change
Net income attributable to Johnson Controls	$ 2,162	$ 1,611	34%

The increase in net income attributable to Johnson Controls was primarily due to lower income tax provision due to higher discrete period net tax charges in the prior year, lower SG&A, lower restructuring and impairment costs, lower net financing charges and higher gross profit. Fiscal 2018 diluted earnings per share attributable to Johnson Controls was $2.32 compared to $1.71 in fiscal 2017.

Comprehensive Income Attributable to Johnson Controls

(in millions)	Year Ended September 30, 2018	2017	Change
Comprehensive income attributable to Johnson Controls	$ 1,689	$ 1,710	-1%

The decrease in comprehensive income attributable to Johnson Controls was due to a decrease in other comprehensive income attributable to Johnson Controls ($572 million) resulting primarily from unfavorable foreign currency translation adjustments, partially offset by higher net income attributable to Johnson Controls ($551 million). These year-over-year unfavorable foreign currency translation adjustments were primarily driven by the weakening of the British pound and euro currencies against the U.S. dollar.

SEGMENT ANALYSIS

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

Building Technologies & Solutions

(in millions)	Net Sales for the Year Ended September 30, 2018	Net Sales for the Year Ended September 30, 2017	Change	Segment EBITA for the Year Ended September 30, 2018	Segment EBITA for the Year Ended September 30, 2017	Change
Building Solutions North America	$ 8,679	$ 8,341	4%	$ 1,109	$ 1,039	7%
Building Solutions EMEA/LA	3,696	3,595	3%	344	290	19%
Building Solutions Asia Pacific	2,553	2,444	4%	347	323	7%
Global Products	8,472	8,455	—%	1,338	1,179	13%
	$ 23,400	$ 22,835	2%	$ 3,138	$ 2,831	11%

Net Sales:

- The increase in Building Solutions North America was due to higher volumes ($343 million) and the favorable impact of foreign currency translation ($20 million), partially offset by the impact of prior year nonrecurring purchase accounting adjustments ($25 million). The increase in volumes was primarily attributable to higher HVAC, controls, fire and security sales.

- The increase in Building Solutions EMEA/LA was due to the favorable impact of foreign currency translation ($132 million), higher volumes ($63 million) and incremental sales related to a business acquisition ($2 million), partially offset by lower volumes related to a business divestiture ($80 million) and the impact of prior year nonrecurring purchase accounting adjustments ($16 million). The increase in volumes was primarily attributable to strong service growth which was positive across all regions led by Europe and Latin America.

- The increase in Building Solutions Asia Pacific was due to higher volumes ($61 million), the favorable impact of foreign currency translation ($61 million) and the impact of prior year nonrecurring purchase accounting adjustments ($1 million), partially offset by lower volumes related to a business divestiture ($14 million). The increase in volumes was primarily attributable to higher service sales.

- The increase in Global Products was due to higher volumes ($571 million), the favorable impact of foreign currency translation ($103 million) and the impact of prior year nonrecurring purchase accounting adjustments ($6 million), partially offset by lower volumes related to business divestitures ($663 million). The increase in volumes was primarily attributable to higher building management, HVAC and refrigeration equipment, and specialty products sales.

Segment EBITA:

- The increase in Building Solutions North America was due to favorable volumes / mix ($100 million), prior year integration costs ($42 million), prior year transaction costs ($13 million), and the favorable impact of foreign currency translation ($1 million), partially offset by higher SG&A including incremental salesforce investments ($37 million), current year integration costs ($25 million) and prior year nonrecurring purchase accounting adjustments ($24 million).

- The increase in Building Solutions EMEA/LA was due to a prior year unfavorable arbitration award ($50 million), favorable volumes / mix ($26 million), lower SG&A ($14 million), the favorable impact of foreign currency translation ($7 million), prior year integration costs ($6 million) and prior year transaction costs ($5 million), partially offset by prior year nonrecurring purchase accounting adjustments ($23 million), incremental salesforce investments ($14 million), current year integration costs ($6 million), higher operating costs ($5 million), lower equity income ($4 million) and lower income due to a business divestiture ($2 million).

- The increase in Building Solutions Asia Pacific was due to higher volumes / mix ($33 million), prior year integration costs ($5 million), prior year transaction costs ($2 million), prior year nonrecurring purchase accounting adjustments ($2 million) and the favorable impact of foreign currency translation ($1 million), partially offset by higher SG&A including incremental salesforce investments ($15 million), and unfavorable pricing ($4 million).

- The increase in Global Products was due to favorable volumes / mix ($219 million), a gain on sale of Scott Safety ($114 million), prior year nonrecurring purchase accounting adjustments ($71 million), higher equity income ($25 million), prior year integration costs ($25 million), the favorable impact of foreign currency translation ($20 million) and prior year transaction costs ($13 million). These items were partially offset by lower income due to business divestitures ($167 million), higher SG&A and operating expenses including planned incremental global product and channel investments, partially offset by productivity savings and gains on business divestitures ($134 million), and current year integration costs ($27 million).

Power Solutions

	Year Ended September 30,		
(in millions)	2018	2017	Change
Net sales	$ 8,000	$ 7,337	9%
Segment EBITA	1,417	1,427	-1%

- Net sales increased due to the impact of higher lead costs on pricing ($269 million), the favorable impact of foreign currency translation ($196 million), favorable pricing and product mix ($159 million), and higher volumes ($39 million). The increase in volumes was driven by growth in China and an increase in start-stop battery volumes, partially offset by changes in customer demand patterns in North America. Additionally, higher start-stop volumes contributed to favorable product mix.

- Segment EBITA decreased due to higher operating costs primarily driven by efforts to satisfy customer demand including higher transportation costs ($112 million), incremental investments ($31 million), lower equity income ($20 million), current year transaction costs ($8 million), and restructuring costs and discontinued operation losses included in equity income ($7 million), partially offset by lower SG&A from productivity savings and a gain on a business deconsolidation ($104 million), favorable pricing and product mix ($35 million), the favorable impact of foreign currency translation ($22 million), higher volumes ($6 million) and prior year transaction costs ($1 million).

GOODWILL, LONG-LIVED ASSETS AND OTHER INVESTMENTS

Goodwill at September 30, 2018 was $19.5 billion, $0.2 billion lower than the prior year. The decrease was primarily due to the impact of foreign currency translation.

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 multiples of earnings based on the average of published multiples of earnings of comparable entities with similar operations and economic characteristics and applies to the Group's average of historical and future financial results. 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.

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

Indefinite-lived other intangible assets are also subject to at least annual impairment testing. A considerable amount of management judgment and assumptions are required in performing the impairment tests.

While the Group believes the judgments and assumptions used in the impairment tests are reasonable and no impairments of goodwill or indefinite-lived assets existed during fiscal years 2018 and 2017, different assumptions could change the estimated fair values and, therefore, impairment charges could be required, which could be material to the consolidated financial statements.

The Group reviews long-lived assets, including tangible assets and other intangible assets with definitive lives, for impairment whenever events or changes in circumstances indicate that the asset’s carrying amount may not be recoverable. The 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." ASC 360-10-15 requires the Group to group assets and liabilities at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities and evaluate the asset group against the sum of the undiscounted future cash flows. If the undiscounted cash flows do not indicate the carrying amount of the asset group is recoverable, an impairment charge is measured as the amount by which the carrying amount of the asset group exceeds its fair value based on discounted cash flow analysis or appraisals. ASC 350-30 requires intangible assets acquired in a business combination that are used in research and development activities to be considered indefinite lived until the completion or abandonment of the associated research and development efforts. During the period that those assets are considered indefinite lived, they shall not be amortized but shall be tested for impairment annually and more frequently if events or changes in circumstances indicate that it is more likely than not that the asset is impaired. If the carrying amount of an intangible asset exceeds its fair value, an entity shall recognize an impairment loss in an amount equal to that excess. ASC 985-20 requires the unamortized capitalized costs of a computer software product be compared to the net realizable value of that product. The amount by which the unamortized capitalized costs of a computer software product exceed the net realizable value of that asset shall be written off.

In fiscal 2018, 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 2018. As a result, the Group reviewed the long-lived assets for impairment and recorded $42 million of asset impairment charges within restructuring and impairment costs in the consolidated statement of income. Of the total impairment charges, $31 million related to the Global Products segment, $6 million related to the Power Solutions segment and $5 million related to Corporate assets. Refer to Note 15, "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 2017, 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 2017. As a result, the Group reviewed the long-lived assets for impairment and recorded $77 million of asset impairment charges within restructuring and impairment costs on the consolidated statement of income. Of the total impairment charges, $30 million related to the Building Solutions North America segment, $20 million related to the Global Products segment, $19 million related to Corporate assets, $7 million related to the Power Solutions segment and $1 million related to the Building Solutions Asia Pacific segment. Refer to Note 15, "Significant Restructuring and Impairment Costs," of the notes to consolidated financial statements for additional information. The impairments were measured, depending on the asset, under either an income approach utilizing forecasted discounted cash flows or a market approach utilizing an appraisal to determine fair values of the impaired assets. These methods are 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."

Investments in partially-owned affiliates ("affiliates") at September 30, 2018 were $1.3 billion, $0.1 billion higher than the prior year. The increase was primarily due to equity income from partially-owned affiliates in the Power Solutions business and the Johnson Controls - Hitachi joint venture.

LIQUIDITY AND CAPITAL RESOURCES

Working Capital

(in millions)	September 30, 2018	September 30, 2017	Change
Current assets	$ 11,823	$ 12,292	
Current liabilities	(11,250)	(11,854)	
	573	438	31%
Less: Cash	(200)	(321)	
Add: Short-term debt	1,315	1,214	
Add: Current portion of long-term debt	26	394	
Less: Assets held for sale	—	(189)	
Add: Liabilities held for sale	—	72	
Working capital (as defined)	$ 1,714	$ 1,608	7%
Accounts receivable	$ 7,065	$ 6,666	6%
Inventories	3,224	3,209	—%
Accounts payable	4,644	4,271	9%

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

- The increase in working capital at September 30, 2018 as compared to September 30, 2017, was primarily due to an increase in accounts receivable due to organic sales growth, partially offset by an increase in accounts payable due to timing and mix of supplier payments.

- The Group's days sales in accounts receivable at September 30, 2018 were 66, a slight increase from 65 at September 30, 2017. There has been no significant adverse change in the level of overdue receivables or changes in revenue recognition methods.

- The Group's inventory turns for the year ended September 30, 2018 were slightly higher than the comparable period ended September 30, 2017 primarily due to changes in inventory production levels.

- Days in accounts payable at September 30, 2018 were 73 days, higher than 70 days at the comparable period ended September 30, 2017.

Cash Flows

	Year Ended September 30,	
(in millions)	2018	2017
Cash provided by operating activities	$ 2,513	$ 31
Cash provided (used) by investing activities	1,215	(1,137)
Cash provided (used) by financing activities	(3,752)	698
Capital expenditures	(1,030)	(1,343)

- The increase in cash provided by operating activities was primarily due to favorable movements in working capital balances, higher prior year income tax payments related to the Adient spin-off ($1.2 billion in the first quarter of fiscal 2017), and prior year operating cash outflows in the Automotive Experience business before the Adient spin-off, change in control pension payments and transaction/integration related payments.

- The increase in cash provided by investing activities was primarily due to net cash proceeds received from the Scott Safety business divestiture in the current year and a decrease in capital expenditures.

- The increase in cash used by financing activities was primarily due to higher current year repayments of long-term debt.

- The decrease in capital expenditures in the current year is primarily related to lower capital investments in the current year in the Building Technologies & Solutions and Power Solution businesses, and prior year capital investments in the Automotive Experience business before the Adient spin-off.

Capitalization

(in millions)	September 30, 2018	September 30, 2017	Change
Short-term debt	$ 1,315	$ 1,214	
Current portion of long-term debt	26	394	
Long-term debt	9,654	11,964	
Total debt	$ 10,995	$ 13,572	-19%
Less: cash and cash equivalents	200	321	
Total net debt	$ 10,795	$ 13,251	-19%
Shareholders' equity attributable to Johnson Controls ordinary shareholders	21,164	20,447	4%
Total capitalization	$ 31,959	$ 33,698	-5%
Total net debt as a % of total capitalization	33.8%	39.3%	

- 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 believes its capital resources and liquidity position at September 30, 2018 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 2019 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 and Tyco International Holding S.a.r.L.'s ("TSarl") are unable to issue commercial paper, they would have the ability to draw on their $2.0 billion and $1.25 billion revolving credit facilities, respectively. Both facilities mature in August 2020. There were no draws on the revolving credit facilities as of September 30, 2018 and 2017. The Group also selectively makes use of short-term credit lines other than its revolving credit facilities at the Group and TSarl. The Group estimates that, as of September 30, 2018, it could borrow up to $2.0 billion based on average borrowing levels during the fourth quarter of fiscal 2018 on committed credit lines. As such, the Group believes it has sufficient financial resources to fund operations and meet its obligations for the foreseeable future.

- The Group's debt financial covenant in its revolving credit facility 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 Accounting Standards Codification ("ASC") 715-60, "Defined Benefit Plans - Other Postretirement," or (ii) the cumulative foreign currency translation adjustment. TSarl's revolving credit facility contains customary terms and conditions, and a financial covenant that limits the ratio of TSarl's debt to earnings before interest, taxes, depreciation, and amortization as adjusted for certain items set forth in the agreement to 3.5x. TSarl's revolving credit facility also limits its ability to incur subsidiary debt or grant liens on its and its subsidiaries' property. As of September 30, 2018, the Group and TSarl were in compliance with all covenants and other requirements set forth in their credit agreements and the indentures, governing their notes, and expect to remain in compliance for the foreseeable future. None of the Group's or TSarl's debt agreements limit access to stated borrowing levels or require accelerated repayment in the event of a decrease in the respective borrower'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 including a limited accrual related to fiscal 2018 U.S. Tax Reform. In fiscal 2018, due to U.S. Tax Reform, the Group provided income tax related to the change in the Group's assertion over the outside basis difference of certain non-U.S. subsidiaries owned directly or indirectly by U.S. subsidiaries. Under U.S. Tax Reform, the U.S. has enacted a tax system that provides an exemption for dividends received by U.S. corporations from 10% or more owned non-U.S. corporations. However, certain non-U.S, U.S. state and withholding taxes may still apply when closing an outside basis difference via distribution or other transactions. In addition, in fiscal 2017, the Group provided income tax expense related to a change in the Group's assertion over the outside basis difference of the Scott Safety business as a result of the pending divestiture as well as the outside basis of certain nonconsolidated subsidiaries. The Group currently does not intend nor foresee a need to repatriate undistributed earnings included in the outside basis differences other than in tax efficient manners. Except as noted, the 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.

- To better align its resources with its growth strategies and reduce the cost structure of its global operations in certain underlying markets, the Group committed to a significant restructuring plan in fiscal 2018 and recorded $263 million of restructuring and impairment costs in the consolidated statement of income. The restructuring action related to cost reduction initiatives in the Group's Building Technologies & Solutions and Power Solutions businesses and at Corporate. The costs consist primarily of workforce reductions, plant closures and asset impairments. The Group currently estimates that upon completion of the restructuring action, the fiscal 2018 restructuring plan will reduce annual operating costs by approximately $300 million, which is primarily the result of lower cost of sales and SG&A due to reduced employee-related costs, depreciation and amortization expense. The Group expects the annual benefit of these actions will be substantially realized in 2020. For fiscal 2018, the savings, net of execution costs, were approximately 25% of the expected annual operating cost reduction. The restructuring action is expected to be substantially complete in 2020. The restructuring plan reserve balance of $174 million at September 30, 2018 is expected to be paid in cash.

- To better align its resources with its growth strategies and reduce the cost structure of its global operations in certain underlying markets, the Group committed to a significant restructuring plan in fiscal 2017 and recorded $367 million of restructuring and impairment costs in the consolidated statement of income. The restructuring action related to cost reduction initiatives in the Group's Building Technologies & Solutions and Power Solutions businesses and at Corporate. The costs consist primarily of workforce reductions, plant closures and asset impairments. The Group currently estimates that upon completion of the restructuring action, the fiscal 2017 restructuring plan will reduce annual operating costs from continuing operations by approximately $280 million, which is primarily the result of lower cost of sales and SG&A expenses due to reduced employee-related costs, depreciation and amortization expense. The Group expects the annual benefit of these actions will be substantially realized in fiscal 2019. For fiscal 2018, the savings, net of execution costs, were approximately 85% of the expected annual operating cost reduction. The restructuring actions are expected to be substantially complete in fiscal 2019. The restructuring plan reserve balance of $80 million at September 30, 2018 is expected to be paid in cash.

- To better align its resources with its growth strategies and reduce the cost structure of its global operations to address the softness in certain underlying markets, the Group committed to a significant restructuring plan in fiscal 2016 and recorded $288 million of restructuring and impairment costs in the consolidated statement of income. The restructuring action related to cost reduction initiatives in the Group's Building Technologies & Solutions and Power Solutions businesses and at Corporate. The costs consist primarily of workforce reductions, plant closures, asset impairments and change-in-control payments. The Group currently estimates that upon completion of the restructuring action, the fiscal 2016 restructuring plan will reduce annual operating costs from continuing operations by approximately $135 million, which is primarily the result of lower cost of sales and SG&A due to reduced employee-related costs, depreciation and amortization expense. The Group expects the annual benefit of these actions will be substantially realized in fiscal 2019. For fiscal 2018, the savings, net of execution costs, were approximately 75% of the expected annual operating cost reduction. The restructuring actions are expected to be substantially complete in fiscal 2019. The restructuring plan reserve balance of $73 million at September 30, 2018 is expected to be paid in cash.

Contractual Obligations

A summary of the Group's significant contractual obligations for continuing operations as of September 30, 2018 is as follows (in millions):

	Total	2019	2020-2021	2022-2023	2024 and Beyond
Contractual Obligations					
Long-term debt (including capital lease obligations)*	$ 9,724	$ 26	$ 2,489	$ 1,973	$ 5,236
Interest on long-term debt (including capital lease obligations)*	5,399	317	560	476	4,046
Operating leases	1,200	348	492	263	97
Purchase obligations	2,506	1,490	731	262	23
Pension and postretirement contributions	476	100	75	76	225
Tax indemnification liabilities**	255	—	—	—	—
Total contractual cash obligations	$ 19,560	$ 2,281	$ 4,347	$ 3,050	$ 9,627

* Refer to Note 8, "Debt and Financing Arrangements," of the notes to consolidated financial statements for information related to the Group's long-term debt.

** As a result of the Tyco Merger in the fourth quarter of fiscal 2016, the Group recorded as part of the acquired liabilities of Tyco $290 million of post sale contingent tax indemnification liabilities which is generally recorded within other noncurrent liabilities in the consolidated statement of financial position. The liabilities are recorded at fair value and relate to certain tax related matters borne by the buyer of previously divested subsidiaries of Tyco which Tyco has indemnified certain parties and the amounts are probable of being paid. At September 30, 2018 and 2017, the Group recorded liabilities of $255 million and $290 million, respectively. Of the $255 million recorded as of September 30, 2018, $235 million is related to prior divested businesses and the remainder relates to Tyco's tax sharing agreements from its 2007 and 2012 spin-off transactions. The payments due by period are not presented due to uncertainty as to when these liabilities will be settled or paid. These are certain guarantees or indemnifications extended among Tyco, Medtronic, TE Connectivity, ADT and Pentair in accordance with the terms of the 2007 and 2012 separation and tax sharing agreements.

CRITICAL ACCOUNTING ESTIMATES AND POLICIES

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

Revenue Recognition

The Building Technologies & Solutions business recognizes revenue from certain long-term contracts over the contractual period under the percentage-of-completion ("POC") method of accounting. This method of accounting recognizes sales and gross profit as work is performed based on the relationship between actual costs incurred and total estimated costs at completion. Recognized revenues that will not be billed under the terms of the contract until a later date are recorded primarily in accounts receivable. Likewise, contracts where billings to date have exceeded recognized revenues are recorded primarily in deferred revenue. Changes to the original estimates may be required during the life of the contract and such estimates are reviewed monthly. 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. Claims against customers are recognized as revenue upon settlement. The use of the POC method of accounting involves considerable use of estimates in determining revenues, costs and profits and in assigning the amounts to accounting periods. The periodic reviews have not resulted in adjustments that were significant to the Group's results of operations. The Group continually evaluates all of the assumptions, risks and uncertainties inherent with the application of the POC method of accounting.

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

The Building Technologies & Solutions business also sells certain heating, ventilating and air conditioning ("HVAC") and refrigeration products and services in bundled arrangements, where multiple products and/or services are involved. Significant deliverables within these arrangements include 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 Buildings business sells security monitoring systems that may have multiple elements, including equipment, installation, monitoring services and maintenance agreements. Revenues associated with sale of equipment and related installations are recognized once delivery, installation and customer acceptance is completed, while the revenue for monitoring and maintenance services are recognized as services are rendered. In accordance with ASU No. 2009-13, "Revenue Recognition (Topic 605): Multiple-Deliverable Revenue Arrangements - A Consensus of the FASB Emerging Issues Task Force," the Group divides bundled arrangements into separate deliverables and revenue is allocated to each deliverable based on the relative selling price method. In order to estimate relative selling price, market data and transfer price studies are utilized. Revenue recognized for security monitoring equipment and installation is limited to the lesser of their allocated amounts under the estimated selling price hierarchy or the non-contingent up-front consideration received at the time of installation, since collection of future amounts under the arrangement with the customer is contingent upon the delivery of monitoring and maintenance services. For transactions in which the Group retains ownership of the subscriber system asset, fees for monitoring and maintenance services are recognized 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 customer relationship.

In all other cases, the Group recognizes revenue at the time title passes to the customer or as services are performed.

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 multiples of earnings based on the average of published multiples of earnings of comparable entities with similar operations and economic characteristics and applies to the Group's average of historical and future financial results. 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. During the fourth quarter of fiscal 2018, the Group changed the date of its annual goodwill impairment test from September 30 to July 31. The change was made to more closely align the impairment testing date with the Group's long-term planning and forecasting process. The change in the annual impairment testing date did not delay, accelerate or avoid an impairment charge. The Group has determined this change in accounting principle is preferable and does not result in adjustments to the Group's financial statements when applied retrospectively. Refer to Note 6, "Goodwill and Other Intangible Assets," of the notes to consolidated financial statements for information regarding the goodwill impairment testing performed in the fourth quarters of fiscal years 2018 and 2017.

Indefinite-lived intangible assets are also subject to at least annual impairment testing. Indefinite-lived intangible assets consist of trademarks and tradenames 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.

Impairment of Long-Lived Assets

The Group reviews long-lived assets, including tangible assets and other intangible assets with definitive lives, for impairment whenever events or changes in circumstances indicate that the asset's carrying amount may not be recoverable. The 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." ASC 360-10-15 requires the Group to group assets and liabilities at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities and evaluate the asset group against the sum of the undiscounted future cash flows. If the undiscounted cash flows do not indicate the carrying amount of the asset group is recoverable, an impairment charge is measured as the amount by which the carrying amount of the asset group exceeds its fair value based on discounted cash flow analysis or appraisals. ASC 350-30 requires intangible assets acquired in a business combination that are used in research and development activities be considered indefinite lived until the completion or abandonment of the associated research and development efforts. During the period that those assets are considered indefinite lived, they shall not be amortized but shall be tested for impairment annually and more frequently if events or changes in circumstances indicate that it is more likely than not that the asset is impaired. If the carrying amount of an intangible asset exceeds its fair value, an entity shall recognize an impairment loss in an amount equal to that excess. ASC 985-20 requires the unamortized capitalized costs of a computer software product be compared to the net realizable value of that product. The amount by which the unamortized capitalized costs of a computer software product exceed the net realizable value of that asset shall be written off. Refer to Note 16, "Impairment of Long-Lived Assets," of the notes to consolidated financial statements for information regarding the impairment testing performed in fiscal years 2018 and 2017.

Employee Benefit Plans

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

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 14, "Retirement Plans," of the notes to consolidated financial statements for disclosure of the Group's pension and postretirement benefit plans.

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

The 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's weighted average discount rate on U.S. pension plans was 4.10% and 3.80% at September 30, 2018 and 2017, respectively. The Group's weighted average discount rate on postretirement plans was 3.80% and 3.70% at September 30, 2018 and 2017, respectively. The Group’s weighted average discount rate on non-U.S. pension plans was 2.45% and 2.40% at September 30, 2018 and 2017, respectively.

In estimating the expected return on plan assets, the Group considers the historical returns on plan assets, adjusted for forward-looking considerations, inflation assumptions and the impact of the active management of the plans’ invested assets. Reflecting the relatively long-term nature of the plans’ obligations, approximately 35% of the plans’ assets are invested in equity securities and 56% in fixed income securities, with the remainder primarily invested in alternative investments. For the years ending September 30, 2018 and 2017, the Group’s expected long-term return on U.S. pension plan assets used to determine net periodic benefit cost was 7.50%. The actual rate of return on U.S. pension plans was below 7.50% in fiscal year 2018 and above 7.50% in fiscal year 2017. For the years ending September 30, 2018 and 2017, the Group’s weighted average expected long-term return on non-U.S. pension plan assets was 5.35% and 4.60%, respectively. The actual rate of return on non-U.S. pension plans was below 5.35% in fiscal year 2018 and above 4.60% in fiscal year 2017. For the years ending September 30, 2018 and 2017, the Group’s weighted average expected long-term return on postretirement plan assets was 5.65% and 5.60%, respectively. The actual rate of return on postretirement plan assets was below 5.65% in fiscal year 2018 and above 5.60% in fiscal year 2017.

Beginning in fiscal 2019, the Group believes the long-term rate of return will approximate 7.10%, 5.20% and 5.65% for U.S. pension, non-U.S. pension and postretirement plans, respectively. Any differences between actual investment results and the expected long-term asset returns will be reflected in net periodic benefit costs in the fourth quarter of each fiscal year or at the date of a significant remeasurement event. If the Group’s actual returns on plan assets are less than the Group’s expectations, additional contributions may be required.

In fiscal 2018, total employer contributions to the defined benefit pension plans were $53 million, of which $18 million were voluntary contributions made by the Group. The Group expects to contribute approximately $85 million in cash to its defined benefit pension plans in fiscal 2019. In fiscal 2018, total employer contributions to the postretirement plans were $4 million. The Group expects to contribute approximately $15 million in cash to its postretirement plans in fiscal 2019.

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

Loss Contingencies

Accruals are recorded for various contingencies including legal proceedings, environmental matters, self-insurance and other claims that arise in the normal course of business. The accruals are based on judgment, the probability of losses and, where applicable, the consideration of opinions of internal and/or external legal counsel and actuarially determined estimates. Additionally, the 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 21, "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 21, "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.

Product Warranties

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 of 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. At September 30, 2018, the Group had recorded $392 million of warranty reserves for continuing operations, including extended warranties for which deferred revenue is recorded. 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. Refer to Note 20, "Guarantees," of the notes to consolidated financial statements for disclosure of the Group's product warranty liabilities.

Income Taxes

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

The 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. At September 30, 2018, the Group had a valuation allowance of $5.2 billion for continuing operations, of which $4.5 billion relates to net operating loss carryforwards primarily in Australia, Belgium, Brazil, China, France, Luxembourg, Spain, Switzerland and the United Kingdom for which sustainable taxable income has not been demonstrated; and $700 million for other deferred tax assets.

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. At September 30, 2018, the Group had unrecognized tax benefits of $2.4 billion.

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

Refer to Note 17, "Income Taxes," of the notes to consolidated financial statements for the Group's income tax disclosures.

NEW ACCOUNTING PRONOUNCEMENTS

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

FINANCIAL RISK MANAGEMENT

The Group selectively uses derivative instruments to reduce market risk associated with changes in foreign currency, commodities, interest rates 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.

The Group selectively uses interest rate swaps to reduce market risk associated with changes in interest rates for its fixed-rate bonds. At September 30, 2018, the Group did not have any outstanding interest rate swaps. The Group assesses retrospective and prospective effectiveness and records any measured ineffectiveness in the consolidated statement of income on a monthly basis.

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 9, "Derivative Instruments and Hedging Activities," and Note 10, "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, 2018 and 2017, the Group estimates that an unfavorable 10% change in the exchange rates would have decreased net unrealized gains by approximately $212 million and $330 million, respectively.

Interest Rates

From time to time, the Group may use interest rate swaps to offset its exposure to interest rate movements. In accordance with ASC 815, these outstanding swaps qualify and are designated as fair value hedges. The Group had no outstanding interest rate swaps at September 30, 2018 and 2017, respectively. A 10% increase in the average cost of the Group's variable rate debt would have resulted in an unfavorable change in pre-tax interest expense of approximately $5 million and $13 million for the year ended September 30, 2018 and 2017, respectively.

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 Parent Company held 26.0 million and 17.1 million of its own shares as of September 30, 2018 and 2017, respectively, which amounted to 2.73% and 1.81% of total shares issued as of September 30, 2018 and 2017, respectively. The Parent Company acquires its own shares based on capital allocation strategies.

The Parent Company's own shares activity for the fiscal years ended September 30, 2018 and September 30, 2017 was as follows (in millions):

	Year Ended September 30, 2018		Year Ended September 30, 2017	
	Shares	Amount	Shares	Amount
Balance at beginning of period	17.1	$ 710	0.4	$ 18
Payments to acquire own shares	7.8	300	15.7	651
Other	1.1	43	1.0	41
Balance at end of period	26.0	$ 1,053	17.1	$ 710

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 Parent Company's ordinary shares will be determined by the Parent 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 and was acquired in conjunction with the Tyco Merger. Additionally, on April 27, 2018, the Irish High Court approved the Parent Company's conversion of approximately $26.0 billion of share premium to distributable reserves. As of September 30, 2018, the Parent Company's distributable reserve balance was approximately $34.7 billion.

During fiscal 2018 and 2017, the Parent Company declared four quarterly dividends totaling $1.04 and $1.00, respectively, per ordinary share. Dividends of $954 million and $702 million were paid by the Parent Company to shareholders during fiscal years 2018 and 2017, respectively. As of September 30, 2018, there were $240 million of outstanding dividends declared. As of September 30, 2017, there were $232 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.

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.

SIGNIFICANT EVENTS SINCE YEAR END

Subsequent events have been evaluated through January 8, 2019, the date this report was approved by the Audit Committee of the Board of Directors and the Board of Directors. Refer to Note 21, "Commitments and Contingencies," and Note 23, "Subsequent Event," of the notes to consolidated financial statements for details of subsequent events. Additionally, on November 8, 2018, the Board of Directors has approved an incremental $1 billion increase to its share repurchase authorization.

DIRECTORS

As of September 30, 2018, the directors of Johnson Controls Ireland were George R. Oliver, Jean S. Blackwell, Michael E. Daniels, Juan Pablo del Valle Perochena, Roy Dunbar, Brian Duperreault, Gretchen R. Haggerty, Simone Menne, Jürgen Tinggren, Mark P. Vergnano, R. David Yost and John D. Young.

On December 7, 2017, the Board of Directors of Johnson Controls Ireland appointed John D. Young to serve as a member of the Board of Directors of Johnson Controls Ireland with a term expiring at the conclusion of the next annual general meeting of the Group, where he was re-elected to serve on the Board of Directors.

On March 7, 2018, Natalie Black and David Abney retired from the Board of Directors of Johnson Controls Ireland and Gretchen R. Haggerty and Simone Menne were elected to serve on the Board of Directors of Johnson Controls Ireland.

On June 13, 2018, Jean S. Blackwell was elected to serve on the Board of Directors of Johnson Controls Ireland.

On December 3, 2018, Brian Duperreault notified the Board of Directors of Johnson Controls Ireland that that he will not stand for reelection as a director at the end of his current term and will retire from the Board of Directors of Johnson Controls Ireland effective as of the conclusion of the Group's 2019 Annual Meeting of Stockholders.

On December 5, 2018, the Board of Directors of Johnson Controls Ireland appointed Pierre Cohade to serve as a member of the Board of Directors of Johnson Controls Ireland with a term expiring at the conclusion of the next annual general meeting of the Group, where he is expected to stand for re-election.

DIRECTORS' AND CORPORATE SECRETARY INTERESTS IN SHARES

The interests in the ordinary shares of the Parent Company of the directors and corporate secretary of Johnson Controls Ireland holding office at the end of the fiscal year 2018 and at either the beginning of the fiscal year or date of appointment if later, were as follows:

	September 30, 2018		Later of September 30, 2017 or date of appointment	
Directors	Ordinary Shares	Share Units/ Options	Ordinary Shares	Share Units/ Options
George R. Oliver[1]	581,549	2,437,990	467,900	2,144,298
Jean S. Blackwell	—	3,354	—	3,329
Michael E. Daniels	63,027	4,181	60,976	3,842
Juan Pablo del Valle Perochena	1,887	4,181	—	3,842
Roy Dunbar	1,491	4,181	—	2,793
Brian Duperreault	27,028	4,181	24,977	3,842
Gretchen R. Haggerty	—	4,181	—	4,119
Simone Menne	—	4,181	—	4,119
Jürgen Tinggren	19,550	4,181	5,760	3,842
Mark P. Vergnano	13,628	4,181	11,584	3,842
R. David Yost	44,958	4,181	42,921	3,842
John Young	549	4,181	—	1,037
Corporate Secretaries				
John Donofrio[2], [3]	—	152,963	—	152,963
Michael R. Peterson[3]	1,019	7,750	—	9,200

[1] Number of share units/options held includes 1,886,791 and 1,898,108 options as of September 30, 2018 and 2017, respectively.
[2] Number of share units/options held includes 70,921 options as of September 30, 2018 and March 8, 2018, the date of appointment.
[3] John Donofrio and Michael R. Peterson were appointed Corporate Secretaries on March 8, 2018.

POLITICAL DONATIONS

No political donations that require disclosure under Irish Company Law were made during fiscal 2018.

SUBSIDIARY COMPANIES AND UNDERTAKINGS

Refer to Note 30, "Subsidiary Undertakings," of the notes to consolidated financial statements for information regarding subsidiary undertakings, unconsolidated subsidiaries and branches.

GOING CONCERN

The directors have a reasonable expectation that the Group and Johnson Controls Ireland 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, 2018 and 2017.

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 INFORMATION STATEMENT

A copy of the Non-Financial Information Statement will be published at the Investor Relations section of the Company'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/ Jürgen Tinggren
George R. Oliver	Jürgen Tinggren
Chairman and Chief Executive Officer	Director

January 8, 2019

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 September 30, 2018 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 UK Financial Reporting Council, 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 2018;
- the Company Balance Sheet as at 30 September 2018;
- 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; and
- 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

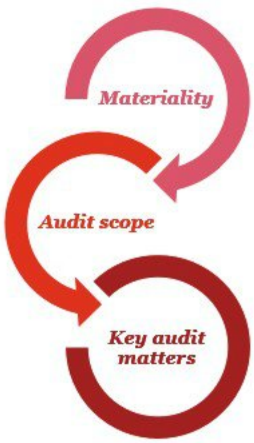
We conducted our audit in accordance with International Standards on Auditing (Ireland) ("ISAs (Ireland)") and applicable law. Our responsibilities under ISAs (Ireland) are further described in the Auditors' responsibilities for the audit of the financial statements section of our report. We believe 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 the Irish Auditing and Accounting Supervisory Authority (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

- $140 million (2017: $130 million) - consolidated financial statements. This represents circa 5% of income from continuing operations before income taxes adjusted for discrete items, primarily the Group's net actuarial gain for the year.
- $563 million (2017: $555 million) - company financial statements. This represents 1% of total assets. For financial statement line items that do not eliminate on consolidation, they have been audited to the overall consolidated materiality levels.

Audit Scope

- The Group's five reportable segments are presented in the context of its two primary businesses - Building Technologies & Solutions ("BT&S") and Power Solutions.
- We conducted work on 13 reporting components. We paid particular attention to these components due to their size or characteristics and to ensure appropriate audit coverage. Full scope audits were performed on 8 components and specified procedures were performed on the further 5 components.
- Taken together, the territories and functions where we performed our audit accounted for 74% of Group net sales, 87% of income from continuing operations before income taxes (excluding the company's net actuarial gain) for the year and 73% of Group total assets.

Key Audit Matters

- Goodwill impairment assessment.
- 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 judgements, 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 judgement, 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
Goodwill impairment assessment *Refer to note 1 "basis of presentation and summary of significant accounting policies" and note 6 "goodwill and other intangible assets".* The Group has goodwill of $19,473 million at September 30, 2018 representing approximately 40% of the Group's total assets at year-end. Our audit was focused in this area due to the quantitative significance of the goodwill balance, as well as the change of its annual goodwill impairment test from September 30 to July 31, which was considered a change in accounting principle. Additionally, as set out in the accounting policy, there are judgments and estimates used by management of Johnson Control International plc ("JCI plc") when performing their annual impairment assessment of goodwill, including the use of multiples of earnings based on the average of published multiples of earnings of comparable entities with similar operations and economic characteristics, applied to the average of the Group's historical and future financial results to estimate the fair value of reporting units.	We evaluated and tested JCI plc's key internal controls over financial reporting related to the impairment assessment. We assessed management's determination that no triggering events occurred during fiscal 2018, including evaluating financial performance of the reporting units and changes in industry/market conditions. We evaluated the management's analysis in respect of the change to its goodwill annual impairment date, including their aligning of the timing of impairment testing to the their forecasting process and considering whether the change in the impairment testing date impacted the results of prior year impairment testing. We engaged PwC transaction specialists to assess the reasonableness of management's valuation model. We compared the historic and forecasted results used in the estimate of the average of the Group's historical and future financial results to actual results and approved forecasts respectively. We compared the growth rate used in forecasts to external sources of the expected growth rate in the relevant market. We re-calculated the average market multiple of earnings and considered the reasonableness of the population of comparable entities used by management by reference to their operations, economic characteristics and size. We evaluated the overall results of the consolidated aggregate of fair value of each reporting unit compared to the issuer's stock price during the fourth quarter. We evaluated the appropriateness of management's disclosures.
Uncertain tax positions *Refer to note 18 "income taxes."* The Group has an Uncertain Tax Positions ("UTPs") reserve of $2,379 million as at September 30, 2018. JCI plc is subject to income taxes in the U.S. and numerous foreign jurisdictions. Judgement is required in determining JCI plc's worldwide reserve for UTPs. In the ordinary course of business, there are many transactions and calculations where the ultimate tax determination is a result of highly subjective management judgements. Based on our professional judgement, UTPs were a focus of our audit due to the quantitative significance of the total UTP reserve and the highly subjective judgements used by management when estimating the UTPs reserve.	We evaluated and tested JCI plc's key internal controls over financial reporting related to the identification of uncertain tax positions and related financial statement disclosures. Specifically, those controls related to the identification and analysis of new uncertain positions and changes in existing positions. We evaluated management's analysis of each position by obtaining and evaluating supporting documentation, relevant tax law and the assumptions utilised to form the tax position. We assessed the completeness of the UTPs based on our knowledge of potential exposures arising from fiscal 2018 ordinary business activities and prior periods, significant

Key audit matter	How our audit addressed the key audit matter
	transactions, changes in tax law and the current status of U.S. and foreign tax examinations. We specifically focused on understanding and evaluating the management's judgements and estimates involved when determining the amount of the reserve for each UTP. We assessed the reasonableness of estimated interest and penalties recorded to income tax expense related to JCI plc's UTPs by reviewing local country tax laws as well as the impact from net operating loss carryovers. We considered the current year movement in UTPs based on our understanding and reconciled UTP disclosures to supporting calculations. We evaluated the appropriateness of management's disclosures.

How we tailored the audit scope

The Group is structured along two primary businesses, Building Technologies & Solutions and Power Solutions. The consolidated financial statements are a consolidation of 5 reportable segments and over 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 four different territories; Slovakia, Mexico, China 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. 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 specified procedures we obtained coverage of 74% of Group net sales, 87% of income from continuing operations before income taxes (excluding the Group's net actuarial gain) for the year and 73% 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. The above coverage includes other reporting components where specific audit procedures on certain balances 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 judgement, we determined materiality for the financial statements as a whole as follows:

	Consolidated financial statements	*Company financial statements*
Overall materiality	$140 million (2017: $130 million)	$563 million (2017: $555 million)
How we determined it	5% of income from continuing operations before income taxes adjusted for discrete items, primarily the Group's net actuarial gain for the year	1% of total assets
Rationale for benchmark applied	We deem income from continuing operations before income taxes, adjusted for the Group's net actuarial gain for the year to be the most appropriate for a net income focused entity	As the company is a holding company it is deemed that total assets is 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

For each component in the scope of our Group audit, we allocated a materiality that is less than our overall Group materiality. The range of materiality allocated across components was between $20 million and $120 million.

We agreed with the Audit Committee that we would report to them misstatements identified during our audit above $14 million (2017: $13 million) as well as misstatements below that amount that, in our view, warranted reporting for qualitative reasons. For the company audit our misstatement threshold for reporting to the Audit Committee was $56 million (2017: $55 million) as well as misstatements below that amount that, in our view, warranted reporting for qualitative reasons.

Conclusions relating to going concern

We have nothing to report in respect of the following matters in relation to which ISAs (Ireland) require us to report to you where:

- the directors' use of the going concern basis of accounting in the preparation of the financial statements is not appropriate; or
- the directors have not disclosed in the financial statements any identified material uncertainties that may cast significant doubt about the Group's or the company's ability to continue to adopt the going concern basis of accounting for a period of at least twelve months from the date when the financial statements are authorised for issue.

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

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 September 30, 2018 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 3 and 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 consolidated financial statements.

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.

Companies Act 2014 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.

Anthony Reidy
for and on behalf of PricewaterhouseCoopers
Chartered Accountants and Statutory Audit Firm
Cork
January 8, 2019

Johnson Controls International plc
Consolidated Statement of Income

(in millions, except per share data)	Year Ended September 30, 2018	2017
Net sales		
Products and systems*	$ 25,332	$ 24,099
Services*	6,068	6,073
	31,400	30,172
Cost of sales		
Products and systems*	18,602	17,220
Services*	3,418	3,613
	22,020	20,833
Gross profit	9,380	9,339
Selling, general and administrative expenses	(6,010)	(6,158)
Restructuring and impairment costs	(263)	(367)
Net financing charges	(441)	(496)
Equity income	235	240
Income from continuing operations before income taxes	2,901	2,558
Income tax provision	518	705
Income from continuing operations	2,383	1,853
Loss from discontinued operations, net of tax (Note 3)	—	(34)
Net income	2,383	1,819
Income from continuing operations attributable to noncontrolling interests	221	199
Income from discontinued operations attributable to noncontrolling interests	—	9
Net income attributable to Johnson Controls	$ 2,162	$ 1,611
Amounts attributable to Johnson Controls ordinary shareholders:		
Income from continuing operations	$ 2,162	$ 1,654
Loss from discontinued operations	—	(43)
Net income	$ 2,162	$ 1,611
Basic earnings (loss) per share attributable to Johnson Controls		
Continuing operations	$ 2.34	$ 1.77
Discontinued operations	—	(0.05)
Net income	$ 2.34	$ 1.72
Diluted earnings (loss) per share attributable to Johnson Controls		
Continuing operations	$ 2.32	$ 1.75
Discontinued operations	—	(0.05)
Net income **	$ 2.32	$ 1.71

* Products and systems consist of Building Technologies & Solutions and Power Solutions products and systems. Services are Building Technologies & Solutions technical services.

** Certain items do not sum due to rounding.

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

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

(in millions)	Year Ended September 30, 2018	2017
Net income	$ 2,383	$ 1,819
Other comprehensive income (loss), net of tax:		
Foreign currency translation adjustments	(483)	103
Realized and unrealized losses on derivatives	(29)	(14)
Realized and unrealized gains on marketable securities	4	5
Other comprehensive income (loss)	(508)	94
Total comprehensive income	1,875	1,913
Comprehensive income attributable to noncontrolling interests	186	203
Comprehensive income attributable to Johnson Controls	$ 1,689	$ 1,710

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)	September 30, 2018	September 30, 2017
Assets		
Cash and cash equivalents	$ 200	$ 321
Accounts receivable, less allowance for doubtful accounts of $177 and $182, respectively	7,065	6,666
Inventories	3,224	3,209
Assets held for sale	—	189
Other current assets	1,334	1,907
Current assets	11,823	12,292
Property, plant and equipment - net	6,171	6,121
Goodwill	19,473	19,688
Other intangible assets - net	6,348	6,741
Investments in partially-owned affiliates	1,301	1,191
Noncurrent assets held for sale	—	1,920
Other noncurrent assets	3,681	3,931
Total assets	$ 48,797	$ 51,884
Liabilities and Equity		
Short-term debt	$ 1,315	$ 1,214
Current portion of long-term debt	26	394
Accounts payable	4,644	4,271
Accrued compensation and benefits	1,146	1,071
Deferred revenue	1,326	1,279
Liabilities held for sale	—	72
Other current liabilities	2,793	3,553
Current liabilities	11,250	11,854
Long-term debt	9,654	11,964
Pension and postretirement benefits	717	947
Noncurrent liabilities held for sale	—	173
Other noncurrent liabilities	4,718	5,368
Long-term liabilities	15,089	18,452
Commitments and contingencies (Note 21)		
Redeemable noncontrolling interests	—	211
Ordinary shares - par value $0.01, $0.01; 2.0 billion, 2.0 billion shares authorized; 950,969,965, 945,055,276 shares issued, respectively	10	9
Ordinary A shares - par value €1.00; 40,000 shares authorized, none outstanding as of September 30, 2018 and 2017	—	—
Preferred shares - par value $0.01; 200,000,000 shares authorized, none outstanding as of September 30, 2018 and 2017	—	—
Ordinary shares held in treasury, at cost (2018 - 25,963,004; 2017 - 17,080,302 shares)	(1,053)	(710)
Capital in excess of par value	16,549	16,390
Retained earnings	6,604	5,231
Accumulated other comprehensive loss	(946)	(473)
Shareholders' equity attributable to Johnson Controls	21,164	20,447
Noncontrolling interests	1,294	920
Total equity	22,458	21,367
Total liabilities and equity	$ 48,797	$ 51,884

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

Approved by the Board of Directors on January 8, 2019 and signed on its behalf by:

/s/ George R. Oliver	/s/ Jürgen Tinggren
George R. Oliver	Jürgen Tinggren
Chairman and Chief Executive Officer	Director

Johnson Controls International plc
Consolidated Statement of Cash Flows

(in millions)	Year Ended September 30, 2018	2017
Operating Activities		
Net income attributable to Johnson Controls	$ 2,162	$ 1,611
Income from continuing operations attributable to noncontrolling interests	221	199
Income from discontinued operations attributable to noncontrolling interests	—	9
Net income	2,383	1,819
Adjustments to reconcile net income to cash provided by operating activities:		
Depreciation and amortization	1,085	1,188
Pension and postretirement benefit income	(156)	(568)
Pension and postretirement contributions	(57)	(347)
Equity in earnings of partially-owned affiliates, net of dividends received	(166)	(181)
Deferred income taxes	(636)	1,125
Non-cash restructuring and impairment charges	42	78
Gain on Scott Safety business divestiture	(114)	—
Equity-based compensation	115	147
Other - net	(48)	(12)
Changes in assets and liabilities, excluding acquisitions and divestitures:		
Accounts receivable	(513)	(520)
Inventories	(92)	(398)
Other assets	26	(480)
Restructuring reserves	(8)	89
Accounts payable and accrued liabilities	15	236
Accrued income taxes	637	(2,145)
Cash provided by operating activities	2,513	31
Investing Activities		
Capital expenditures	(1,030)	(1,343)
Sale of property, plant and equipment	48	33
Acquisition of businesses, net of cash acquired	(21)	(6)
Business divestitures, net of cash divested	2,202	220
Changes in long-term investments	11	(41)
Other - net	5	—
Cash provided (used) by investing activities	1,215	(1,137)
Financing Activities		
Increase in short-term debt - net	107	145
Increase in long-term debt	1,136	1,865
Repayment of long-term debt	(3,729)	(1,297)
Debt financing costs	(4)	(18)
Stock repurchases	(300)	(651)
Payment of cash dividends	(954)	(702)
Proceeds from the exercise of stock options	66	157
Dividends paid to noncontrolling interests	(46)	(88)
Dividend from Adient spin-off	—	2,050
Cash transferred to Adient related to spin-off	—	(665)
Cash paid to prior acquisitions	—	(75)
Employee equity-based compensation withholding	(43)	(37)
Other - net	15	14
Cash provided (used) by financing activities	(3,752)	698
Effect of exchange rate changes on cash and cash equivalents	(106)	54
Change in cash held for sale	9	96
Decrease in cash and cash equivalents	(121)	(258)
Cash and cash equivalents at beginning of period	321	579
Cash and cash equivalents at end of period	$ 200	$ 321

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)	Total	Ordinary Shares	Capital in Excess of Par Value	Retained Earnings	Treasury Stock, at Cost	Accumulated Other Comprehensive Income (Loss)
At September 30, 2016	$ 24,118	$ 9	$ 16,105	$ 9,177	$ (20)	$ (1,153)
Comprehensive income	1,710	—	—	1,611	—	99
Cash dividends						
Ordinary ($1.00 per share)	(938)	—	—	(938)	—	—
Repurchases of ordinary shares	(651)	—	—	—	(651)	—
Spin-off of Adient	(4,038)	—	—	(4,619)	—	581
Other, including options exercised	246	—	285	—	(39)	—
At September 30, 2017	20,447	9	16,390	5,231	(710)	(473)
Comprehensive income (loss)	1,689	—	—	2,162	—	(473)
Cash dividends						
Ordinary ($1.04 per share)	(968)	—	—	(968)	—	—
Repurchases of ordinary shares	(300)	—	—	—	(300)	—
Adoption of ASU 2016-09	179	—	—	179	—	—
Other, including options exercised	117	1	159	—	(43)	—
At September 30, 2018	**$ 21,164**	**$ 10**	**$ 16,549**	**$ 6,604**	**$ (1,053)**	**$ (946)**

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 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, 2018, 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 creates intelligent buildings, efficient energy solutions, integrated infrastructure and next generation transportation systems that work seamlessly together to deliver on the promise of smart cities and communities. The Group is committed to helping our customers win and creating greater value for all of its stakeholders through strategic focus on our buildings and energy growth platforms.

In the fourth quarter of fiscal 2016, Johnson Controls, Inc. ("JCI Inc.") and Tyco International plc ("Tyco") completed their combination with JCI Inc. merging with a wholly-owned, indirect subsidiary of Tyco (the "Merger"). Following the Merger, Tyco changed its name to “Johnson Controls International plc” and JCI Inc. is a wholly-owned subsidiary of Johnson Controls International plc.

On October 31, 2016, the Group completed the spin-off of its Automotive Experience business by way of the transfer of the Automotive Experience Business from Johnson Controls to Adient plc and the issuance of ordinary shares of Adient directly to holders of Johnson Controls ordinary shares on a pro rata basis. Prior to the open of business on October 31, 2016, each of the Group's shareholders received one ordinary share of Adient plc for every ten ordinary shares of Johnson Controls held as of the close of business on October 19, 2016, the record date for the distribution. Group shareholders received cash in lieu of fractional shares of Adient, if any. Following the separation and distribution, Adient plc is now an independent public company trading on the New York Stock Exchange ("NYSE") under the symbol "ADNT." The Group did not retain any equity interest in Adient plc. Adient’s historical financial results are reflected in the Group’s consolidated financial statements as a discontinued operation. Refer to Note 3, "Discontinued Operations," of the notes to consolidated financial statements for further information.

The Building Technologies & Solutions ("Buildings") business is a global market leader in engineering, developing, manufacturing and installing building products and systems around the world, including heating, ventilating, air-conditioning ("HVAC") equipment, HVAC controls, energy-management systems, security systems, fire detection systems and fire suppression solutions. The Buildings business further serves customers by providing technical services (in the HVAC, security and fire-protection space), energy-management consulting and data-driven solutions via its data-enabled business. Finally, the Group has a strong presence in the North American residential air conditioning and heating systems market and is a global market leader in industrial refrigeration products.

The Power Solutions business is a leading global supplier of lead-acid automotive batteries for virtually every type of passenger car, light truck and utility vehicle. The Group serves both automotive original equipment manufacturers and the general vehicle battery aftermarket. The Group also supplies advanced battery technologies to power start-stop, hybrid and electric vehicles.

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.

Under certain criteria as provided for in Financial Accounting Standards Board ("FASB") ASC 810, "Consolidation," the Group may consolidate a partially-owned affiliate. To determine whether to consolidate a partially-owned affiliate, the Group first determines if the entity is a variable interest entity ("VIE"). An entity is considered to be a VIE if it has one of the following characteristics: 1) the entity is thinly capitalized; 2) residual equity holders do not control the entity; 3) equity holders are shielded from economic losses or do not participate fully in the entity's residual economics; or 4) the entity was established with non-substantive voting. If the entity meets one of these characteristics, the Group then determines if it is the primary beneficiary of the VIE. The party with the power to direct activities of the VIE that most significantly impact the VIE's economic performance and the potential to absorb benefits or losses that could be significant to the VIE is considered the primary beneficiary and consolidates the VIE. If the entity is not considered a VIE, then the Group applies the voting interest model to determine whether or not the Group shall consolidate the partially-owned affiliate.

Consolidated VIEs

Based upon the criteria set forth in ASC 810, the Group has determined that it was not the primary beneficiary in any VIEs for the reporting period ended September 30, 2018 and that it was the primary beneficiary in one VIE for the reporting period ended September 30, 2017, as the Group absorbed significant economics of the entity and had the power to direct the activities that are considered most significant to the entity.

In fiscal 2012, a pre-existing VIE accounted for under the equity method was reorganized into three separate investments as a result of the counterparty exercising its option to put its interest to the Group. The Group acquired additional interests in two of the reorganized group entities. The reorganized group entities are considered to be VIEs as the other owner party has been provided decision making rights but does not have equity at risk. The Group was considered the primary beneficiary of one of the entities due to the Group's power pertaining to decisions over significant activities of the entity. As such, this VIE was consolidated within the Group's consolidated statement of financial position as of September 30, 2017. During the fiscal year ended September 30, 2018, certain joint venture agreements were amended and, as a result, the Group can no longer make key operating decisions considered to be most significant to the VIE. As such, the Group is no longer considered the primary beneficiary of this entity, and the Group deconsolidated the entity during the fiscal year ended September 30, 2018. The impact of the entity on the Group's consolidated statement of income for the years ended September 30, 2018 and 2017 was not material.

The carrying amounts and classification of assets (none of which are restricted) and liabilities included in the Group's consolidated statement of financial position for the consolidated VIE is as follows (in millions):

	September 30, 2017
Current assets	$ 2
Noncurrent assets	53
Total assets	$ 55
Current liabilities	$ 6
Noncurrent liabilities	42
Total liabilities	$ 48

The Group did not have a significant variable interest in any other consolidated VIEs for the presented reporting periods.

Nonconsolidated VIEs

As mentioned previously within the "Consolidated VIEs" section above, in fiscal 2012, a pre-existing VIE was reorganized into three separate investments as a result of the counterparty exercising its option to put its interest to the Group. The reorganized group entities are considered to be VIEs as the other owner party has been provided decision making rights but does not have equity at risk. The VIEs are named as co-obligors under a third party debt agreement in the amount of $155 million, maturing in fiscal 2020, under which a VIE could become subject to paying more than its allocated share of the third party debt in the event of bankruptcy of one or more of the other co-obligors. The other co-obligors, all related parties in which the Group is an equity investor, consist of the remaining group entities involved in the reorganization. As part of the overall reorganization transaction, the Group has also provided financial support to the group entities in the form of loans totaling $38 million, which are subordinate to the third party debt agreement. The Group is a significant customer of certain co-obligors, resulting in a remote possibility of loss. Additionally, the Group is subject to a floor guaranty expiring in fiscal 2022; in the event that the other owner party no longer owns any part of the group entities due to sale or transfer, the Group has guaranteed that the proceeds received from the sale or transfer will not be less than $25 million. The Group has partnered with the group entities to design and manufacture battery components for the Power Solutions business. The Group is not considered to be the primary beneficiary of three of the entities as of September 30, 2018 and two of the entities as of September 30, 2017, as the Group cannot make key operating decisions considered to be most significant to the VIEs. Therefore, the entities are accounted for under the equity method of accounting as the Group's interest exceeds 20% and the Group does not have a controlling interest. The Group's maximum exposure to loss includes the partially-owned affiliate investment balance of $43 million and $65 million at September 30, 2018 and 2017, respectively, as well as the subordinated loan from the Group, third party debt agreement and floor guaranty mentioned above. Current liabilities due to the VIEs are not material and represent normal course of business trade payables for all presented periods.

The Group did not have a significant variable interest in any other nonconsolidated VIEs for the presented reporting periods.

Use of Estimates

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

Fair Value of Financial Instruments

The fair values of cash and cash equivalents, accounts receivable, short-term debt and accounts payable approximate their carrying values. See Note 9, "Derivative Instruments and Hedging Activities," and Note 10, "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.

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

The 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, 2018, the Group held restricted cash of approximately $15 million, of which $6 million was recorded within other current assets in the consolidated statement of financial position and $9 million was recorded within other noncurrent assets in the consolidated statement of financial position. At September 30, 2017, the Group held restricted cash of approximately $31 million, of which $22 million was recorded within other current assets in the consolidated statement of financial position and $9 million was recorded within other noncurrent assets in the consolidated statement of financial position.

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 doubtful accounts resulting from the inability or unwillingness of customers to make required payments. The allowance for doubtful accounts is based on historical experience, existing economic conditions and any specific customer collection issues the Group has identified. The Group enters into supply chain financing programs to sell certain accounts receivable without recourse to third-party financial institutions. Sales of accounts receivable are reflected as a reduction of accounts receivable on the consolidated statement of financial position and the proceeds are included in cash flows from operating activities in the consolidated statement of cash flows.

Payables

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.

Inventories

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

Property, Plant and Equipment

Property, plant and equipment are recorded at cost. Depreciation is provided over the estimated useful lives of the respective assets using the straight-line method for financial reporting purposes and accelerated methods for income tax purposes. The estimated useful lives generally range from 3 to 40 years for buildings and improvements, subscriber systems up to 15 years, and from 3 to 15 years for machinery and equipment. The 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 multiples of earnings based on the average of published multiples of earnings of comparable entities with similar operations and economic characteristics and applies to the Group's average of historical and future financial results. 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. During the fourth quarter of fiscal 2018, the Group changed the date of its annual goodwill impairment test from September 30 to July 31. The change was made to more closely align the impairment testing date with the Group's long-term planning and forecasting process. The change in the annual impairment testing date did not delay, accelerate or avoid an impairment charge. The Group has determined this change in accounting principle is preferable and does not result in adjustments to the Group's financial statements when applied retrospectively. Refer to Note 6, "Goodwill and Other Intangible Assets," of the notes to consolidated financial statements for information regarding the goodwill impairment testing performed in the fourth quarters of fiscal years 2018 and 2017.

Indefinite-lived intangible assets are also subject to at least annual impairment testing. Indefinite-lived intangible assets primarily consist of trademarks and tradenames 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.

Impairment of Long-Lived Assets

The Group reviews long-lived assets, including tangible assets and other intangible assets with definitive lives, for impairment whenever events or changes in circumstances indicate that the asset's carrying amount may not be recoverable. The 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." ASC 360-10-15 requires the Group to group assets and liabilities at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities and evaluate the asset group against the sum of the undiscounted future cash flows. If the undiscounted cash flows do not indicate the carrying amount of the asset group is recoverable, an impairment charge is measured as the amount by which the carrying amount of the asset group exceeds its fair value based on discounted cash flow analysis or appraisals. ASC 350-30 requires intangible assets acquired in a business combination that are used in research and development activities to be considered indefinite lived until the completion or abandonment of the associated research and development efforts. During the period that those assets are considered indefinite lived, they shall not be amortized but shall be tested for impairment annually and more frequently if events or changes in circumstances indicate that it is more likely than not that the asset is impaired. If the carrying amount of an intangible asset exceeds its fair value, an entity shall recognize an impairment loss in an amount equal to that excess. ASC 985-20 requires the unamortized capitalized costs of a computer software product be compared to the net realizable value of that product. The amount by which the unamortized capitalized costs of a computer software product exceed the net realizable value of that asset shall be written off. Refer to Note 16, "Impairment of Long-Lived Assets," of the notes to consolidated financial statements for information regarding the impairment testing performed in fiscal years 2018 and 2017.

Revenue Recognition

The Building Technologies & Solutions business recognizes revenue from certain long-term contracts over the contractual period under the percentage-of-completion ("POC") method of accounting. This method of accounting recognizes sales and gross profit as work is performed based on the relationship between actual costs incurred and total estimated costs at completion. Recognized revenues that will not be billed under the terms of the contract until a later date are recorded primarily in accounts receivable. Likewise, contracts where billings to date have exceeded recognized revenues are recorded primarily in deferred revenue. Costs and earnings in excess of billings related to these contracts were $1,054 million and $908 million at September 30, 2018 and 2017, respectively. Billings in excess of costs and earnings related to these contracts were $535 million and $451 million at September 30, 2018 and 2017, respectively. Changes to the original estimates may be required during the life of the contract and such estimates are reviewed monthly. Sales and gross profit are adjusted using the cumulative catch-up method for revisions in estimated total contract costs and contract values. Estimated contract losses are recorded when identified. Claims against customers are recognized as revenue upon settlement. The use of the POC method of accounting involves considerable use of estimates in determining revenues, costs and profits and in assigning the amounts to accounting periods. The periodic reviews have not resulted in adjustments that were significant to the Group's results of operations. The Group continually evaluates all of the assumptions, risks and uncertainties inherent with the application of the POC method of accounting.

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

The Building Technologies & Solutions business also sells certain HVAC and refrigeration products and services in bundled arrangements, where multiple products and/or services are involved. Significant deliverables within these arrangements include 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 Building Technologies & Solutions business sells security monitoring systems that may have multiple elements, including equipment, installation, monitoring services and maintenance agreements. Revenues associated with sale of equipment and related installations are recognized once delivery, installation and customer acceptance is completed, while the revenue for monitoring and maintenance services are recognized as services are rendered. In accordance with Accounting Standards Update ("ASU") No. 2009-13, "Revenue Recognition (Topic 605): Multiple-Deliverable Revenue Arrangements - A Consensus of the FASB Emerging Issues Task Force," the Group divides bundled arrangements into separate deliverables and revenue is allocated to each deliverable based on the relative selling price method. In order to estimate relative selling price, market data and transfer price studies are utilized. Revenue recognized for security monitoring equipment and installation is limited to the lesser of their allocated amounts under the estimated selling price hierarchy or the non-contingent up-front consideration received at the time of installation, since collection of future amounts under the arrangement with the customer is contingent upon the delivery of monitoring and maintenance services. For transactions in which the Group retains ownership of the subscriber system asset, fees for monitoring and maintenance services are recognized 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 customer relationship.

In all other cases, the Group recognizes revenue at the time title passes to the customer or as services are performed.

Subscriber System Assets, Dealer Intangibles and Related Deferred Revenue Accounts

The Building Technologies & Solutions business 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, touchpad, 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, 2018 and 2017 were $380 million and $360 million, respectively.

Earnings Per Share

The Group presents both basic and diluted earnings per share ("EPS") amounts. Basic EPS is calculated by dividing net income attributable to Johnson Controls by the weighted average number of common shares outstanding during the reporting period. Diluted EPS is calculated by dividing net income attributable to Johnson Controls by the weighted average number of common shares and common equivalent shares outstanding during the reporting period that are calculated using the treasury stock method for stock options, unvested restricted stock and unvested performance share awards. See Note 12, "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 net income for the years ended September 30, 2018 and 2017 were $(5) million and $94 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 9, "Derivative Instruments and Hedging Activities," and Note 10, "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 classified as available for sale and are marked to market at the end of each accounting period. Unrealized gains and losses on these securities, other than the deferred compensation plan assets, are recognized in AOCI within the consolidated statement of shareholders' equity unless an unrealized loss is deemed to be other than temporary, in which case such loss is charged to earnings. The deferred compensation plan assets are marked to market at the end of each accounting period and all unrealized gains and losses are recorded in the consolidated 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 14, "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 21, "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 21, "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 17, "Income Taxes," of the notes to consolidated financial statements.

Retrospective Changes

Certain amounts as of September 30, 2017 have been revised to conform to the current year's presentation.

In March 2016, the FASB issued Accounting Standards Update ("ASU") No. 2016-09, "Compensation - Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting." ASU No. 2016-09 impacts certain aspects of the accounting for share-based payment transactions, including income tax consequences, classification of awards as either equity or liabilities, and classification on the statements of cash flows. During the quarter ended December 31, 2017, the Group adopted ASU No. 2016-09. As a result, the Group recognized deferred tax assets of $179 million in the consolidated statement of financial position related to certain operating loss carryforwards resulting from the exercise of employee stock options and vested restricted stock on a modified retrospective basis through a cumulative-effect adjustment to retained earnings as of October 1, 2017. Additionally, employee withholding taxes paid to taxing authorities for equity-based compensation transactions, previously classified as cash flows from operating activities, were reclassified to financing activities in the consolidated statement of cash flows for the fiscal year ended September 30, 2017 for comparative purposes. The remaining provisions of ASU No. 2016-09 did not have a material impact on the Group's consolidated financial statements.

New Accounting Pronouncements

Recently Adopted Accounting Pronouncements

In March 2018, the FASB issued ASU No. 2018-05, "Income Taxes (Topic 740): Amendments to SEC Paragraphs Pursuant to SEC Staff Accounting Bulletin No. 118," to add various SEC paragraphs pursuant to the issuance of SEC Staff Accounting Bulletin No. 118 ("SAB 118") to ASC 740 "Income Taxes." SAB 118 was issued by the SEC in December 2017 to provide immediate guidance for accounting implications of U.S. Tax Reform under the "Tax Cuts and Jobs Act" in the period of enactment. SAB 118 provides for a provisional one year measurement period for entities to finalize their accounting for certain income tax effects related to the "Tax Cuts and Jobs Act." The Group applied this guidance to its consolidated financial statements and related disclosures beginning in the quarter ended December 31, 2017. Refer to Note 17, "Income Taxes," of the notes to consolidated financial statements for further information.

In August 2017, the FASB issued ASU No. 2017-12, "Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities." The ASU more closely aligns the results of hedge accounting with risk management activities through amendments to the designation and measurement guidance to better reflect a Group's hedging strategy and effectiveness. During the quarter ended December 31, 2017, the Group early adopted ASU 2017-12. The adoption of this guidance did not have a material impact on the Group's consolidated financial statements.

Recently Issued Accounting Pronouncements

In March 2017, the FASB issued ASU No. 2017-07, "Compensation—Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost." The ASU requires the service cost component of net periodic benefit cost to be presented with other compensation costs. The other components of net periodic benefit cost are required to be presented in the income statement separately from the service cost component and outside a subtotal of income from operations, if one is presented. The ASU also allows only the service cost component of net periodic benefit cost to be eligible for capitalization. The guidance will be effective for the Group for the quarter ending December 31, 2018. Early adoption is permitted as of the beginning of an annual period for which financial statements (interim or annual) have not been issued or made available for issuance. The guidance will be effective retrospectively except for the capitalization of the service cost component which should be applied prospectively. The adoption of this guidance is not expected to have a significant impact on the Group's consolidated financial statements as the Group does not present a subtotal of income from operations within its consolidated statement of income.

In November 2016, the FASB issued ASU No. 2016-18, "Statement of Cash Flows (Topic 230): Restricted Cash (a consensus of the FASB Emerging Issues Task Force)." The ASU requires amounts generally described as restricted cash and restricted cash equivalents to be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. The guidance will be effective for the Group for the quarter ending December 31, 2018, with early adoption permitted. The amendments in this update should be applied retrospectively to all periods presented. The impact of this guidance for the Group will depend on the levels of restricted cash balances in the periods presented. As of September 30, 2016, the Group had approximately $2.0 billion of restricted cash related to restricted proceeds deposited into escrow from the issuance of $2.0 billion aggregate principal of unsecured, unsubordinated notes by Adient Global Holdings Ltd., that were released upon the completion of the Adient spin-off in October 2016. Upon adoption of ASU 2016-18, the restricted proceeds will be presented in the fiscal 2016 consolidated statement of cash flow as a financing activity inflow, and the release of the restricted proceeds will be presented in the fiscal 2017 consolidated statement of cash flow as a financing activity outflow. The impact of adoption of this standard on fiscal 2018 consolidated statement of cash flow is not expected to be material as the restricted cash balance at September 30, 2018 is $15 million.

In October 2016, the FASB issued ASU No. 2016-16, "Accounting for Income Taxes: Intra-Entity Asset Transfers of Assets Other than Inventory." The ASU requires the tax effects of all intra-entity sales of assets other than inventory to be recognized in the period in which the transaction occurs. The guidance will be effective for the Group for the quarter ending December 31, 2018, with early adoption permitted but only in the first interim period of a fiscal year. The changes are required to be applied by means of a cumulative-effect adjustment recorded in retained earnings as of the beginning of the fiscal year of adoption. The Group expects that the cumulative effect of the adoption of ASU 2016-16 will result in a reduction to retained earnings of approximately $550 million.

In August 2016, the FASB issued ASU No. 2016-15, "Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments." ASU No. 2016-15 provides clarification guidance on eight specific cash flow presentation issues in order to reduce the diversity in practice. ASU No. 2016-15 will be effective for the Group for the quarter ending December 31, 2018, with early adoption permitted. The guidance should be applied retrospectively to all periods presented, unless deemed impracticable, in which case prospective application is permitted. The adoption of this guidance is expected to have an impact on the presentation of equity swap funding and settlement activities since the activity will change from an operating activity to an investing activity. The Group does not expect any other significant impacts as a result of adopting this standard.

In February 2016, the FASB issued ASU No. 2016-02, "Leases (Topic 842)." ASU No. 2016-02 requires recognition of operating leases as lease assets and liabilities on the balance sheet, and disclosure of key information about leasing arrangements. The original standard was effective retrospectively for the Group for the quarter ending December 31, 2019 with early adoption permitted; however in July 2018 the FASB issued ASU No. 2018-11, "Leases (Topic 842): Targeted Improvements," which provides an additional transition method that permits changes to be applied by means of a cumulative-effect adjustment recorded in retained earnings as of the beginning of the fiscal year of adoption. The Group has elected this transition method at the adoption date of October 1, 2019. The Group has started the assessment process by evaluating the population of leases under the revised definition of what qualifies as a leased asset. The Group is the lessee under various agreements for facilities and equipment that are currently accounted for as operating leases. The new guidance will require the Group to record operating leases on the balance sheet with a right-of-use asset and corresponding liability for future payment obligations. Additionally in January 2018, the FASB issued ASU No. 2018-01, "Leases (Topic 842): Land Easement Practical Expedient for Transition to Topic 842," which provides an optional transition practical expedient for existing or expired land easements that were not previously recorded as leases. The Group expects the new guidance will have a material impact on its consolidated statement of financial position for the addition of right-of-use assets and lease liabilities, but the Group does not expect it to have a material impact on its consolidated statement of income and its consolidated statement of cash flows.

In January 2016, the FASB issued ASU No. 2016-01, "Financial Instruments - Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities." ASU No. 2016-01 amends certain aspects of recognition, measurement, presentation and disclosure of financial instruments, including marketable securities. ASU No. 2016-01 will be effective for the Group for the quarter ending December 31, 2018, and early adoption is not permitted, with certain exceptions. The changes are required to be applied by means of a cumulative-effect adjustment on the balance sheet as of the beginning of the fiscal year of adoption. Additionally in February 2018, the FASB issued ASU No. 2018-03, "Technical Corrections and Improvements to Financial Instruments-Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities," which provides additional clarification on certain topics addressed in ASU No. 2016-01. ASU No. 2018-01 will be effective for the Group when ASU No. 2016-01 is adopted. The impact of this guidance for the Group will depend on the magnitude of the unrealized gains and losses on the Group's marketable securities investments. The impact to beginning retained earnings as a result of the adoption of this guidance is not expected to be material.

In May 2014, the FASB issued ASU No. 2014-09, "Revenue from Contracts with Customers (Topic 606)." ASU No. 2014-09 clarifies the principles for recognizing revenue when an entity either enters into a contract with customers to transfer goods or services or enters into a contract for the transfer of non-financial assets. The original standard was effective retrospectively for the Group for the quarter ending December 31, 2017; however in August 2015, the FASB issued ASU No. 2015-14, "Revenue from Contracts with Customers (Topic 606): Deferral of the Effective Date," which defers the effective date of ASU No. 2014-09 by one-year for all entities. The new standard will become effective retrospectively for the Group for the quarter ending December 31, 2018, with early adoption permitted, but not before the original effective date. Additionally, in March 2016, the FASB issued ASU No. 2016-08, "Revenue from Contracts with Customers (Topic 606): Principal versus Agent Considerations (Reporting Revenue Gross versus Net)," in April 2016, the FASB issued ASU No. 2016-10, "Revenue from Contracts with Customers (Topic 606): Identifying Performance Obligations and Licensing," in May 2016, the FASB issued ASU No. 2016-12, "Revenue from Contracts with Customers (Topic 606): Narrow-Scope Improvements and Practical Expedients," and in December 2016, the FASB issued ASU No. 2016-20, "Technical Corrections and Improvements to Topic 606, Revenue from Contracts with Customers," all of which provide additional clarification on certain topics addressed in ASU No. 2014-09. ASU No. 2016-08, ASU No. 2016-10, ASU No. 2016-12 and ASU No. 2016-20 follow the same implementation guidelines as ASU No. 2014-09 and ASU No. 2015-14. The Group has elected to adopt the new revenue guidance as of October 1, 2018 using the modified retrospective approach. The Group has completed its evaluation of the new revenue recognition standard and has assessed the impact on its consolidated financial statements. Based on the Group's evaluation of current contracts and significant revenue streams, revenue recognition is expected to be mostly consistent under both the current and new standard, with the exception of the Power Solutions business. Within the Power Solutions business, certain customers return battery cores which will be included in the transaction price as noncash consideration under the new revenue standard. This change is expected to result in an increase to annual Power Solutions revenue of approximately 10% - 15% and an immaterial impact to gross profit. The Group does not expect the new revenue standard will have a material impact on its consolidated statement of financial position or its consolidated statement of cash flows. Upon adoption of the new revenue recognition guidance, the Group expects to record approximately $35 million to beginning retained earnings, which relates primarily to deferred revenue recorded for certain battery core returns that represent a material right provided to customers.

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 2018

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

In the first quarter of fiscal 2018, the Group completed the sale of its Scott Safety business to 3M Company. The selling price, net of cash divested, was $2.0 billion, all of which was received as of September 30, 2018. In connection with the sale, the Group recorded a pre-tax gain of $114 million within selling, general and administrative expenses in the consolidated statement of income and reduced goodwill in assets held for sale by $1.2 billion. The gain, net of tax, recorded was $84 million. Net cash proceeds from the transaction of approximately $1.9 billion were used to repay a significant portion of the Tyco International Holding S.a.r.L.'s ("TSarl") $4.0 billion of merger-related debt. The Scott Safety business is included in the Global Products segment and was reported within assets and liabilities held for sale in the consolidated statement of financial position as of September 30, 2017. Refer to Note 3, "Discontinued Operations," of the notes to consolidated financial statements for further disclosure related to the Group's net assets held for sale.

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

Fiscal Year 2017

During fiscal 2017, the Group completed three acquisitions for a combined purchase price, net of cash acquired, of $9 million, $6 million of which was paid as of September 30, 2017. The acquisitions in the aggregate were not material to the Group's consolidated financial statements. In connection with the acquisitions, the Group recorded goodwill of $2 million.

In the second quarter of fiscal 2017, the Group completed the sale of its ADT security business in South Africa within the Building Solutions EMEA/LA segment. The selling price, net of cash divested, was $129 million, all of which was received as of September 30, 2017. In connection with the sale, the Group reduced goodwill in assets held for sale by $92 million. The divestiture was not material to the Group's consolidated financial statements.

During fiscal 2017, the Group completed two divestitures for a combined selling price, net of cash divested, of $44 million, of which $40 million was received as of September 30, 2017. The divestitures were not material to the Group's consolidated financial statements. In connection with the divestitures, the Group reduced goodwill by $19 million and $2 million in the Global Products segment and in the Building Solutions Asia Pacific segment, respectively.

During fiscal 2017, the Group completed one additional divestiture for a sales price of $4 million, all of which was received as of September 30, 2017. The divestiture decreased the Group's ownership from a controlling to noncontrolling interest, and as a result, the Group deconsolidated cash of $5 million. The divestiture was not material to the Group's consolidated financial statements.

During fiscal 2017, the Group received $52 million in net cash proceeds related to prior year business divestitures and paid $75 million related to prior year business acquisitions.

3. DISCONTINUED OPERATIONS

As discussed in Note 1, "Basis of Presentation and Summary of Significant Accounting Policies," of the notes to consolidated financial statements, on October 31, 2016, the Group completed the spin-off of its Automotive Experience business by way of the transfer of the Automotive Experience business from Johnson Controls to Adient plc. The Group did not retain any equity interest in Adient plc. During the first quarter of fiscal 2017, the Group determined that Adient met the criteria to be classified as a discontinued operation and, as a result, Adient's historical financial results are reflected in the Group's consolidated financial statements as a discontinued operation, and assets and liabilities are classified as assets and liabilities held for sale. The Group did not allocate any general corporate overhead to discontinued operations.

The following table summarizes the results of Adient, reclassified as discontinued operations for the fiscal year ended September 30, 2017 (in millions). As the Adient spin-off occurred on October 31, 2016, there is only one month of Adient results included in the year ended September 30, 2017.

	Year Ended September 30, 2017
Net sales	$ 1,434
Cost of sales	1,293
Gross profit	141
Selling, general and administrative expenses	(162)
Net financing charges	(9)
Equity income	31
Income from discontinued operations before income taxes	1
Income tax provision on discontinued operations	35
Loss from discontinued operations, net of tax	(34)
Income from discontinued operations attributable to noncontrolling interests, net of tax	9
Loss from discontinued operations attributable to Johnson Controls ordinary shareholders	$ (43)

For the fiscal year ended September 30, 2017, the income from discontinued operations before income taxes included separation costs of $79 million.

For the fiscal year ended September 30, 2017, the effective tax rate was more than the Irish statutory rate of 12.5% primarily due to the tax impacts of separation costs and Adient spin-off related tax expense, partially offset by non-U.S. tax rate differentials.

The following table summarizes depreciation and amortization, capital expenditures, and significant operating and investing non-cash items related to Adient for the fiscal year ended September 30, 2017 (in millions):

	Year Ended September 30, 2017
Depreciation and amortization	$ 29
Equity in earnings of partially-owned affiliates	(31)
Deferred income taxes	562
Equity-based compensation	1
Accrued income taxes	(808)
Capital expenditures	(91)

Assets and Liabilities Held for Sale

During the second quarter of fiscal 2017, the Group signed a definitive agreement to sell its Scott Safety business of the Global Products segment to 3M Company. The transaction closed on October 4, 2017. The assets and liabilities of this business are presented as held for sale in the consolidated statement of financial position as of September 30, 2017. The business did not meet the criteria to be classified as a discontinued operation as the divestiture of the Scott Safety business did not have a major effect on the Group's operations and financial results.

The following table summarizes the carrying value of the Scott Safety assets and liabilities held for sale at September 30, 2017 (in millions):

	September 30, 2017
Cash	$ 9
Accounts receivable - net	100
Inventories	75
Other current assets	5
Assets held for sale	$ 189
Property, plant and equipment - net	$ 79
Goodwill	1,248
Other intangible assets - net	592
Other noncurrent assets	1
Noncurrent assets held for sale	$ 1,920
Accounts payable	$ 37
Accrued compensation and benefits	10
Other current liabilities	25
Liabilities held for sale	$ 72
Other noncurrent liabilities	$ 173
Noncurrent liabilities held for sale	$ 173

4. INVENTORIES

Inventories consisted of the following (in millions):

	September 30, 2018	September 30, 2017
Raw materials and supplies	$ 990	$ 919
Work-in-process	545	567
Finished goods	1,689	1,723
Inventories	$ 3,224	$ 3,209

5. PROPERTY, PLANT AND EQUIPMENT

The changes in property, plant and equipment by type for fiscal 2018 are as follows (in millions):

	Land	Buildings	Subscriber Systems	Machinery and Equipment	Construction in Progress	Total
Cost:						
At September 30, 2017	$ 373	$ 2,445	$ 571	$ 5,572	$ 1,252	$ 10,213
Capital expenditures and acquisitions	2	153	128	540	97	920
Disposals and divestitures	(8)	(62)	(57)	(91)	(7)	(225)
Impairments	—	—	—	—	—	—
Currency translation and other	(4)	1	(69)	28	(18)	(62)
At September 30, 2018	$ 363	$ 2,537	$ 573	$ 6,049	$ 1,324	$ 10,846
Accumulated depreciation:						
At September 30, 2017	$ —	$ (859)	$ (107)	$ (3,126)	$ —	$ (4,092)
Depreciation expense	—	(137)	(72)	(492)	—	(701)
Disposals and divestitures	—	39	47	36	—	122
Impairments	—	—	—	(10)	—	(10)
Currency translation and other	—	38	19	(51)	—	6
At September 30, 2018	$ —	$ (919)	$ (113)	$ (3,643)	$ —	$ (4,675)
Net book value:						
At September 30, 2017	$ 373	$ 1,586	$ 464	$ 2,446	$ 1,252	$ 6,121
At September 30, 2018	$ 363	$ 1,618	$ 460	$ 2,406	$ 1,324	$ 6,171

Interest costs capitalized during the fiscal years ended September 30, 2018, and 2017 were $29 million and $27 million, respectively. Accumulated depreciation related to capital leases at September 30, 2018 and 2017 was $16 million and $13 million, respectively.

As of September 30, 2018 and 2017, no property, plant and equipment assets were pledged as collateral for a loan.

6. 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, 2018 was as follows (in millions):

	September 30, 2017	Business Acquisitions	Business Divestitures	Currency Translation and Other	September 30, 2018
Building Technologies & Solutions					
Building Solutions North America	$ 9,637	$ —	$ —	$ (34)	$ 9,603
Building Solutions EMEA/LA	2,012	1	—	(63)	1,950
Building Solutions Asia Pacific	1,255	—	—	(20)	1,235
Global Products	5,687	14	(35)	(73)	5,593
Power Solutions	1,097	—	—	(5)	1,092
Total	$ 19,688	$ 15	$ (35)	$ (195)	$ 19,473

At September 30, 2017, accumulated goodwill impairment charges included $47 million related to the Building Solutions EMEA/LA - Latin America reporting unit.

There were no goodwill impairments resulting from fiscal 2018 and 2017 annual impairment tests. No reporting unit was determined to be at risk of failing step one of the goodwill impairment test. The Group continuously monitors for events and circumstances that could negatively impact the key assumptions in determining fair value, including long-term revenue growth projections, profitability, discount rates, recent market valuations from transactions by comparable companies, volatility in the Group's market capitalization, and general industry, market and macro-economic conditions. It is possible that future changes in such circumstances, or in the variables associated with the judgments, assumptions and estimates used in assessing the fair value of the reporting unit, would require the Group to record a non-cash impairment charge.

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

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

	Amortizable			Non-Amortizable		
	Technology	**Customer relationships**	**Miscellaneous**	**Trademarks and tradenames**	**Miscellaneous**	**Total**
Cost:						
At September 30, 2017	$ 1,328	$ 3,168	$ 389	$ 2,483	$ 143	$ 7,511
Acquisitions and additions	6	18	89	—	—	113
Divestitures and disposals	—	(23)	—	—	—	(23)
Impairments	—	—	—	—	(20)	(20)
Currency translation and other	—	(85)	18	(35)	(1)	(103)
At September 30, 2018	$ 1,334	$ 3,078	$ 496	$ 2,448	$ 122	$ 7,478
Accumulated amortization:						
At September 30, 2017	$ (137)	$ (486)	$ (147)	$ —	$ —	$ (770)
Amortization expense	(123)	(221)	(40)	—	—	(384)
Divestitures and disposals	—	4	—	—	—	4
Currency translation and other	(6)	39	(13)	—	—	20
At September 30, 2018	$ (266)	$ (664)	$ (200)	$ —	$ —	$ (1,130)
Net book value:						
At September 30, 2017	$ 1,191	$ 2,682	$ 242	$ 2,483	$ 143	$ 6,741
At September 30, 2018	$ 1,068	$ 2,414	$ 296	$ 2,448	$ 122	$ 6,348

Amortization of other intangible assets included within continuing operations for the fiscal years ended September 30, 2018 and 2017 was $384 million and $489 million, respectively. Excluding the impact of any future acquisitions, the Group anticipates amortization for fiscal 2019, 2020, 2021, 2022 and 2023 will be approximately $406 million, $394 million, $391 million, $378 million and $364 million, respectively. There were no indefinite-lived intangible asset impairments resulting from fiscal 2018 and 2017 annual impairment tests.

7. LEASES

Certain administrative and production facilities and equipment are leased under long-term agreements. Most leases contain renewal options for varying periods, and certain leases include options to purchase the leased property during or at the end of the lease term. Leases generally require the Group to pay for insurance, taxes and maintenance of the property. Leased capital assets included in net property, plant and equipment, primarily buildings and improvements, were $32 million and $17 million at September 30, 2018 and 2017, respectively.

Other facilities and equipment are leased under arrangements that are accounted for as operating leases. Total rental expense for continuing and discontinued operations for the fiscal years ended September 30, 2018 and 2017 was $467 million and $502 million, respectively.

Future minimum capital and operating lease payments and the related present value of capital lease payments at September 30, 2018 were as follows (in millions):

	Capital Leases	Operating Leases
2019	$ 5	$ 348
2020	6	284
2021	6	208
2022	15	152
2023	2	111
After 2023	9	97
Total minimum lease payments	43	$ 1,200
Interest	(7)	
Present value of net minimum lease payments	$ 36	

8. DEBT AND FINANCING ARRANGEMENTS

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

	September 30, 2018	September 30, 2017
Bank borrowings and commercial paper	$ 1,315	$ 1,214
Weighted average interest rate on short-term debt outstanding	2.8%	1.6%

In connection with the Tyco Merger, JCI Inc. replaced its $2.5 billion committed five-year credit facility scheduled to mature in August 2018 with a $2.0 billion committed four-year credit facility scheduled to mature in August 2020. Additionally, TSarl, a wholly-owned subsidiary of Johnson Controls, entered into a $1.0 billion committed four-year credit facility scheduled to mature in August 2020. The TSarl facility was increased to $1.25 billion in March 2018. The facilities are used to support the Group's outstanding commercial paper. There were no draws on either committed credit facilities during the fiscal years ended September 30, 2018 and 2017. Commercial paper outstanding as of September 30, 2018 and 2017 was $879 million and $954 million, respectively.

In March 2018, the Group entered into a 364-day $250 million committed revolving credit facility scheduled to expire in March 2019. As of September 30, 2018, there were no draws on the facility.

In March 2018, a 364-day $150 million committed revolving credit facility expired. The Group entered into a new $150 million committed revolving credit facility scheduled to expire in February 2019. As of September 30, 2018, there were no draws on the facility.

In February 2018, a 364-day $150 million committed revolving credit facility expired. The Group entered into a new $150 million committed revolving credit facility scheduled to expire in February 2019. As of September 30, 2018, there were no draws on the facility.

In January 2018, a 364-day $250 million committed revolving credit facility expired. The Group entered into a new $200 million committed revolving credit facility scheduled to expire in January 2019. As of September 30, 2018, there were no draws on the facility.

In December 2017, the Group repaid a 364-day 150 million euro floating rate term loan, plus accrued interest, scheduled to mature in September 2018.

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

	September 30, 2018	September 30, 2017
Unsecured notes		
JCI plc - 1.4% due in 2018 ($259 million par value)	$ —	$ 259
JCI Inc. - 1.4% due in 2018 ($41 million par value)	—	42
JCI plc - 3.75% due in 2018 ($49 million par value)	—	49
Tyco International Finance S.A. ("TIFSA") - 3.75% due in 2018 ($18 million par value)	—	18
JCI plc - 5.00% due in 2020 ($453 million par value)	452	452
JCI Inc. - 5.00% due in 2020 ($47 million par value)	47	47
JCI plc - 0.00% due in 2021 (€750 million par value)	868	—
JCI plc - 4.25% due in 2021 ($447 million par value)	446	446
JCI Inc. - 4.25% due in 2021 ($53 million par value)	53	53
JCI plc - 3.75% due in 2022 ($428 million par value)	427	427
JCI Inc. - 3.75% due in 2022 ($22 million par value)	22	22
JCI plc - 4.625% due in 2023 ($35 million par value)	37	38
TIFSA - 4.625% due in 2023 ($7 million par value)	8	8
JCI plc - 1.00% due in 2023 (€1,000 million par value)	1,154	1,171
JCI plc - 3.625% due in 2024 ($468 million par value)	468	468
JCI Inc. - 3.625% due in 2024 ($31 million par value)	31	31
JCI plc - 1.375% due in 2025 (€423 million par value)	501	510
TIFSA - 1.375% due in 2025 (€58 million par value)	69	70
JCI plc - 3.90% due in 2026 ($698 million par value)	755	763
TIFSA - 3.90% due in 2026 ($51 million par value)	52	53
JCI plc - 6.00% due in 2036 ($392 million par value)	388	388
JCI Inc. - 6.00% due in 2036 ($8 million par value)	8	8
JCI plc - 5.70% due in 2041 ($270 million par value)	269	269
JCI Inc. - 5.70% due in 2041 ($30 million par value)	30	30
JCI plc - 5.25% due in 2042 ($242 million par value)	242	242
JCI Inc. - 5.25% due in 2042 ($8 million par value)	8	8
JCI plc - 4.625% due in 2044 ($445 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 ($727 million par value)	867	872
TIFSA - 5.125% due in 2045 ($23 million par value)	23	23
JCI plc - 6.95% due in 2046 ($121 million par value)	121	121
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	495
JCI plc - 4.95% due in 2064 ($435 million par value)	434	434
JCI Inc. - 4.95% due in 2064 ($15 million par value)	15	15
TSarl - Term Loan A - LIBOR plus 1.25% due in 2020	364	3,700
TSarl - Term Loan B - €215 million; EURIBOR plus 0.62% due in 2020	250	—
JCI plc - Term Loan - 35 billion yen; LIBOR JPY plus 0.40% due in 2022	309	311
Capital lease obligations	36	19
Other	23	90
Gross long-term debt	9,724	12,403
Less: current portion	26	394
Less: debt issuance costs	44	45
Net long-term debt	$ 9,654	$ 11,964

The installments of long-term debt maturing in subsequent fiscal years are: 2019 - $26 million; 2020 - $1,118 million; 2021 - $1,371 million; 2022 - $772 million; 2023 - $1,201 million; 2024 and thereafter - $5,236 million. 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 the fiscal years ended September 30, 2018 and 2017 was $415 million and $448 million, respectively. The Group used financial instruments to manage its interest rate exposure in the first quarter of 2017 (see Note 9, "Derivative Instruments and Hedging Activities," and Note 10, "Fair Value Measurements," of the notes to consolidated financial statements). These instruments affected the weighted average interest rate of the Group's debt and interest expense.

Financing Arrangements

Financing in connection with Tyco Merger and subsequent activities

Simultaneously with the closing of the Tyco Merger on September 2, 2016, TSarl borrowed $4.0 billion under the Term Loan Credit Agreement dated as of March 10, 2016 with a syndicate of lenders, providing for a three and a half year senior unsecured term loan facility to finance the cash consideration for, and fees, expenses and costs incurred in connection with the Merger. During fiscal 2017, the Group partially repaid $300 million of the $4.0 billion floating rate term loan scheduled to expire in March 2020. In October 2017, the Group completed the previously announced sale of its Scott Safety business to 3M. Net cash proceeds from the transaction of approximately $1.9 billion were used to repay a significant portion of the TSarl $4.0 billion of merger related debt. In March 2018, the Group repaid $26 million in principal amount, plus accrued interest. In April 2018, the Group refinanced approximately $400 million of the TSarl merger related debt with commercial paper. In July 2018, the Group refinanced approximately $250 million in principal amount of the TSarl merger related debt with a 364-day $250 million floating rate term loan scheduled to mature in July 2019. In September 2018, the Group repaid approximately $450 million in principal amount, plus accrued interest, and refinanced approximately $250 million of the TSarl merger related debt with an 18-month 215 million euro floating rate term loan scheduled to mature in March 2020.

Other financing arrangements

In January 2018, the Group retired $67 million in principal amount, plus accrued interest, of its 3.75% fixed rate notes that expired in January 2018.

In November 2017, the Group issued 750 million euro in principal amount of 0.0% senior unsecured fixed rate notes due in December 2020. Proceeds from the issuance were used to repay existing debt and for other general corporate purposes.

In November 2017, the Group retired $300 million in principal amount, plus accrued interest, of its 1.4% fixed rate notes that expired in November 2017.

Net Financing Charges

The Group's net financing charges line item in the consolidated statement of income for the years ended September 30, 2018 and 2017 contained the following components (in millions):

	Year Ended September 30, 2018	Year Ended September 30, 2017
Interest expense, net of capitalized interest costs	$ 437	$ 466
Banking fees and bond cost amortization	58	67
Interest income	(29)	(19)
Net foreign exchange results for financing activities	(25)	(18)
Net financing charges	$ 441	$ 496

Interest expense for the years ended September 30, 2018 and 2017 is comprised of ($ in millions):

	Year Ended September 30,	
	2018	2017
Interest on debt payable within five years	$ 215	$ 261
Interest on debt payable beyond five years	222	205
	$ 437	$ 466

9. 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 10, "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 the 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 nominal amount of each of its known foreign exchange transactional exposures. 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 at September 30, 2018 and 2017.

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 lead, copper, tin, aluminum and polypropylene 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 cash flow hedges, 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, typically sales, occur and affect earnings. The maturities of the commodity hedge contracts coincide with the expected purchase of the commodities. These contracts were highly effective in hedging the variability in future cash flows attributable to changes in commodity prices at September 30, 2018 and 2017.

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

	Volume Outstanding as of	
Commodity	September 30, 2018	September 30, 2017
Copper	3,175	1,962
Polypropylene	15,868	19,563
Lead	49,066	24,705
Aluminum	3,381	2,169
Tin	3,076	1,715

Fair Value Hedges

The Group selectively uses interest rate swaps to reduce market risk associated with changes in interest rates for its fixed-rate bonds. As fair value hedges, the interest rate swaps and related debt balances are valued under a market approach using publicized swap curves. Changes in the fair value of the swap and hedged portion of the debt are recorded in the consolidated statement of income. As of September 30, 2016, the Group had four fixed to floating interest rate swaps totaling $400 million to hedge the coupon of its 2.6% notes that matured in December 2016, three fixed to floating interest rate swaps totaling $300 million to hedge the coupon of its 1.4% notes maturing November 2017 and one fixed to floating interest rate swap totaling $150 million to hedge the coupon of its 7.125% notes maturing in July 2017. In December 31, 2016, the remaining four outstanding interest rate swaps were terminated. The Group had no interest rate swaps outstanding at September 30, 2018 and 2017.

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, 2018, the Group had one billion euro, 750 million euro, 423 million euro, and 58 million euro in bonds and a 215 million euro term loan designated as net investment hedges in the Group's net investment in Europe and 35 billion yen of foreign denominated debt designated as net investment hedge in the Group's net investment in Japan. At September 30, 2017, the Group had one billion euro, 423 million euro and 58 million euro bonds designated as net investment hedges in the Group's net investment in Europe and 35 billion yen of foreign denominated debt designated as net investment hedge in the Group's net investment 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. As of September 30, 2018, the Group hedged approximately 1.8 million of its ordinary shares, which have a cost basis of $73 million. As of September 30, 2017 the Group hedged approximately 1.4 million of its ordinary shares, which have a cost basis of $58 million.

The Group also holds certain foreign currency forward contracts which do not qualify for hedge accounting treatment. 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, 2018	September 30, 2017	September 30, 2018	September 30, 2017
Other current assets				
Foreign currency exchange derivatives	$ 6	$ 27	$ 10	$ —
Commodity derivatives	1	9	—	—
Other noncurrent assets				
Equity swap	—	—	63	55
Total assets	$ 7	$ 36	$ 73	$ 55
Other current liabilities				
Foreign currency exchange derivatives	$ 10	$ 21	$ 2	$ 25
Commodity derivatives	14	1	—	—
Long-term debt				
Foreign currency denominated debt	3,149	2,058	—	—
Total liabilities	$ 3,173	$ 2,080	$ 2	$ 25

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'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 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. Collateral is generally not required of the Group or the counterparties under the master netting agreements. As of September 30, 2018 and 2017, no cash collateral was received or pledged under the master netting agreements.

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, 2018	September 30, 2017	September 30, 2018	September 30, 2017
Gross amount recognized	$ 80	$ 91	$ 3,175	$ 2,105
Gross amount eligible for offsetting	(12)	(16)	(12)	(16)
Net amount	$ 68	$ 75	$ 3,163	$ 2,089

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

The following table presents the pre-tax gains (losses) recorded in other comprehensive income (loss) related to cash flow hedges for the fiscal years ended September 30, 2018 and 2017 (in millions):

	Year Ended September 30,	
Derivatives in ASC 815 Cash Flow Hedging Relationships	2018	2017
Foreign currency exchange derivatives	$ 2	$ (1)
Commodity derivatives	(14)	14
Total	$ (12)	$ 13

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, 2018 and 2017 (in millions):

Derivatives in ASC 815 Cash Flow Hedging Relationships	Location of Gain (Loss) Recognized in Income on Derivative	Year Ended September 30, 2018	Year Ended September 30, 2017
Foreign currency exchange derivatives	Cost of sales	$ 4	$ 25
Commodity derivatives	Cost of sales	12	8
Total		$ 16	$ 33

The following table presents the location and amount of pre-tax gains (losses) on fair value hedges recognized in the Group’s consolidated statement of income for the fiscal years ended September 30, 2018 and 2017 (in millions):

Derivatives in ASC 815 Fair Value Hedging Relationships	Location of Gain (Loss) Recognized in Income on Derivative	Year Ended September 30, 2018	Year Ended September 30, 2017
Interest rate swap	Net financing charges	$ —	$ (1)
Fixed rate debt swapped to floating	Net financing charges	—	2
Total		$ —	$ 1

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, 2018 and 2017 (in millions):

Derivatives Not Designated as Hedging Instruments under ASC 815	Location of Gain (Loss) Recognized in Income on Derivative	Year Ended September 30, 2018	2017
Foreign currency exchange derivatives	Cost of sales	$ 5	$ (1)
Foreign currency exchange derivatives	Net financing charges	33	44
Foreign currency exchange derivatives	Income tax provision	(3)	(3)
Foreign currency exchange derivatives	Loss from discontinued operations	—	5
Equity swap	Selling, general and administrative	(8)	(3)
Total		$ 27	$ 42

The pre-tax gains (losses) recorded in foreign currency translation adjustment ("CTA") within other comprehensive income (loss) related to net investment hedges were $45 million and $(138) million for the years ended September 30, 2018 and 2017, respectively. For the years ended September 30, 2018 and 2017, no gains or losses were reclassified from CTA into income for the Group’s outstanding net investment hedges.

10. 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, 2018 and 2017 (in millions):

	Fair Value Measurements Using:			
	Total as of September 30, 2018	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	$ 16	$ —	$ 16	$ —
Commodity derivatives	1	—	1	—
Exchange traded funds (fixed income)[1]	14	14	—	—
Other noncurrent assets				
Investments in marketable common stock	4	4	—	—
Deferred compensation plan assets	100	100	—	—
Exchange traded funds (fixed income)[1]	148	148	—	—
Exchange traded funds (equity)[1]	119	119	—	—
Equity swap	63	—	63	—
Total assets	$ 465	$ 385	$ 80	$ —
Other current liabilities				
Foreign currency exchange derivatives	$ 12	$ —	$ 12	$ —
Commodity derivatives	14	—	14	—
Total liabilities	$ 26	$ —	$ 26	$ —

	Fair Value Measurements Using:			
	Total as of September 30, 2017	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	$ —
Commodity derivatives	9	—	9	—
Exchange traded funds (fixed income)[1]	14	14	—	—
Other noncurrent assets				
Investments in marketable common stock	10	10	—	—
Deferred compensation plan assets	92	92	—	—
Exchange traded funds (fixed income)[1]	155	155	—	—
Exchange traded funds (equity)[1]	100	100	—	—
Equity swap	55	—	55	—
Total assets	$ 462	$ 371	$ 91	$ —
Other current liabilities				
Foreign currency exchange derivatives	$ 46	$ —	$ 46	$ —
Commodity derivatives	1	—	1	—
Total liabilities	$ 47	$ —	$ 47	$ —

[1]Classified as restricted investments for payment of asbestos liabilities. See Note 21, "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.

Investments in marketable common stock and exchange traded funds: Investments in marketable common stock and 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. The Group recorded unrealized gains of $23 million and unrealized losses of $15 million on these investments as of September 30, 2018 within AOCI in the consolidated statement of financial position. The Group recorded unrealized gains of $10 million and unrealized losses of $6 million as of September 30, 2017 within AOCI in the consolidated statement of financial position. During the fiscal year ended September 30, 2018, the Group sold certain marketable common stock for approximately $3 million. As a result, the Group recorded $2 million of realized gains within selling, general and administrative expenses.

The fair values of cash and cash equivalents, accounts receivable, short-term debt and accounts payable approximate their carrying values. The fair value of long-term debt was $9.6 billion and $12.7 billion at September 30, 2018 and 2017, respectively. The fair value of public debt was $8.6 billion at September 30, 2018 and 2017, which was determined primarily using market quotes classified as Level 1 inputs within the ASC 820 fair value hierarchy. The fair value of other long-term debt was $1.0 billion and $4.1 billion at September 30, 2018 and 2017 respectively, which was determined based on quoted market prices for similar instruments classified as Level 2 inputs within the ASC 820 fair value hierarchy.

11. STOCK-BASED COMPENSATION

On September 2, 2016, the shareholders of the Group approved the Johnson Controls International plc 2012 Share and Incentive Plan (the "Plan"). The original effective date of this Plan was October 1, 2012. The Plan was amended and restated as of November 17, 2014 and was amended and restated again in connection with the Merger that was consummated on September 2, 2016 (the "Amendment Effective Date"). The amendment and restatement is intended to reflect the assumption into this Plan of the remaining share reserves under the Johnson Controls, Inc. 2012 Omnibus Incentive Plan and the Johnson Controls, Inc. 2003 Stock Plan for Outside Directors (the "Legacy Johnson Controls Plans") as of the Amendment Effective Date. Following the Amendment Effective Date, no further awards may be made under the Legacy Johnson Controls Plans. The types of awards authorized by the Plan comprise of stock options, stock appreciation rights, performance shares, performance units and other stock-based awards. The Compensation Committee of the Group's Board of Directors will determine the types of awards to be granted to individual participants and the terms and conditions of the awards. The Plan provides that 76 million shares of the Group's common stock are reserved for issuance under the 2012 Plan, and 45 million shares remain available for issuance at September 30, 2018.

Pursuant to the Merger Agreement, outstanding stock options held by Tyco employees on September 2, 2016 (the "Merger Date") were converted into options to acquire the Group's shares using a 0.955-for-one share consolidation ratio in a manner designed to preserve the intrinsic value of such awards. In addition, pursuant to the Merger Agreement, nonvested restricted stock held by Tyco employees on the Merger Date were converted into nonvested restricted stock of the Group using the 0.955-for-one share consolidation ratio in a manner designed to preserve the intrinsic value of such awards. Outstanding performance share awards held by Tyco employees on the Merger Date were converted to nonvested restricted stock of the Group at the target performance level, and adjusted to reflect the 0.955-for-one consolidation ratio. Except for the conversion of stock options, nonvested restricted stock and performance share awards discussed herein, the material terms of the awards remained unchanged. The modifications made to the awards upon the Merger Date constituted modifications under the authoritative guidance for accounting for stock compensation. This guidance requires the Group to revalue the awards upon the Merger close and allocate the revised fair value between purchase consideration and continuing expense based on the ratio of service performed through the Merger Date over the total service period of the awards. The revised fair value allocated to post-merger services resulted in incremental expense which is recognized over the remaining service period of the awards. The portion of Tyco awards earned as of the Merger Date included as purchase consideration was $224 million. The total value of Tyco awards not earned as of the Merger Date was $101 million, which will be expensed over the remaining future vesting period.

Pursuant to the Merger Agreement, outstanding stock options held by JCI Inc. employees on the Merger Date were converted one-for-one into options to acquire the Group's shares in a manner designed to preserve the intrinsic value of such awards. In addition, pursuant to the Merger Agreement, nonvested restricted stock held by JCI Inc. employees on the Merger Date was converted one-for-one into nonvested restricted stock of the Group in a manner designed to preserve the intrinsic value of such awards. Outstanding performance share awards held by JCI Inc. employees on the Merger Date were converted to nonvested restricted stock of the Group based on certain performance factors. Except for the conversion of stock options, nonvested restricted stock and performance share awards discussed herein, the material terms of the awards remained unchanged, and no incremental fair value resulted from the conversion. References to the Group's stock throughout Note 11 refer to stock of JCI Inc. prior to the Merger Date and to stock of the Group subsequent to the Merger Date.

In connection with the Adient spin-off, pursuant to the Employee Matters Agreement between the Group and Adient, outstanding stock options and SARs held on October 31, 2016 (the "Spin Date") by employees remaining with the Group were converted into options and SARs of the Group using a 1.085317-for-one share ratio, which is based on the pre-spin and post-spin closing prices of the Group's ordinary shares. The exercise prices for options and SARs were converted using the inverse ratio in a manner designed to preserve the intrinsic value of such awards. In addition, pursuant to the Employee Matters Agreement, nonvested restricted stock held on the Spin Date by employees remaining with the Group were converted into nonvested restricted stock of the Group using the 1.085317-for-one share ratio in a manner designed to preserve the intrinsic value of such awards. There were no performance share awards outstanding as of the Spin Date. Employees remaining with the Group did not receive stock-based compensation awards of Adient as a result of the spin-off. Except for the conversion of awards and related exercise prices discussed herein, the material terms of the awards remained unchanged. No incremental fair value resulted from the conversion of the awards; therefore, no additional compensation expense was recorded related to the award modification.

Also in connection with the spin-off transaction, pursuant to the Employee Matters Agreement, employees of Adient were entitled to receive stock-based compensation awards of the Group and Adient in replacement of previously outstanding awards of the Group granted prior to the Spin Date. These awards include stock options, stock appreciation rights and nonvested restricted stock. Upon the Spin Date, the existing awards held by Adient employees were converted into new awards of the Group and Adient on a pro rata basis and further adjusted based on a formula designed to preserve the intrinsic value of such awards. Additional compensation expense, if any, resulting from the modification of awards held by Adient employees is to be recorded by Adient.

The Group has four share-based compensation plans, which are described below. For the fiscal years ended September 30, 2018 and 2017, compensation cost charged against income for continuing operations, excluding the offsetting impact of outstanding equity swaps, for those plans was approximately $98 million and $134 million, respectively, all of which was recorded in selling, general and administrative expenses.

The Group has elected to utilize the alternative transition method for calculating the tax effects of stock-based compensation. The total income tax benefit recognized for continuing operations in the consolidated statement of income for share-based compensation arrangements was approximately $25 million and $53 million for the fiscal years ended September 30, 2018 and 2017, respectively. The tax expense from the exercise and vesting of equity settled awards was $3 million for the fiscal year ended September 30, 2018 and recorded as part of the income tax provision upon adoption of ASU 2016-09 during the first quarter of fiscal 2018. The tax benefit from the exercise and vesting of equity settled awards was $4 million for the fiscal year ended 2017 and was recorded in capital in excess of par value. 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. For fiscal 2018, the expected volatility is based on the historical volatility of the Group's stock after the Adient spin-off blended with the historical volatility of certain peer companies' stock prior to the Adient spin-off over the most recent period corresponding to the expected life as of the grant date. For fiscal 2017, the expected volatility is based on historical volatility of certain peer companies 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,	
	2018	2017
Expected life of option (years)	6.5	4.75 & 6.5
Risk-free interest rate	2.28%	1.23% - 1.93%
Expected volatility of the Group's stock	23.70%	24.60%
Expected dividend yield on the Group's stock	2.78%	2.21%

A summary of stock option activity at September 30, 2018, 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, 2017	$ 32.76	19,730,443		
Granted	37.32	1,376,807		
Exercised	24.24	(2,733,159)		
Forfeited or expired	38.62	(538,029)		
Outstanding, September 30, 2018	$ 34.24	17,836,062	4.2	$ 84
Exercisable, September 30, 2018	$ 31.22	14,329,210	3.3	$ 84

The weighted-average grant-date fair value of options granted during the fiscal years ended September 30, 2018 and 2017was $7.04 and $7.81, respectively.

The total intrinsic value of options exercised during the fiscal years ended September 30, 2018 and 2017 was approximately $38 million and $81 million, respectively.

In conjunction with the exercise of stock options granted, the Group received cash payments for the fiscal years ended September 30, 2018 and 2017 of approximately $66 million and $157 million, respectively.

At September 30, 2018, the Group had approximately $13 million of total unrecognized compensation cost related to nonvested stock options granted for continuing operations. That cost 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, 2018 were as follows:

Expected life of SAR (years)	0.4 - 5.1
Risk-free interest rate	2.29% - 2.94%
Expected volatility of the Group's stock	23.70%
Expected dividend yield on the Group's stock	2.78%

A summary of SAR activity at September 30, 2018, 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, 2017	$ 27.02	893,311		
Granted	25.78	12,119		
Exercised	26.13	(256,900)		
Forfeited or expired	26.09	(21,829)		
Outstanding, September 30, 2018	$ 27.39	626,701	3.2	$ 5
Exercisable, September 30, 2018	$ 26.52	590,556	3.1	$ 5

In conjunction with the exercise of SARs granted, the Group made payments of $3 million and $4 million during the fiscal years ended September 30, 2018 and 2017, respectively.

Restricted (Nonvested) Stock / Units

The Plan provides for the award of restricted stock or restricted stock units to certain employees. These awards are typically share settled unless the employee is a non-U.S. employee or elects to defer settlement until retirement at which point the award would be settled in cash. Restricted awards typically vest over a period of three years from the grant date. The Plan allows for different vesting terms on specific grants with approval by the Board of Directors. The fair value of each share-settled restricted award is based on the closing market value of the 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 the status of the Group’s nonvested restricted stock awards at September 30, 2018, and changes for the fiscal year then ended, is presented below:

	Weighted Average Price	Shares/Units Subject to Restriction
Nonvested, September 30, 2017	$ 44.48	6,961,706
Granted	37.21	2,274,160
Vested	39.84	(3,819,581)
Forfeited	39.38	(414,768)
Nonvested, September 30, 2018	$ 45.14	5,001,517

At September 30, 2018, the Group had approximately $80 million of total unrecognized compensation cost related to nonvested restricted stock arrangements granted for continuing operations. That cost is expected to be recognized over a weighted-average period of 1.8 years.

Performance Share Awards

The Plan permits the grant of performance-based share unit ("PSU") awards. The PSUs are generally contingent on the achievement of pre-determined performance goals over a three-year performance period 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 will be settled with shares of the Group's ordinary shares following the completion of the performance period, unless the award holder elected to defer a portion or all of the award until retirement which would then be settled in cash.

The fair value of each PSU is estimated on the date of grant using a Monte Carlo simulation that uses the assumptions noted in the following table. The risk-free interest rate for periods during the contractual life of the PSU is based on the U.S. Treasury yield curve in effect at the time of grant. For fiscal 2018, the expected volatility is based on the historical volatility of the Group's stock after the Adient spin-off blended with the historical volatility of certain peer companies' stock prior to the Adient spin-off over the most recent three-year period as of the grant date. For fiscal 2017, the expected volatility is based on historical volatility of certain peer companies over the most recent three-year period as of the grant date.

	Year Ended September 30,	
	2018	2017
Risk-free interest rate	1.92%	1.40%
Expected volatility of the Group's stock	21.70%	21.00%

A summary of the status of the Group's nonvested PSUs at September 30, 2018, and changes for the fiscal year then ended, is presented below:

	Weighted Average Price	Shares/Units Subject to PSU
Nonvested, September 30, 2017	$ 43.24	1,119,388
Granted	37.36	496,478
Forfeited	43.97	(203,576)
Nonvested, September 30, 2018	$ 41.07	1,412,290

12. 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 would include unamortized compensation cost.

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

	Year Ended September 30,	
	2018	2017
Income Available to Ordinary Shareholders		
Income from continuing operations	$ 2,162	$ 1,654
Loss from discontinued operations	—	(43)
Basic and diluted income available to shareholders	$ 2,162	$ 1,611
Weighted Average Shares Outstanding		
Basic weighted average shares outstanding	925.7	935.3
Effect of dilutive securities:		
Stock options, unvested restricted stock and unvested performance share awards	6.0	9.3
Diluted weighted average shares outstanding	931.7	944.6
Antidilutive Securities		
Options to purchase shares	1.5	0.2

During the three months ended September 30, 2018 and 2017, the Group declared a dividend of $0.26 and $0.25, respectively, per share. During the twelve months ended September 30, 2018 and 2017, the Group declared four quarterly dividends totaling $1.04 and $1.00, respectively, per share. The Group pays all dividends in the month subsequent to the end of each fiscal quarter.

13. EQUITY AND NONCONTROLLING INTERESTS

Authorized Share Capital

As of September 30, 2018, 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 Parent Company 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, 2018, the Group's called-up share capital amounted to $10 million, which is recorded in ordinary shares within the consolidated statement of financial position, comprised of 950,969,965 ordinary shares with a par value of $0.01 per share. As of September 30, 2017, the Group's called-up share capital amounted to $9 million, comprised of 945,055,276 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, 2018 and 2017.

Share Premium Account

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 and is recorded in capital in excess of par value within the consolidated statement of financial position. The share premium account was $16.5 billion and $16.4 billion as of September 30, 2018 and 2017, 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 will be determined by the Group'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 (and as acquired in conjunction with the Tyco Merger) and on April 27, 2018.

Share Repurchase Program

Following the Tyco Merger, the Group adopted, subject to the ongoing existence of sufficient distributable reserves, the existing Tyco International plc $1 billion share repurchase program in September 2016. In December 2017, the Group's Board of Directors approved a $1 billion increase to its share repurchase authorization. The share repurchase program does not have an expiration date and may be amended or terminated by the Board of Directors at any time without prior notice. During fiscal year 2018, the Group repurchased approximately $300 million of its shares. As of September 30, 2018, approximately $1.0 billion remains available under the share repurchase program. In November 2018, the Group's Board of Directors approved a $1 billion increase to its share repurchase authorization. During fiscal year 2017, the Group repurchased approximately $651 million of its shares.

As of September 30, 2018 and 2017, the Group held approximately 26.0 million and 17.1 million of it's own shares, respectively.

Profit and Loss Account

The profit and loss account refers to the portion of net income which is retained by the Group rather than being distributed to shareholders as dividends, which is recorded in retained earnings within the consolidated statement of financial position. Treasury shares are also included in the profit and loss account, which is recorded in the ordinary shares held in treasury, at cost within the consolidated statement of financial position. The profit and loss account for September 30, 2018 and 2017 was $5.6 billion and $4.5 billion, respectively.

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, 2016	$ 24,118	$ 972	$ 25,090
Total comprehensive income (loss):			
Net income	1,611	164	1,775
Foreign currency translation adjustments	108	(18)	90
Realized and unrealized gains (losses) on derivatives	(14)	1	(13)
Realized and unrealized gains on marketable securities	5	—	5
Other comprehensive income (loss)	99	(17)	82
Comprehensive income	1,710	147	1,857
Other changes in equity:			
Cash dividends - ordinary shares ($1.00 per share)	(938)	—	(938)
Dividends attributable to noncontrolling interests	—	(56)	(56)
Repurchases of ordinary shares	(651)	—	(651)
Change in noncontrolling interest share	—	(5)	(5)
Spin-off of Adient	(4,038)	(138)	(4,176)
Other, including options exercised	246	—	246
At September 30, 2017	20,447	920	21,367
Total comprehensive income (loss):			
Net income	2,162	186	2,348
Foreign currency translation adjustments	(458)	(22)	(480)
Realized and unrealized losses on derivatives	(19)	(1)	(20)
Realized and unrealized gains on marketable securities	4	—	4
Other comprehensive loss	(473)	(23)	(496)
Comprehensive income	1,689	163	1,852
Other changes in equity:			
Cash dividends - ordinary shares ($1.04 per share)	(968)	—	(968)
Dividends attributable to noncontrolling interests	—	(43)	(43)
Repurchases of ordinary shares	(300)	—	(300)
Change in noncontrolling interest share	—	23	23
Adoption of ASU 2016-09	179	—	179
Reclassification from redeemable noncontrolling interest	—	231	231
Other, including options exercised	117	—	117
At September 30, 2018	$ 21,164	$ 1,294	$ 22,458

As previously disclosed, during the quarter ended December 31, 2017, the Group adopted ASU No. 2016-09. As a result, the Group recognized deferred tax assets of $179 million related to certain operating loss carryforwards resulting from the exercise of employee stock options and restricted stock vestings on a modified retrospective basis through a cumulative-effect adjustment to retained earnings as of October 1, 2017.

On October 31, 2016, the Group completed the Adient spin-off. As a result of the spin-off, the Group divested net assets of approximately $4.0 billion.

The Group consolidates certain subsidiaries in which the noncontrolling interest party has within their control the right to require the Group to redeem all or a portion of its interest in the subsidiary. The redeemable noncontrolling interests are reported at their estimated redemption value. Any adjustment to the redemption value impacts retained earnings but does not impact net income. Redeemable noncontrolling interests which are redeemable only upon future events, the occurrence of which is not currently probable, are recorded at carrying value. As of September 30, 2018, the Group does not have any subsidiaries for which the noncontrolling interest party has within their control the right to require the Group to redeem any portion of its interests.

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

	Year Ended September 30, 2018	Year Ended September 30, 2017
Beginning balance, September 30	$ 211	$ 234
Net income	35	44
Foreign currency translation adjustments	(3)	13
Realized and unrealized losses on derivatives	(9)	(1)
Dividends	(3)	(43)
Reclassification to noncontrolling interest	(231)	—
Spin-off of Adient	—	(36)
Ending balance, September 30	$ —	$ 211

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

	Year Ended September 30, 2018	Year Ended September 30, 2017
Foreign currency translation adjustments		
Balance at beginning of period	$ (481)	$ (1,152)
Aggregate adjustment for the period (net of tax effect of $(3) and $1) *	(458)	108
Adient spin-off impact (net of tax effect of $0)	—	563
Balance at end of period	(939)	(481)
Realized and unrealized gains (losses) on derivatives		
Balance at beginning of period	6	4
Current period changes in fair value (net of tax effect of $(4) and $4)	(8)	9
Reclassification to income (net of tax effect of $(5) and $(10)) **	(11)	(23)
Adient spin-off impact (net of tax effect of $0 and $6)	—	16
Balance at end of period	(13)	6
Realize and unrealized gains (losses) on marketable securities		
Balance at beginning of period	4	(1)
Current period changes in fair value (net of tax effect of $1)	5	5
Reclassification to income (net of tax effect of $(1) and $0) ***	(1)	—
Balance at end of period	8	4
Pension and postretirement plans		
Balance at beginning of period	(2)	(4)
Adient spin-off impact (net of tax effect of $0)	—	2
Balance at end of period	(2)	(2)
Accumulated other comprehensive loss, end of period	$ (946)	$ (473)

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

** Refer to Note 9, "Derivative Instruments and Hedging Activities," of the notes to consolidated financial statements for disclosure of the line items on the consolidated statement of income affected by reclassifications from AOCI into income related to derivatives.

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

14. 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.

For pension plans with accumulated benefit obligations ("ABO") that exceed plan assets, the projected benefit obligation ("PBO"), ABO and fair value of plan assets of those plans were $5,166 million, $5,072 million and $4,525 million, respectively, as of September 30, 2018 and $5,564 million, $5,465 million and $4,715 million, respectively, as of September 30, 2017.

In fiscal 2018, total employer contributions to the defined benefit pension plans were $53 million, of which $18 million were voluntary contributions made by the Group. The Group expects to contribute approximately $85 million in cash to its defined benefit pension plans in fiscal 2019. Projected benefit payments from the plans as of September 30, 2018 are estimated as follows (in millions):

2019	$ 317
2020	304
2021	304
2022	312
2023	316
2024-2028	1,628

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. Effective January 31, 1994, the Group modified certain U.S. salaried plans to place a limit on the Group's cost of future annual retiree medical benefits at no more than 150% of the 1993 cost.

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

In fiscal 2018, total employer contributions to the postretirement plans were $4 million. The Group expects to contribute approximately $15 million in cash to its postretirement plans in fiscal 2019. Projected benefit payments from the plans as of September 30, 2018 are estimated as follows (in millions):

2019	$ 19
2020	19
2021	19
2022	18
2023	18
2024-2028	74

In December 2003, the U.S. Congress enacted the Medicare Prescription Drug, Improvement and Modernization Act of 2003 ("Act") for employers sponsoring postretirement care plans that provide prescription drug benefits. The Act introduces 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 approximately $2 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. Defined contribution plan contributions charged to expense amounted to $205 million and $190 million for the fiscal years ended 2018 and 2017, 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 290 multiemployer benefit plans, primarily related to its Building Technologies & Solutions business in the U.S., 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 three years, and there have been no significant changes that affect the comparability of fiscal 2018 and 2017 contributions. The Group recognizes expense for the contractually-required contribution for each period. The Group contributed $68 million and $67 million to multiemployer benefit plans in fiscal 2018 and 2017, 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 benefits 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 capitalizations. Fixed income investments include corporate and government issues, with short-, mid- and long-term maturities, with a focus on investment grade when purchased and a target duration close to that of the plan liability. Investment and market risks are measured and monitored on an ongoing basis through regular investment portfolio reviews, annual liability measurements and periodic asset/liability studies. The majority of the real estate component of the portfolio is invested in a diversified portfolio of high-quality, operating properties with cash yields greater than the targeted appreciation. Investments in other alternative asset classes, including hedge funds and commodities, diversify the expected investment returns relative to the equity and fixed income investments. As a result of the 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, 2018 and 2017, by asset category, are as follows (in millions):

Asset Category	Total as of September 30, 2018	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	$ 23	$ 2	$ 21	$ —
Equity Securities				
Large-Cap	430	309	121	—
Small-Cap	282	282	—	—
International - Developed	411	365	46	—
International - Emerging	94	80	14	—
Fixed Income Securities				
Government	333	307	26	—
Corporate/Other	1,183	1,119	64	—
Total Investments in the Fair Value Hierarchy	2,756	$ 2,464	$ 292	$ —
Investments Measured at Net Asset Value, as Practical Expedient:				
Real Estate Investments Measured at Net Asset Value*	290			
Total Plan Assets	$ 3,046			
Non-U.S. Pension				
Cash and Cash Equivalents	$ 44	$ 43	$ 1	$ —
Equity Securities				
Large-Cap	235	24	211	—
International - Developed	319	59	260	—
International - Emerging	15	1	14	—
Fixed Income Securities				
Government	830	80	750	—
Corporate/Other	545	301	244	—
Hedge Fund	82	—	82	—
Real Estate	26	26	—	—
Total Investments in the Fair Value Hierarchy	2,096	$ 534	$ 1,562	$ —
Investments Measured at Net Asset Value, as Practical Expedient:				
Real Estate Investments Measured at Net Asset Value*	21			
Total Plan Assets	$ 2,117			
Postretirement				
Cash and Cash Equivalents	$ 13	$ 13	$ —	$ —
Equity Securities				
Large-Cap	26	—	26	—
Small-Cap	8	—	8	—
International - Developed	20	—	20	—
International - Emerging	9	—	9	—
Fixed Income Securities				
Government	20	—	20	—
Corporate/Other	55	—	55	—
Commodities	14	—	14	—
Real Estate	9	—	9	—
Total Plan Assets	$ 174	$ 13	$ 161	$ —

Asset Category	Total as of September 30, 2017	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	$ 70	$ 2	$ 68	$ —
Equity Securities				
Large-Cap	652	375	277	—
Small-Cap	281	281	—	—
International - Developed	649	569	80	—
International - Emerging	51	24	27	—
Fixed Income Securities				
Government	270	243	27	—
Corporate/Other	917	851	66	—
Total Investments in the Fair Value Hierarchy	2,890	$ 2,345	$ 545	$ —
Investments Measured at Net Asset Value, as Practical Expedient:				
Real Estate Investments Measured at Net Asset Value*	275			
Total Plan Assets	$ 3,165			
Non-U.S. Pension				
Cash and Cash Equivalents	$ 55	$ 45	$ 10	$ —
Equity Securities				
Large-Cap	242	18	224	—
Mid-Cap	2	2	—	—
International - Developed	517	58	459	—
International - Emerging	13	—	13	—
Fixed Income Securities				
Government	618	74	544	—
Corporate/Other	569	292	277	—
Hedge Fund	112	—	112	—
Real Estate	24	24	—	—
Total Investments in the Fair Value Hierarchy	2,152	$ 513	$ 1,639	$ —
Investments Measured at Net Asset Value, as Practical Expedient:				
Real Estate Investments Measured at Net Asset Value*	29			
Total Plan Assets	$ 2,181			
Postretirement				
Cash and Cash Equivalents	$ 3	$ —	$ 3	$ —
Equity Securities				
Large-Cap	28	—	28	—
Small-Cap	9	—	9	—
International - Developed	21	—	21	—
International - Emerging	11	—	11	—
Fixed Income Securities				
Government	21	—	21	—
Corporate/Other	59	—	59	—
Commodities	15	—	15	—
Real Estate	10	—	10	—
Total Plan Assets	$ 177	$ —	$ 177	$ —

* 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 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, 2018 or 2017 or any Level 3 asset activity during fiscal 2018 or 2017.

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,	2018	2017	2018	2017	2018	2017
Accumulated Benefit Obligation	$ 3,154	$ 3,382	$ 2,444	$ 2,618	$ —	$ —
Change in Projected Benefit Obligation						
Projected benefit obligation at beginning of year	3,419	4,169	2,721	3,522	214	242
Service cost	15	18	23	32	2	2
Interest cost	105	113	57	48	7	6
Plan participant contributions	—	—	2	3	6	4
Adient spin-off impact	—	(18)	—	(619)	—	(17)
Actuarial (gain) loss	(70)	(131)	(67)	(194)	1	(1)
Amendments made during the year	—	—	—	—	(8)	—
Benefits and settlements paid	(278)	(732)	(130)	(116)	(24)	(25)
Estimated subsidy received	—	—	—	—	1	2
Curtailment	—	—	(2)	(19)	—	—
Other	—	—	(4)	(2)	(1)	—
Currency translation adjustment	—	—	(58)	66	(2)	1
Projected benefit obligation at end of year	$ 3,191	$ 3,419	$ 2,542	$ 2,721	$ 196	$ 214
Change in Plan Assets						
Fair value of plan assets at beginning of year	$ 3,165	$ 3,293	$ 2,181	$ 2,536	$ 177	$ 196
Actual return on plan assets	152	334	69	94	6	14
Adient spin-off impact	—	(16)	—	(440)	—	(13)
Employer and employee contributions	7	286	48	59	15	5
Benefits paid	(153)	(394)	(88)	(86)	(24)	(25)
Settlement payments	(125)	(338)	(42)	(30)	—	—
Other	—	—	(2)	(2)	—	—
Currency translation adjustment	—	—	(49)	50	—	—
Fair value of plan assets at end of year	$ 3,046	$ 3,165	$ 2,117	$ 2,181	$ 174	$ 177
Funded status	$ (145)	$ (254)	$ (425)	$ (540)	$ (22)	$ (37)
Amounts recognized in the statement of financial position consist of:						
Prepaid benefit cost	$ 63	$ 46	$ 26	$ 27	$ 61	$ 64
Accrued benefit liability	(208)	(300)	(451)	(567)	(83)	(101)
Net amount recognized	$ (145)	$ (254)	$ (425)	$ (540)	$ (22)	$ (37)
Weighted Average Assumptions (1)						
Discount rate (2)	4.10%	3.80%	2.45%	2.40%	3.80%	3.70%
Rate of compensation increase	3.50%	3.20%	2.95%	2.90%	NA	NA

(1) Plan assets and obligations are determined based on a September 30 measurement date at September 30, 2018 and 2017.

(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.

Accumulated Other Comprehensive Income

The amounts in AOCI on the consolidated statement of financial position, exclusive of tax impacts, that have not yet been recognized as components of net periodic benefit cost at September 30, 2018 and 2017 related to pension and postretirement benefits are not significant.

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

Net Periodic Benefit Cost

The table that follows contains the components of net periodic benefit cost (in millions):

	Pension Benefits					
	U.S. Plans		Non-U.S. Plans		Postretirement Benefits	
Year ended September 30,	2018	2017	2018	2017	2018	2017
Components of Net Periodic Benefit Cost (Credit):						
Service cost	$ 15	$ 18	$ 23	$ 32	$ 2	$ 2
Interest cost	105	113	57	48	7	6
Expected return on plan assets	(229)	(229)	(114)	(92)	(10)	(10)
Net actuarial (gain) loss	7	(220)	(22)	(195)	5	(5)
Curtailment gain	—	—	(2)	(19)	—	—
Settlement gain	—	(16)	—	(1)	—	—
Net periodic benefit cost (credit)	$ (102)	$ (334)	$ (58)	$ (227)	$ 4	$ (7)
Expense Assumptions:						
Discount rate	3.80%	3.70%	2.40%	1.90%	3.70%	3.30%
Expected return on plan assets	7.50%	7.50%	5.35%	4.60%	5.65%	5.60%
Rate of compensation increase	3.20%	3.20%	2.90%	2.65%	NA	NA

15. 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 restructuring plans as necessary.

In fiscal 2018, the Group committed to a significant restructuring plan ("2018 Plan") and recorded $263 million of restructuring and impairment costs in the consolidated statement of income. This was the total amount incurred to date and the total amount expected to be incurred for this restructuring plan. The restructuring actions related to cost reduction initiatives in the Group's Building Technologies & Solutions and Power Solutions businesses and at Corporate. The costs consist primarily of workforce reductions, plant closures and asset impairments. Of the restructuring and impairment costs recorded, $113 million related to the Global Products segment, $56 million related to the Building Solutions EMEA/LA segment, $50 million related to Corporate, $20 million related to the Building Solutions North America segment, $16 million related to the Building Solutions Asia Pacific segment and $8 million related to the Power Solutions segment. The restructuring actions are expected to be substantially complete in 2020.

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

	Employee Severance and Termination Benefits	Long-Lived Asset Impairments	Other	Total
Original reserve	$ 209	$ 42	$ 12	$ 263
Utilized—cash	(45)	—	(2)	(47)
Utilized—noncash	—	(42)	—	(42)
Balance at September 30, 2018	$ 164	$ —	$ 10	$ 174

In fiscal 2017, the Group committed to a significant restructuring plan ("2017 Plan") and recorded $367 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. The restructuring actions related to cost reduction initiatives in the Group's Building Technologies & Solutions and Power Solutions businesses and at Corporate. The costs consist primarily of workforce reductions, plant closures and asset impairments. Of the restructuring and impairment costs recorded, $166 million related to Corporate, $74 million related to the Building Solutions EMEA/LA segment, $59 million related to the Building Solutions North America segment, $32 million related to the Global Products segment, $20 million related to the Power Solutions segment and $16 million related to the Building Solutions Asia Pacific segment. The restructuring actions are expected to be substantially complete in fiscal 2019.

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

	Employee Severance and Termination Benefits	Long-Lived Asset Impairments	Other	Currency Translation	Total
Original Reserve	$ 276	$ 77	$ 14	$ —	$ 367
Utilized—cash	(75)	—	—	—	(75)
Utilized—noncash	—	(77)	(1)	—	(78)
Adjustment to restructuring reserves	25	—	—	—	25
Balance at September 30, 2017	$ 226	$ —	$ 13	$ —	$ 239
Utilized—cash	(152)	—	(6)	—	(158)
Utilized—noncash	—	—	—	(1)	(1)
Balance at September 30, 2018	$ 74	$ —	$ 7	$ (1)	$ 80

In fiscal 2016, the Group committed to a significant restructuring plan ("2016 Plan") and recorded $288 million of restructuring and impairment costs in the consolidated statement of income. The restructuring actions related to cost reduction initiatives in the Group's Building Technologies & Solutions and Power Solutions businesses and at Corporate. The costs consist primarily of workforce reductions, plant closures, asset impairments and change-in-control payments. Of the restructuring and impairment costs recorded, $161 million related to Corporate, $66 million related to the Power Solutions segment, $44 million related to the Global Products segment and $17 million related to the Building Solutions EMEA/LA segment. The restructuring actions are expected to be substantially complete in fiscal 2019. Included in the reserve is $56 million of committed restructuring actions taken by Tyco for liabilities assumed as part of the Tyco acquisition.

Additionally, the Group recorded $332 million of restructuring and impairment costs within discontinued operations related to Adient in fiscal 2016.

The following table summarizes the changes in the Group's 2016 Plan reserve, included within other current liabilities in the consolidated statement of financial position (in millions):

	Employee Severance and Termination Benefits	Long-Lived Asset Impairments	Other	Currency Translation	Total
Original Reserve	$ 368	$ 190	$ 62	$ —	$ 620
Acquired Tyco restructuring reserves	78	—	—	—	78
Utilized—cash	(32)	—	—	—	(32)
Utilized—noncash	—	(190)	(32)	1	(221)
Balance at September 30, 2016	$ 414	$ —	$ 30	$ 1	$ 445
Adient spin-off impact	(194)	—	(22)	—	(216)
Utilized—cash	(86)	—	(2)	—	(88)
Utilized—noncash	—	—	—	1	1
Adjustment to restructuring reserves	(25)	—	—	—	(25)
Transfer to liabilities held for sale	(3)	—	—	—	(3)
Adjustment to acquired Tyco restructuring reserves	(22)	—	—	—	(22)
Balance at September 30, 2017	$ 84	$ —	$ 6	$ 2	$ 92
Utilized—cash	(17)	—	(2)	—	(19)
Balance at September 30, 2018	$ 67	$ —	$ 4	$ 2	$ 73

The Group's fiscal 2018, 2017 and 2016 restructuring plans included workforce reductions of approximately 11,500 employees (9,100 for the Building Technologies & Solutions business, 2,200 for Corporate and 200 for Power Solutions). 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, 2018, approximately 4,900 of the employees have been separated from the Group pursuant to the restructuring plans. In addition, the restructuring plans included twelve plant closures in the Building Technologies & Solutions business. As of September 30, 2018, seven of the twelve plants have been closed.

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.

16. IMPAIRMENT OF LONG-LIVED ASSETS

The Group reviews long-lived assets, including tangible assets and other intangible assets with definitive lives, for impairment whenever events or changes in circumstances indicate that the asset's carrying amount may not be recoverable. The 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."

ASC 360-10-15 requires the Group to group assets and liabilities at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities and evaluate the asset group against the sum of the undiscounted future cash flows. If the undiscounted cash flows do not indicate the carrying amount of the asset group is recoverable, an impairment charge is measured as the amount by which the carrying amount of the asset group exceeds its fair value based on discounted cash flow analysis or appraisals. ASC 350-30 requires intangible assets acquired in a business combination that are used in research and development activities be considered indefinite lived until the completion or abandonment of the associated research and development efforts. During the period that those assets are considered indefinite lived, they shall not be amortized but shall be tested for impairment annually and more frequently if events or changes in circumstances indicate that it is more likely than not that the asset is impaired. If the carrying amount of an intangible asset exceeds its fair value, an entity shall recognize an impairment loss in an amount equal to that excess. ASC 985-20 requires the unamortized capitalized costs of a computer software product be compared to the net realizable value of that product. The amount by which the unamortized capitalized costs of a computer software product exceed the net realizable value of that asset shall be written off.

In fiscal 2018, 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 2018. As a result, the Group reviewed the long-lived assets for impairment and recorded $42 million of asset impairment charges within restructuring and impairment costs in the consolidated statement of income. Of the total impairment charges, $31 million related to the Global Products segment, $6 million related to the Power Solutions segment and $5 million related to Corporate assets. Refer to Note 15, "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 2017, 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 2017. As a result, the Group reviewed the long-lived assets for impairment and recorded $77 million of asset impairment charges within restructuring and impairment costs on the consolidated statement of income. Of the total impairment charges, $30 million related to the Building Solutions North America segment, $20 million related to the Global Products segment, $19 million related to Corporate assets, $7 million related to the Power Solutions segment and $1 million related to the Building Solutions Asia Pacific segment. Refer to Note 15, "Significant Restructuring and Impairment Costs," of the notes to consolidated financial statements for additional information. The impairments were measured, depending on the asset, under either an income approach utilizing forecasted discounted cash flows or a market approach utilizing an appraisal to determine fair values of the impaired assets. These methods are 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, 2018 and 2017, 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 6, "Goodwill and Other Intangible Assets," of the notes to consolidated financial statements for discussion of the Group’s goodwill impairment testing.

17. INCOME TAXES

For fiscal 2018 and 2017, the more significant components of the Group’s income tax provision from continuing operations are as follows (in millions):

	Year Ended September 30,	
	2018	2017
Tax expense at Ireland statutory rate	$ 363	$ 320
U.S. state income tax, net of federal benefit	24	23
Income subject to the U.S. federal tax rate	16	(188)
Income subject to rates different than the statutory rate	(164)	256
Reserve and valuation allowance adjustments	31	(164)
Impact of acquisitions and divestitures	145	475
U.S. Tax Reform discrete items	108	—
Restructuring and impairment costs	(5)	(17)
Income tax provision	$ 518	$ 705

The statutory tax rate in Ireland is being used as a comparison since the Group is domiciled in Ireland. The effective rate is above the statutory rate of 12.5% for fiscal 2018 primarily due to the discrete net impacts of U.S. Tax Reform, final income tax effects of the completed divestiture of the Scott Safety business, legal entity restructuring associated with the Power Solutions business, valuation allowance adjustments and tax rate differentials, partially offset by the benefits of continuing global tax planning initiatives, tax audit closures and tax benefits due to changes in entity tax status. The effective rate is above the statutory rate of 12.5% for fiscal 2017 primarily due to the establishment of a deferred tax liability on the outside basis difference of the Group's investment in certain subsidiaries related to the divestiture of the Scott Safety business, the income tax effects of pension mark-to-market gains and tax rate differentials, partially offset by the jurisdictional mix of significant restructuring and impairment costs, Tyco Merger transaction and integration costs, purchase accounting adjustments, tax audit closures, a tax benefit due to changes in entity tax status and the benefits of continuing global tax planning initiatives.

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 2018, 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 Germany would not be realized. Therefore, the Group recorded $56 million of valuation allowances as income tax expense in the three month period ended September 30, 2018.

In the fourth quarter of fiscal 2017, the Group performed an analysis related to the realizability of its worldwide deferred tax assets. As a result, and after considering 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 in Canada, China and Mexico would not be able to be realized, and it was more likely than not that certain deferred tax assets in Germany would be realized. Therefore, the Group recorded $27 million of net valuation allowances as income tax expense in the three month period ended September 30, 2017.

Uncertain Tax Positions

The Group is subject to income taxes in the U.S. and numerous foreign jurisdictions. Judgment is required in determining its worldwide provision for income taxes and recording the related assets and liabilities. In the ordinary course of the 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.

At September 30, 2018, the Group had gross tax effected unrecognized tax benefits for continuing operations of $2,379 million of which $2,246 million, if recognized, would impact the effective tax rate. Total net accrued interest at September 30, 2018 was approximately $119 million (net of tax benefit).

At September 30, 2017, the Group had gross tax effected unrecognized tax benefits for continuing operations of $2,173 million of which $2,047 million, if recognized, would impact the effective tax rate. Total net accrued interest at September 30, 2017 was approximately $99 million (net of tax benefit).

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

	Year Ended September 30,	
	2018	2017
Beginning balance, October 1	$ 2,173	$ 1,706
Additions for tax positions related to the current year	444	613
Additions for tax positions of prior years	7	116
Reductions for tax positions of prior years	(201)	(44)
Settlements with taxing authorities	(19)	(95)
Statute closings and audit resolutions	(25)	(264)
Acquisition of business	—	141
Ending balance, September 30	$ 2,379	$ 2,173

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

During fiscal 2017, the Group settled a significant number of tax examinations impacting fiscal years 2006 to fiscal 2014. In the fourth quarter of fiscal 2017, income tax audit resolutions resulted in a net $191 million benefit to income tax expense.

In the U.S., fiscal years 2015 through 2016 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 - 2017
China	2008 - 2016
France	2010 - 2012; 2015-2016
Germany	2007 - 2016
Spain	2010 - 2012
United Kingdom	2012 - 2015

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 to tax expense.

Other Tax Matters

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

In the fourth quarter of fiscal 2018, the Group recorded a tax charge of $129 million due to legal entity restructuring associated with the Power Solutions business.

In the first quarter of fiscal 2018, the Group completed the sale of its Scott Safety business to 3M Company. In connection with the sale, the Group recorded a pre-tax gain of $114 million and income tax expense of $30 million. In addition, during fiscal 2017, the Group recorded a discrete non-cash tax charge of $490 million related to establishment of a deferred tax liability on the outside basis difference of the Group's investment in certain subsidiaries of the Scott Safety business. Refer to Note 2, "Acquisitions and Divestitures," and Note 3, "Discontinued Operations," of the notes to consolidated financial statements for additional information.

During fiscal 2018 and 2017, the Group recorded transaction and integration costs of $234 million and $428 million, respectively. These costs generated tax benefits of $27 million and $69 million, respectively, which reflects the Group’s current tax position in these jurisdictions.

During fiscal 2018 and 2017, the Group incurred significant charges for restructuring and impairment costs of $263 million and $367 million, respectively. Refer to Note 15, "Significant Restructuring and Impairment Costs," of the notes to consolidated financial statements for additional information. These costs generated tax benefits of $38 million and $63 million, respectively, which reflects the Group’s current tax position in these jurisdictions.

During fiscal 2018 and 2017, the Group recorded pension mark-to-market gains (losses) of $10 million and $420 million, respectively. These gains generated tax expense (benefit) of $(3) million and $126 million, respectively, which reflects the Group's current tax position in these jurisdictions.

In the fourth quarter of fiscal 2017, the Group recorded a tax charge of $53 million due to a change in the deferred tax liability related to the outside basis of certain nonconsolidated subsidiaries.

In the first quarter of fiscal 2017, the Group recorded a discrete tax benefit of $101 million due to changes in entity tax status.

As a result of the Tyco Merger in the fourth quarter of fiscal 2016, the Group recorded, as part of the acquired liabilities of Tyco, post sale contingent tax indemnification liabilities which is generally recorded within other noncurrent liabilities in the consolidated statement of financial position. The liabilities are recorded at fair value and relate to certain tax related matters borne by the buyer of previously divested subsidiaries of Tyco which Tyco has indemnified certain parties and the amounts are probable of being paid. At September 30, 2018 and 2017, the Group recorded liabilities of $255 million and $290 million, respectively. Of the $255 million recorded as of September 30, 2018, $235 million is related to prior divested businesses and the remainder relates to Tyco's tax sharing agreements from its 2007 and 2012 spin-off transactions. These are certain guarantees or indemnifications extended among Tyco, Medtronic, TE Connectivity, ADT and Pentair in accordance with the terms of the 2007 and 2012 separation and tax sharing agreements.

Impacts of Tax Legislation and Change in Statutory Tax Rates

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

In connection with the Group's analysis of the impact of the U.S. tax law changes, which is provisional and subject to change, the Group recorded a net tax charge of $108 million during fiscal 2018. This provisional net tax charge arises from a benefit of $108 million due to the remeasurement of U.S. deferred tax assets and liabilities, offset by the Group's tax charge relating to the one-time transition tax on deemed repatriated earnings, inclusive of all relevant taxes, of $216 million. The Group's estimated benefit of the remeasurement of U.S. deferred tax assets and liabilities increased from $101 million as of December 31, 2017 to $108 million as of September 30, 2018 due to calculation refinement of the Group's estimated impact. The Group remeasured certain deferred tax assets and liabilities based on the rates at which they are expected to reverse in the future. The Group's tax charge for transition tax decreased from $305 million as of December 31, 2017 to $216 million as of September 30, 2018 due to further analysis of the Group's post-1986 non-U.S. earnings and profits ("E&P") previously deferred from U.S. federal taxation and refinement of the estimated impact of tax law changes.

Based on the effective dates of certain aspects of the U.S. tax law changes, various applicable impacts of the enacted legislation could not be finalized as of September 30, 2018. While the Group made reasonable estimates of the impact of the transition tax, the final impact of the U.S. tax law changes may differ from these estimated impacts, due to, future treasury regulations, tax law technical corrections, notices, rulings, refined computations, and other items. The Group will finalize such provisional amounts within the time period prescribed by Staff Accounting Bulletin 118.

During the fiscal years ended 2018 and 2017, 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

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

	Year Ended September 30, 2018	Year Ended September 30, 2017
Current		
U.S. federal	$ 515	$ (225)
U.S. state	34	(6)
Non-U.S.	605	373
	1,154	142
Deferred		
U.S. federal	(284)	593
U.S. state	(11)	41
Non-U.S.	(341)	(71)
	(636)	563
Income tax provision	$ 518	$ 705

Consolidated U.S. income from continuing operations before income taxes and noncontrolling interests for the fiscal years ended September 30, 2018 and 2017 was income of $773 million and $868 million, respectively. Consolidated non-U.S. income from continuing operations before income taxes and noncontrolling interests for the fiscal years ended September 30, 2018 and 2017 was income of $2,128 million and $1,690 million, respectively.

Income taxes paid for the fiscal years ended September 30, 2018 and 2017 were $517 million and $1,756 million, respectively. At September 30, 2018 and 2017, the Group recorded within the consolidated statement of financial position in other current liabilities approximately $336 million and $625 million, respectively, of accrued income tax liabilities.

The Group has not provided U.S. or non-U.S. income taxes on approximately $19.5 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. In fiscal 2018, due to U.S. Tax Reform, the Group provided income tax related to the change in the Group’s assertion over the outside basis difference of certain non-U.S. subsidiaries owned directly or indirectly by U.S. subsidiaries. Under U.S. Tax Reform, the U.S. has enacted a tax system that provides an exemption for dividends received by U.S. corporations from 10% or more owned non-U.S. corporations. However, certain non-U.S, U.S. state and withholding taxes may still apply when closing an outside basis difference via distribution or other transactions.

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

	September 30, 2018	September 30, 2017
Other noncurrent assets	1,591	2,360
Other noncurrent liabilities	(763)	(1,733)
Net deferred tax asset	$ 828	$ 627

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

	September 30,	
	2018	2017
Deferred tax assets		
Accrued expenses and reserves	$ 490	$ 891
Employee and retiree benefits	193	373
Net operating loss and other credit carryforwards	6,510	5,130
Research and development	93	188
Other, net	—	26
	7,286	6,608
Valuation allowances	(5,195)	(3,838)
	2,091	2,770
Deferred tax liabilities		
Property, plant and equipment	172	247
Subsidiaries, joint ventures and partnerships	306	789
Intangible assets	713	1,107
Other, net	72	—
	1,263	2,143
Net deferred tax asset	$ 828	$ 627

At September 30, 2018, the Group had available net operating loss carryforwards of approximately $24.3 billion, of which $13.5 billion will expire at various dates between 2019 and 2038, and the remainder has an indefinite carryforward period. The Group had available U.S. foreign tax credit carryforwards at September 30, 2018 of $624 million which may be carried back to fiscal period 2016 or which will otherwise expire at various dates between 2020 and 2024. The valuation allowance, generally, is for loss carryforwards for which realization is uncertain because it is unlikely that the losses will be realized given the lack of sustained profitability and/or limited carryforward periods in certain countries.

During the first quarter of 2018, the Group adopted ASU 2016-09. As a result, the Group recognized deferred tax assets of $179 million in the consolidated statement of financial position related to certain operating loss carryforwards resulting from the exercise of employee stock options and restricted stock vestings on a modified retrospective basis through a cumulative-effect adjustment to retained earnings as of October 1, 2017.

Deferred taxation activity for fiscal year 2018 is as follows:

At September 30, 2017	$ 627
Benefit, net	636
Reclassifications to prepaid	(611)
Adoption of ASU 2016-09	179
Currency translation and other	(3)
At September 30, 2018	$ 828

18. 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 five reportable segments for financial reporting purposes. The Group's five reportable segments are presented in the context of its two primary businesses - Building Technologies & Solutions and Power Solutions.

Building Technologies & Solutions

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

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

- Building Solutions Asia Pacific designs, sells, installs, and services HVAC, controls, refrigeration, integrated electronic security, integrated fire detection and suppression systems, and provides technical services to the Asia Pacific marketplace.

- Global Products designs and produces heating and air conditioning for residential and commercial applications, and markets products and refrigeration systems to replacement and new construction market customers globally. The Global Products business also designs, manufactures and sells fire protection and security products, including intrusion security, anti-theft devices, and access control and video management systems, for commercial, industrial, retail, residential, small business, institutional and governmental customers worldwide. Global Products also includes the Johnson Controls-Hitachi joint venture, which was formed October 1, 2015, and included the Scott Safety business, prior to its sale on October 4, 2017.

Power Solutions

Power Solutions services both automotive original equipment manufacturers and the battery aftermarket by providing advanced battery technology, coupled with systems engineering, marketing and service expertise.

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, significant restructuring and impairment costs, and the net mark-to-market adjustments related to pension and postretirement plans.

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

	Year Ended September 30, 2018	Year Ended September 30, 2017
Net Sales		
Building Technologies & Solutions		
Building Solutions North America	$ 8,679	$ 8,341
Building Solutions EMEA/LA	3,696	3,595
Building Solutions Asia Pacific	2,553	2,444
Global Products	8,472	8,455
	23,400	22,835
Power Solutions	8,000	7,337
Total net sales	$ 31,400	$ 30,172

	Year Ended September 30, 2018	Year Ended September 30, 2017
Segment EBITA		
Building Technologies & Solutions		
Building Solutions North America (1)	$ 1,109	$ 1,039
Building Solutions EMEA/LA (2)	344	290
Building Solutions Asia Pacific (3)	347	323
Global Products (4)	1,338	1,179
	3,138	2,831
Power Solutions (5)	1,417	1,427
Total segment EBITA	$ 4,555	$ 4,258
Amortization of intangible assets	(384)	(489)
Corporate expenses (6)	(576)	(768)
Net financing charges	(441)	(496)
Restructuring and impairment costs	(263)	(367)
Net mark-to-market adjustments on pension and postretirement plans	10	420
Income from continuing operations before income taxes	$ 2,901	$ 2,558

	September 30, 2018	September 30, 2017
Assets		
Building Technologies & Solutions (7)		
Building Solutions North America (8)	$ 15,384	$ 15,228
Building Solutions EMEA/LA (9)	4,997	4,885
Building Solutions Asia Pacific (10)	2,743	2,575
Global Products (11)	14,261	14,018
	37,385	36,706
Power Solutions (12)	7,996	7,894
Assets held for sale	—	2,109
Unallocated	3,416	5,175
Total	$ 48,797	$ 51,884

	Year Ended September 30, 2018	Year Ended September 30, 2017
Depreciation/Amortization		
Building Technologies & Solutions		
Building Solutions North America	$ 236	$ 272
Building Solutions EMEA/LA	110	140
Building Solutions Asia Pacific	28	37
Global Products	390	410
	764	859
Power Solutions	256	236
Corporate	65	64
Discontinued Operations	—	29
Total	$ 1,085	$ 1,188

	Year Ended September 30, 2018	Year Ended September 30, 2017
Capital Expenditures		
Building Technologies & Solutions		
Building Solutions North America	$ 114	$ 107
Building Solutions EMEA/LA	73	98
Building Solutions Asia Pacific	26	27
Global Products	307	421
	520	653
Automotive Experience		
Seating	—	62
Interiors	—	1
	—	63
Power Solutions	372	481
Corporate	138	146
Total	$ 1,030	$ 1,343

(1) Building Solutions North America segment EBITA for the year ended September 30, 2018 and 2017 excludes $20 million and $59 million, respectively, of restructuring and impairment costs.

(2) Building Solutions EMEA/LA segment EBITA for the years ended September 30, 2018 and 2017 excludes $56 million and $74 million, respectively, of restructuring and impairment costs. For the years ended September 30, 2018 and 2017, EMEA/LA segment EBITA includes $1 million and $5 million, respectively, of equity income.

(3) Building Solutions Asia Pacific segment EBITA for the year ended September 30, 2018 and 2017 excludes $16 million and $16 million, respectively, of restructuring and impairment costs. For the years ended September 30, 2018 and 2017, Asia Pacific segment EBITA includes $1 million and $1 million, respectively, of equity income.

(4) Global Products segment EBITA for the years ended September 30, 2018 and 2017 excludes $113 million and $32 million, respectively, of restructuring and impairment costs. For the years ended September 30, 2018 and 2017, Global Products segment EBITA includes $175 million and $151 million, respectively, of equity income.

(5) Power Solutions segment EBITA for the years ended September 30, 2018 and 2017 excludes $8 million and $20 million, respectively, of restructuring and impairment costs. For the years ended September 30, 2018 and 2017, Power Solutions segment EBITA includes $58 million and $83 million, respectively, of equity income.

(6) Corporate expenses for the years ended September 30, 2018 and 2017 excludes $50 million and $166 million, respectively, of restructuring and impairment costs.

(7) Prior year amounts exclude assets held for sale. Refer to Note 3, "Discontinued Operations," of the notes to consolidated financial statements for further information regarding the Group's disposal groups classified as held for sale.

(8) Buildings Solutions North America assets as of September 2018 and 2017, include $8 million and $8 million, respectively, of investments in partially-owned affiliates.

(9) Building Solutions EMEA/LA assets as of September 30, 2018 and 2017, include $99 million and $107 million, respectively, of investments in partially-owned affiliates.

(10) Building Solutions Asia Pacific assets as of September 30, 2018 include $1 million of investments in partially-owned affiliates.

(11) Global Products assets as of September 30, 2018 and 2017, include $740 million and $629 million, respectively, of investments in partially-owned affiliates.

(12) Power Solutions assets as of September 30, 2018 and 2017, include $453 million and $447 million, respectively, of investments in partially-owned affiliates.

In fiscal years 2018 and 2017, 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,	
	2018	2017
Net Sales		
United States	$ 14,625	$ 14,495
China	2,166	2,046
Japan	1,903	1,816
Germany	1,961	1,779
United Kingdom	1,139	928
Mexico	909	840
Other foreign	5,692	5,408
Other European countries	3,005	2,860
Total	$ 31,400	$ 30,172
Long-Lived Assets (Year-end)		
United States	$ 3,216	$ 3,155
China	766	535
Japan	209	180
Germany	275	290
United Kingdom	73	109
Mexico	531	489
Other foreign	659	821
Other European countries	442	542
Total	$ 6,171	$ 6,121

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

19. 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, 2018 and 2017. 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, 2018 and 2017.

The following table presents summarized financial data for the Group's nonconsolidated partially-owned affiliates. The amounts included in the table below represent 100% of the results of continuing operations of such nonconsolidated partially-owned affiliates accounted for under the equity method.

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

	2018	2017
Current assets	$ 4,307	$ 4,034
Noncurrent assets	1,654	1,513
Total assets	$ 5,961	$ 5,547
Current liabilities	$ 2,718	$ 2,470
Noncurrent liabilities	459	478
Noncontrolling interests	39	33
Shareholders' equity	2,745	2,566
Total liabilities and shareholders' equity	$ 5,961	$ 5,547

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

	2018	2017
Net sales	$ 7,686	$ 6,445
Gross profit	1,855	1,510
Net income	547	517
Income attributable to noncontrolling interests	10	11
Net income attributable to the entity	537	506

20. 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 deferred revenue and 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, including extended warranties for which deferred revenue is recorded, for the fiscal years ended September 30, 2018 and 2017 were as follows (in millions):

	Year Ended September 30, 2018
Balance at beginning of period	$ 409
Accruals for warranties issued during the period	309
Accruals related to pre-existing warranties (including changes in estimates)	(26)
Settlements made (in cash or in kind) during the period	(297)
Currency translation	(3)
Balance at end of period	$ 392

As a result of the Tyco Merger, the Group recorded post sale contingent tax indemnification liabilities which is generally recorded within other noncurrent liabilities in the consolidated statement of financial position. The liabilities are recorded at fair value and relate to certain tax related matters borne by the buyer of previously divested subsidiaries of Tyco which Tyco has indemnified certain parties and the amounts are probable of being paid. At September 30, 2018 and 2017, the Group recorded liabilities of $255 million and $290 million, respectively. Of the $255 million recorded as of September 30, 2018, $235 million is related to prior divested businesses and the remainder relates to Tyco's tax sharing agreements from its 2007 and 2012 spin-off transactions. These are certain guarantees or indemnifications extended among Tyco, Medtronic, TE Connectivity, ADT and Pentair in accordance with the terms of the 2007 and 2012 separation and tax sharing agreements.

21. 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, 2018, reserves for environmental liabilities totaled $42 million, of which $11 million was recorded within other current liabilities and $31 million was recorded within other noncurrent liabilities in the consolidated statement of financial position. Reserves for environmental liabilities for continuing operations totaled $51 million at September 30, 2017, of which $10 million was recorded within other current liabilities and $41 million was recorded within other noncurrent liabilities in the consolidated statement of financial position. Such potential 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. Nevertheless, the Group does not currently believe that any claims, penalties or costs in connection with known environmental matters 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. At September 30, 2018 and 2017, the Group recorded conditional asset retirement obligations of $45 million and $61 million, respectively.

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, 2018, the Group's estimated asbestos related net liability recorded on a discounted basis within the Group's consolidated statement of financial position was $173 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 $550 million, of which $55 million was recorded in other current liabilities and $495 million was recorded in other noncurrent liabilities. The Group also maintained separate cash, investments and receivables related to insurance recoveries within the consolidated statement of financial position of $377 million, of which $33 million was recorded in other current assets and $344 million was recorded in other noncurrent assets. Assets included $6 million of cash and $281 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, 2018 was $90 million. As of September 30, 2017, the Group's estimated asbestos related net liability recorded on a discounted basis within the Group's consolidated statement of financial position was $181 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 $573 million, of which $48 million was recorded in other current liabilities and $525 million was recorded in other noncurrent liabilities. The Group also maintained separate cash, investments and receivables related to insurance recoveries within the consolidated statement of financial position of $392 million, of which $53 million was recorded in other current assets and $339 million was recorded in other noncurrent assets. Assets included $22 million of cash and $269 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, 2017 was $101 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 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. 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, 2018 and 2017, the insurable liabilities totaled $417 million and $445 million, respectively, of which $95 million and $122 million was recorded within other current liabilities, $22 million and $22 million was recorded within accrued compensation and benefits, and $300 million and $301 million was recorded within other noncurrent liabilities 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, 2018 was $26 million, of which $6 million was recorded within other current assets and $20 million was recorded within other noncurrent assets. The amount of such receivables recorded at September 30, 2017 was $46 million, of which $31 million was recorded within other current assets and $15 million was recorded within other noncurrent assets. The Group maintains captive insurance companies to manage its insurable liabilities.

Arbitration Award

In September 2017, the Group was subject to an unfavorable arbitration award of approximately $50 million relating to a contractual dispute with a subcontractor used by the Group at an airport construction project in Doha, Qatar. In connection with the unfavorable arbitration award, the Group recorded a charge of $50 million within selling, general and administrative expenses on the consolidated statement of income in the fourth quarter of fiscal 2017. The airport project is being managed by a steering committee. The Group and the subcontractor were working jointly to document claims for increased costs against the steering committee when the subcontractor initiated the arbitration proceeding against the Group. Pursuant to its arbitration proceeding against the Group, the subcontractor sought to recover costs it alleges it incurred due to project delays, additional work and related financing costs. The Group has filed annulment proceedings with respect to the arbitration award in the local court in Qatar. In October 2018, the annulment proceeding was dismissed by the court. While the award remains outstanding, a portion of the balance will accrue interest at a statutory rate of 9.56%.

In a related action, the Group has initiated an arbitration claim against the steering committee related to costs it incurred in connection with delays of the airport construction project, including costs related to the above award. The arbitrator is expected to issue a decision on the Group's claims against the steering committee by the end of the first quarter of fiscal 2019.

Aqueous Film-Forming Foam ("AFFF") Litigation

Two of our subsidiaries, Chemguard, Inc. ("Chemguard") and Tyco Fire Products L.P. ("Tyco Fire Products"), have been named, along with other defendant manufacturers, in a number of class action and other lawsuits relating to the use of fire-fighting foam products by the U.S. Department of Defense (the "DOD") and others for fire suppression purposes and related training exercises. Plaintiffs generally allege that the firefighting foam products manufactured by defendants contain or break down into the chemicals perfluorooctane sulfonate ("PFOS") and perfluorooctanoic acid ("PFOA") and/or other per- and poly fluorinated ("PFAS") compounds and that the use of these products by others at various airbases, airports and other sites resulted in the release of these chemicals into the environment and ultimately into communities' drinking water supplies neighboring those airports, airbases and other sites. PFOA, PFOS, and other PFAS compounds are being studied by the United States Environmental Protection Agency ("EPA") and other environmental and health agencies and researchers. The EPA has not issued regulatory limits, however; while those studies continue, the EPA has issued a health advisory level for PFOA and PFOS in drinking water. Both PFOA and PFOS are types of synthetic chemical compounds that have been present in firefighting foam. However, both are also present in many existing consumer products. According to EPA, PFOA and PFOS have been used to make carpets, clothing, fabrics for furniture, paper packaging for food and other materials (e.g., cookware) that are resistant to water, grease or stains.

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

In September of 2018, the Company 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 75 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 the MDL; a ruling is expected on those transfers in January 2019.

The Group is named in 20 putative class actions in federal and state courts in seven states as set forth below:

Colorado

- *District of Colorado - Bell et al. v. The 3M Company et al.*, filed September 18, 2016.
- *District of Colorado - Bell et al. v. The 3M Company et al.*, filed September 18, 2016.
- *District of Colorado - Davis et al. v. The 3M Company et al.*, filed September 22, 2016.

The above cases have been consolidated in the U.S. District Court for the District of Colorado. A hearing was held on class certification on November 30, 2018; the Court deferred ruling pending the outcome of the MDL transfer motion described above, and the cases were subsequently transferred to the MDL.

Delaware

- *District of Delaware - Anderson v. The 3M Company et al.*, filed May 18, 2018 in the United States District Court District of Delaware.
- *District of Delaware - Grubb v. The 3M Company et al.*, filed October 30, 2018 in the United States District Court District of Delaware.

Massachusetts

- *District of Massachusetts - Civitarese et al. v. The 3M Company et al.*, filed April 18, 2018 in the United States District Court of Massachusetts.

Washington

- *Eastern District of Washington - Ackerman et al. v. The 3M Company et al.*, filed April 5, 2018 in the United States District Court, Eastern District of Washington.

New York

- *Eastern District of New York - Green et al. v. The 3M Company et al.*, filed March 27, 2017 in Supreme Court of the State of New York, Suffolk County, prior to removal to federal court.
- *Southern District of New York - Adamo et al. v. The Port Authority of NY and NJ et al.*, filed August 11, 2017 in Supreme Court of the State of New York, Orange County, prior to removal to federal court.
- *Southern District of New York - Fogarty et al. v. The Port Authority of NY and NJ et al.*, filed August 11, 2017 in Supreme Court of the State of New York, Orange County, prior to removal to federal court.
- *Southern District of New York - Miller et al. v. The Port Authority of NY and NJ et al.*, filed August 11, 2017 in Supreme Court of the State of New York, Orange County, prior to removal to federal court.
- *Eastern District of New York - Singer et al. v. The 3M Company et al.*, filed October 10, 2017, in Supreme Court of the State of New York, Suffolk County, prior to removal to federal court.
- *Eastern District of New York - Shipman et al. v. The 3M Company et al.*, filed March 21, 2018, in Supreme Court of the State of New York, Suffolk County, prior to removal to federal court.
- *Eastern District of New York - Py et al. v. The 3M Company et al.*, filed April 26, 2018, in Supreme Court of the State of New York, Suffolk County, prior to removal to federal court.
- *Southern District of New York - County of Dutchess v. 3M Company et al.* - filed October 12, 2018.

Pennsylvania

- *Eastern District of Pennsylvania - Bates et al. v. The 3M Company et al.*, filed September 15, 2016.
- *Eastern District of Pennsylvania - Grande et al. v. The 3M Company et al.*, filed October 13, 2016.
- *Eastern District of Pennsylvania - Yockey et al. v. The 3M Company et al.*, filed October 24, 2016.
- *Eastern District of Pennsylvania - Fearnley et al. v. The 3M Company et al.*, filed December 9, 2016.

The above cases have been consolidated in the U.S. District Court for the Eastern District of Pennsylvania. The defendants' motion to dismiss the complaint in the consolidated proceeding was denied without prejudice and the cases have been transferred to the MDL.

Florida

- *Middle District of Florida - Battisti et al. v. The 3M Company et al.*, filed December 20, 2018.

In June 2018, the State of New York filed a lawsuit in New York state court (*State of New York v. 3M Co.*, 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 identified for transfer to the MDL.

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

In addition, there are approximately 55 individual or "mass" actions pending in federal court in Colorado (41 cases), New York (4 cases) and Pennsylvania (10 cases) 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 approximately 7,000 plaintiffs in Colorado, approximately 126 plaintiffs in New York and 14 plaintiffs in Pennsylvania. The Group is also on notice of approximately 629 other possible individual product liability claims and 3 possible municipal claims by filings made in Pennsylvania state court, but complaints have not been filed in those matters, and, under Pennsylvania's procedural rules, they may or may not result in lawsuits.

Chemguard and Tyco Fire Products are also defendants in three municipal cases pending in the U.S. District Court for the District of Massachusetts: *Town of Barnstable v. the 3M. Co., et al,* (filed Nov. 21, 2016), *County of Barnstable v. the 3M. Co., et al*, (filed January 9, 2017) and *City of Westfield v. the 3M Co., et al.*, (filed on February 24, 2018), as well as two municipal cases pending in the Eastern District of New York: *Suffolk County Water Auth. v. 3M Co.* (filed November 30, 2017) and *Hampton Bays Water Dist. v. 3M Co.* (filed Feb. 21, 2018), two municipal cases pending in the Southern District of New York: *City of Newburgh v. United States et al.* (filed August 6, 2018) and *Dutchess County v. The 3M Company et al.* (filed October 12, 2018) (styled as a class action (discussed above)), one municipal case pending in the Southern District of Ohio: *City of Dayton v. The 3M Company et al.* (filed October 3, 2018), one municipal case pending in the Southern District of Florida, *City of Stuart v. the 3M Company et al.* (filed October 18, 2018), one municipal case filed in the Superior Court of the State of Arizona, County of Pima: *City of Tucson and Town of Marana v. The 3M Company et al.* (filed November 8, 2018), one municipal case filed in the U.S. District Court for the District of New Jersey: *New Jersey-American Water Company, Inc. v. The 3M Company et al.,* (filed November 8, 2018), one municipal case filed in the Supreme Court of the State of New York, County of Nassau: *Village of Farmingdale v. The 3M Company et al.* (filed December 19, 2018), and one municipal case pending in the Northern District of Florida: *Emerald Coast Utilities Auth. v. 3M Co.* (filed June 22, 2018). 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 bases released PFOS and PFOA into public water supply wells, allegedly requiring remediation of public property. The defendants have filed motions to dismiss in County of Barnstable, City of Westfield, Suffolk County Water Authority, and Hampton Bays Water Authority; all but one of these cases either have been transferred or identified for transfer to the MDL. *Village of Farmingdale* was recently served; it will be removed to federal court and identified for transfer to the MDL in January 2019.

In May 2018, the Group was also notified by the Widefield Water and Sanitation District in Colorado Springs, Colorado that it may assert claims regarding its remediation costs in connection with PFOS and PFOA contamination allegedly resulting from the use of those products at the Peterson Air Force Base. In addition, three water districts in Pennsylvania, Horsham Water and Sewer Authority, Warminster Municipal Authority, and Warrington Township have filed praecipes for summons against Chemguard and Tyco Fire Products and other AFFF manufacturers relating to alleged PFOS and PFOA contamination. These praecipes are not active suits, but have the effect of tolling the statute of limitations.

Other AFFF Matters

Tyco Fire Products, in coordination with the Wisconsin Department of Natural Resources ("WDNR") and the Wisconsin Department of Health Services ("DHS"), 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, PFOS and PFOA 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 closely with WDNR and DHS to develop interim measures to remove these compounds from certain areas where they have been detected.

Tyco Fire Products and its subsidiary Chemguard are defendants in two recently filed lawsuits 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 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. A second lawsuit, *Duane and Janell Goldsmith individually and on behalf of H.G. and K.G v. Tyco Fire Products LP and Chemguard Inc., et al. (Marinette County Circuit Court, filed Dec. 17, 2018)* was also filed by a family alleging personal injuries due to contaminated groundwater.

The Group is vigorously defending these cases and believes that it has meritorious defenses to class certification and the claims asserted. 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, but there can be no assurance that any such exposure will not be material. The Group is also pursuing insurance coverage for these matters.

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.

22. 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 net sales to and purchases from related parties included in the consolidated statement of income were $958 million and $203 million, respectively, for fiscal 2018; and $1,004 million and $195 million, respectively, for fiscal 2017.

The following table sets forth the amount of accounts receivable due from and payable to related parties in the consolidated statement of financial position (in millions):

	September 30,			
	2018		2017	
Receivable from related parties	$	103	$	131
Payable to related parties		75		50

The Group has also provided financial support to certain of its VIE's, see Note 1, "Basis of Presentation and Summary of Significant Accounting Policies," of the notes to consolidated financial statements for additional information.

23. SUBSEQUENT EVENT

On November 13, 2018, the Group entered into a Stock and Asset Purchase Agreement ("Purchase Agreement") with BCP Acquisitions LLC ("Purchaser"). The Purchaser is a newly-formed entity controlled by investment funds managed by Brookfield Capital Partners LLC. Pursuant to the Purchase Agreement, on the terms and subject to the conditions therein, the Group has agreed to sell, and Purchaser has agreed to acquire, the Group's Power Solutions business for a purchase price of $13.2 billion. Net cash proceeds are expected to be $11.4 billion after tax and transaction-related expenses. The transaction is expected to close by June 30, 2019, subject to customary closing conditions and required regulatory approvals. The operating results of the Power Solutions business will be reported as a discontinued operation beginning in the first quarter of fiscal 2019.

24. SUPPLEMENTAL BALANCE SHEET INFORMATION

As of September 30, 2018 and 2017, other current assets were comprised of (in millions):

	September 30,			
	2018		**2017**	
Income tax receivable	$	256	$	564
Non-income tax receivable		243		468
Derivative assets (Note 9)		17		36
Prepayments		227		196
Other		591		643
Other current assets	$	1,334	$	1,907

Other noncurrent assets within the consolidated statement of financial position include financial assets of $496 million and $465 million as of September 30, 2018 and 2017, respectively. Refer to Note 25, "Financial Assets," of the notes to consolidated financial statements for the rollforward of financial assets. As of September 30, 2018 and 2017, other noncurrent assets were comprised of (in millions):

	September 30, 2018	September 30, 2017
Asbestos-related insurance receivables (Note 21)	$ 77	$ 84
Prepaid income taxes	1,034	591
Deferred income taxes (Note 17)	1,591	2,360
Prepaid retirement benefit (Note 14)	150	137
Financial assets (Note 25)	496	465
Other	333	294
Other noncurrent assets	$ 3,681	$ 3,931

Other current liabilities within the consolidated statement of financial position include provisions for liabilities of $797 million and $899 million as of September 30, 2018 and 2017, respectively. Refer to Note 26, "Provisions for Liabilities," of the notes to consolidated financial statements for the rollforward of provisions for liabilities. As of September 30, 2018 and 2017, other current liabilities were comprised of (in millions):

	September 30, 2018	September 30, 2017
Income taxes payable (Note 17)	$ 336	$ 625
Value-added taxes	171	373
Sales and use taxes	67	83
Other taxation	41	47
Dividends payable	240	232
Derivative liabilities (Note 9)	26	47
Accrued rebates	343	364
Other	772	883
Provisions (Note 26)		
Warranty reserves	189	226
Tax indemnification reserves	3	20
Restructuring reserves	327	331
Asbestos-related and insurable liabilities	150	170
Environmental reserves	11	10
Other provisions	117	142
Total provisions	797	899
Other current liabilities	$ 2,793	$ 3,553

Payroll taxes are recorded in the accrued compensation and benefits within the consolidated statement of financial position and were approximately $74 million and $99 million as of September 30, 2018 and 2017, respectively. Income taxes payable, sales and use taxes, payroll taxes and value added taxes are payable in the timeframe set in the relevant legislation.

Other noncurrent liabilities within the consolidated statement of financial position include provisions for liabilities of $4,214 million and $4,798 million as of September 30, 2018 and 2017, respectively. Refer to Note 26, "Provisions for Liabilities," of the notes to consolidated financial statements for the rollforward of provisions for liabilities. As of September 30, 2018 and 2017, other noncurrent liabilities were comprised of (in millions):

	September 30, 2018	September 30, 2017
Income taxes payable	$ 67	$ 123
Deferred compensation	152	169
Other	285	278
Provisions (Note 26)		
Deferred taxation and uncertain tax positions	2,909	3,417
Warranty reserves	182	183
Tax indemnification reserves	252	270
Asbestos-related and insurable liabilities	795	826
Asset retirement obligation	45	61
Environmental reserves	31	41
Total provisions	4,214	4,798
Other noncurrent liabilities	$ 4,718	$ 5,368

25. 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 2018 was as follows (in millions):

	Investments in Partially Owned Affiliates	Investments	Equity Swap	Loans to Joint Ventures	Total
At September 30, 2017	$ 1,191	$ 382	$ 55	$ 28	$ 1,656
Income from equity investments	235	—	—	—	235
Dividends	(69)	—	—	—	(69)
Additions, including business acquisitions	32	49	15	9	105
Reductions, including business divestitures	(50)	(35)	(7)	—	(92)
Currency translation and other	(38)	—	—	—	(38)
At September 30, 2018	$ 1,301	$ 396	$ 63	$ 37	$ 1,797

26. PROVISIONS FOR LIABILITIES

As of September 30, 2018 and 2017, material provisions for liabilities were comprised of (in millions):

	September 30, 2018	September 30, 2017
Pension and postretirement obligations (Note 14)	$ 742	$ 968
Deferred taxation and uncertain tax positions (Note 17)	2,909	3,417
Warranty reserves (Note 20)	392	409
Tax indemnification reserves (Note 17)	255	290
Restructuring reserves (Note 15)	327	331
Other provisions (included below)	1,171	1,272
	$ 5,796	$ 6,687

The activity in other provisions accounts for 2018 is as follows (in millions):

	Other Provisions	Environmental Reserves	Asset Retirement Obligation	Asbestos-Related and Insurable Liabilities	Total
At September 30, 2017	$ 142	$ 51	$ 61	$ 1,018	$ 1,272
Additions, including charges and acquisitions	16	3	4	130	153
Reductions, including reversals and payments	(41)	(11)	(20)	(181)	(253)
Currency translation and other	—	(1)	—	—	(1)
At September 30, 2018	$ 117	$ 42	$ 45	$ 967	$ 1,171

Provisions for liabilities are primarily recorded in other current liabilities and other noncurrent liabilities within the consolidated statement of financial position. Refer to Note 24 "Supplemental Balance Sheet Information," of the notes to consolidated financial statements for detail. Provisions for asbestos-related and insurable liabilities also include $22 million recorded in accrued compensation and benefits within the consolidated statement of financial position as of September 30, 2018 and 2017, respectively. Additionally, provisions for warranty reserves include $21 million recorded in deferred revenue within the consolidated statement of financial position as of September 30, 2018.

As of September 30, 2018 provisions for pension and postretirement obligations included $717 million recorded in pension and postretirement benefits and $25 million recorded in accrued compensation and benefits within the consolidated statement of financial position. As of September 30, 2017 provisions for pension and postretirement obligations included $947 million recorded in pension and postretirement benefits and $21 million recorded in accrued compensation and benefits within the consolidated statement of financial position.

27. DIRECTORS' REMUNERATION

Group's directors' remuneration for fiscal years 2018 and 2017 is set forth in the table below.

George Oliver, the Group's Chief Executive Officer and the Chairman of the Board, and Alex Molinaroli, the Group's former Chief Executive Officer and the Chairman of the Board, have not been compensated for their services as directors. Accordingly, the 2018 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. The 2017 amounts below include compensation for Mr. Oliver's service as Chairman and Chief Executive Officer for September 2017 and his service as President and Chief Operating Officer for October 2016 through August 2017 and compensation for Mr. Molinaroli's service as Chairman and Chief Executive Officer for October 2016 through August 2017, as well as compensation for all Group non-employee directors in their capacities as such ($ in millions):

	Year Ended September 30, 2018	Year Ended September 30, 2017
Emoluments for directors' services	$ 1	$ 1
Emoluments for managerial services	5	5
Compensation for loss of office paid by the Group and other termination payments (1)	—	64
Benefits under long-term incentive schemes	6	19
Gain on exercise of share options	6	1
Other (2)	1	1
	$ 19	$ 91

(1) Cash severance and pro-rata bonus payments to Alex Molinaroli paid in March of 2018.
(2) Amounts reflect reimbursements with respect to personal use of the company aircraft, personal use of a vehicle, relocation expenses, and retirement plan matching contributions. Retirement plan matching contributions totaled $0.3 million for fiscal years 2018 and 2017 each.

28. AUDITORS' REMUNERATION

Auditors' remuneration to PricewaterhouseCoopers Ireland for fiscal year 2018 included $0.5 million of audit fees. Auditors' remuneration to PricewaterhouseCoopers Ireland for fiscal year 2017 included $0.5 million of audit fees and $0.1 million of audit related fees.

Auditors' remuneration to affiliates of PricewaterhouseCoopers Ireland for fiscal years 2018 and 2017 was as follows ($ in millions):

	Year Ended September 30, 2018	Year Ended September 30, 2017
Audit fees	$ 26	$ 26
Audit related fees	3	2
Tax fees	6	6
All other fees	1	
	$ 36	$ 34

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

29. EMPLOYEES

The average number of persons, including executive directors, employed by the Group during the years ended September 30, 2018 and 2017 was as follows (in thousands):

	Year Ended September 30, 2018	Year Ended September 30, 2017
Building Technologies & Solutions	102	105
Power Solutions	16	16
Discontinued operations (former Automotive Experience) (1)	—	6
Corporate	3	3
Total employees	121	130

[1]Due to the timing of the Adient spin-off, Automotive Experience Employees were part of the Group only for the first month of fiscal 2017.

Total ongoing employee costs within continuing operations consist of the following ($ in millions):

	Year Ended September 30, 2018	Year Ended September 30, 2017
Wages and salaries	$ 6,581	$ 6,139
Social insurance costs	284	257
Stock based compensation	98	134
Other compensation costs	152	84
	$ 7,115	$ 6,614

Certain employee costs have been capitalised within inventories and property, plant & equipment - net in the consolidated statement of financial position as of September 30, 2018 and September 30, 2017.

30. 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, 2018. The remaining entities are annexed to the annual return of the Company.

Name	Nature of Business	Group Ordinary Share %	Registered Office and Country of Incorporation
Johnson Controls Battery Group, Inc.	Power Solutions	100%	CT Corporation System, 8020 Excelsior Drive, Suite 200, Madison, Wisconsin, WI, 53717
Johnson Controls, Inc.	Corporate	100%	CT Corporation System, 8020 Excelsior Drive, Suite 200, Madison, Wisconsin, WI, 53717

JOHNSON CONTROLS INTERNATIONAL PLC

Company Financial Statements

For the Year Ended September 30, 2018

JOHNSON CONTROLS INTERNATIONAL PLC

COMPANY BALANCE SHEET

(in millions)

		September 30,	
	Note	2018	2017
Fixed assets			
Financial assets	2	$ 56,231	$ 11,517
		56,231	11,517
Current assets			
Debtors	6	92	43,979
		92	43,979
Creditors (amounts falling due within one year)	7	(6,441)	(6,344)
Net current assets		(6,349)	37,635
Total assets less current liabilities		49,882	49,152
Creditors (amounts falling due after more than one year)	8	(14,793)	(12,552)
Net assets		$ 35,089	$ 36,600
Capital and reserves			
Called-up share capital presented as equity	11	$ 10	$ 9
Share premium account	11	92	25,934
Profit and loss account	11	34,690	10,447
Share-based compensation reserve	11	297	210
Equity shareholders' funds		$ 35,089	$ 36,600

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

Approved by the Board of Directors on January 8, 2019 and signed on its behalf by:

/s/ George R. Oliver	/s/ Jürgen Tinggren
George R. Oliver	Jürgen Tinggren
Chairman and Chief Executive Officer	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, 2016	**936**	**$ 9**	**$ 25,572**	**$ 16,840**	**$ 82**	**$ 42,503**
Loss for the year	—	—	—	(460)	—	(460)
Dividends declared	—	—	—	(938)	—	(938)
Spin-off of Adient	—	—	—	(4,307)	—	(4,307)
Share vestings and option exercise	9	—	362	—	—	362
Share-based compensation	—	—	—	—	128	128
Repurchase of ordinary shares	—	—	—	(651)	—	(651)
Other	—	—	—	(37)	—	(37)
Balance as of September 30, 2017	**945**	**$ 9**	**$ 25,934**	**$ 10,447**	**$ 210**	**$ 36,600**
Loss for the year	—	—	—	(438)	—	(438)
Dividends declared	—	—	—	(968)	—	(968)
Transfer of share premium to distributable reserves	—	—	(25,987)	25,987	—	—
Share vestings and option exercise	6	1	145	—	—	146
Share-based compensation	—	—	—	—	87	87
Repurchase of ordinary shares	—	—	—	(300)	—	(300)
Other	—	—	—	(38)	—	(38)
Balance as of September 30, 2018	**951**	**$ 10**	**$ 92**	**$ 34,690**	**$ 297**	**$ 35,089**

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 statement have been prepared on a going concern basis and in accordance with accounting standards issues 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.

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.

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. See Note 2, "Financial Assets," of the Company financial statements for the carrying carrying value of financial assets.

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 that is designated as a net investment hedge in the Company's foreign operations in Europe and Japan.

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.

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 costs 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 recognised in profit or loss.

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 expires.

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 probably 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 - 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 and the repurchase from employees who have sold a portion of their vested restricted units to cover withheld taxes.

Going Concern - The directors have a reasonable expectation that JCI plc has adequate resources to continue in operational existence for the foreseeable future. Accordingly, it continues to adopt the going concern basis in preparing the 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]

2. Financial Fixed Assets

Financial fixed assets included on the Company balance sheet as of September 30, 2018 and 2017 were as follows ($ in millions):

	Investments in Subsidiaries	Equity Swap	Total
As of September 30, 2017	$ 11,462	$ 55	$ 11,517
Additions	44,764	15	44,779
Disposals and reductions	(58)	(7)	(65)
As of September 30, 2018	$ 56,168	$ 63	$ 56,231

The additions in investments in subsidiaries during the year arose from the following transactions and were recorded at fair value on that date.

In December 2017, the Company contributed all of the Tyco Fire & Security Finance SCA ("TIFSCA") interest-free loans totaling $43.1 billion to a newly formed subsidiary named Johnson Controls International Finance Unlimited Company as an equity contribution. See Note 6, "Debtors," of the Company financial statements for loan details.

In September 2018, the Company contributed $1.3 billion to JSV Holding S.a.r.l. Additionally, in September 2018, the Company contributed 213 million euro ($248 million translated to USD) to a newly formed subsidiary named Johnson Controls Asia Investment Unlimited Company.

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 2018 was $87 million. The share-based payment recharged to subsidiaries for stock option exercises and restricted stock unit vestings of awards granted after the Tyco merger date was $58 million.

The Company selectively uses equity swaps to reduce market risk associated with certain of its stock-based compensation plans, such as its deferred compensation plans. These equity compensation liabilities increase as the Company's stock price increases and decrease as the Company's stock price decreases. In contrast, the value of the swap agreement moves in the opposite direction of these liabilities, allowing the Company to fix a portion of the liabilities at a stated amount. As of September 30, 2018 and 2017, the fair value of the equity swap was $63 million and $55 million, respectively.

The following schedule summarizes the Company's significant directly owned investments as of September 30, 2018:

Company	Registered Office Address	Country	Type	Ordinary Share Ownership %	Date of Acquisition
Tyco Fire & Security Finance SCA	29 avenue de la Porte Neuve, Luxembourg, Luxembourg (fr), Luxembourg, 2227	Luxembourg	Holding co.	99.996 (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.	83.97	October 2016
Global Risk Underwriters (Bermuda) Ltd.	Clarendon House, 2 Church Street, Hamilton, Bermuda	Bermuda	Holding co.	100	September 2017
JC Luxembourg Sales S.a.r.l.	4 rue Jean Monnet, Luxembourg, Luxembourg (fr), Luxembourg, 2180	Luxembourg	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

[(1)] JCI plc holds common shares in TIFSCA, 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, 2018 and 2017, JCI plc had parent guarantees of approximately $6.9 billion and $6.8 billion, respectively, which were primarily comprised of guarantees of subsidiaries' credit facilities and lease obligations.

During fiscal 2017, JCI Inc., a 100% owned subsidiary of the Company, entered into two new revolving credit facilities that as of September 30, 2018 and 2017 were fully and unconditionally guaranteed by JCI plc. During fiscal 2018, JCI Inc. entered into an additional revolving credit facility that as of September 30, 2018 was fully and unconditionally guaranteed by JCI plc. There were no draws on the facilities as of September 30, 2018 and 2017.

4. Directors' Remuneration

Refer to Note 27, "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):

	2018	2017
Audit of individual accounts	$ 0.1	$ 0.1

Amounts for financial year 2018 represent estimated fees and expenses. See Note 28 "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, 2018 and 2017 were as follows ($ in millions):

	2018	2017
Amounts falling due within one year:		
Amounts due from subsidiary undertakings	$ 43	$ 43,921
Other debtors and prepayments	49	58
	$ 92	**$ 43,979**

Amounts due from subsidiary undertakings were as follows ($ in millions):

	2018	2017
TIFSCA loan A, interest-free, payable on demand	$ —	$ 24,220
TIFSCA loan B, interest-free, payable on demand	—	12,726
TIFSCA loan C, interest-free, payable on demand	—	5,682
TIFSCA loan D, interest-free, payable on demand	—	500
JCI Inc. loan, 1.71%, due October 31, 2017	—	300
Share-based payment recharge due from subsidiaries	39	132
Internal foreign currency derivatives	—	250
Other	4	111
	$ 43	**$ 43,921**

In December 2017, the Company contributed all of the TIFSCA interest-free loans to a newly formed and wholly owned Irish subsidiary as an equity contribution. See Note 2, "Financial Assets," of the Company financial statements for additional details.

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, 2018 and 2017 were as follows ($ in millions):

	2018	2017
Amounts due to subsidiary undertakings	$ 1,751	$ 4,237
Current portion of long-term debt	—	307
Amounts owed to credit institutions	4,305	1,476
Accrued dividends	240	232
Other accruals	145	92
	$ 6,441	**$ 6,344**

In January 2018, a 364-day $250 million committed revolving credit facility expired. The Company entered into a new $200 million committed revolving credit facility scheduled to expire in January 2019. As of September 30, 2018, there were no draws on the facility.

In December 2017, the Company repaid a 364-day 150 million euro floating rate term loan, plus accrued interest, scheduled to mature in September 2018.

In September 2017, the Company entered into a 364-day 150 million euro, floating rate, term loan scheduled to expire in September 2018. As of September 30, 2017, the facility was fully drawn. The weighted-average interest rate on the loan during financial year 2017 was 0.775%.

Commercial paper outstanding as of September 30, 2018 and 2017 was $367 million and $411 million, respectively, with a weighted-average interest rate of 2.4% and 1.4%, respectively.

Bank borrowings as of September 30, 2018 include a bank overdraft of $3,938 million. Bank borrowings as of September 30, 2017 include a bank overdraft of $888 million.

Amounts due to subsidiary undertakings were as follows ($ in millions):

	2018	2017
Obsidian HCM Med Holdings Ireland loan, 2.92%, due May 31, 2018	$ —	$ 1,443
Tyco International Holding Sarl loan, 3.85%, due January 4, 2018	—	103
World Services Inc. loan, interest free, payable on demand	1,747	1,747
Cash pool payable	—	480
Internal foreign currency derivatives	—	420
Other	4	44
	$ 1,751	**$ 4,237**

The $103 million loan to Tyco International Holding Sarl was paid off in January 2018. The $1,443 million loan to Obsidian HCM Med Holdings Ireland was refinanced with a new maturity date of May 31, 2022.

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

As of September 30, 2018 and 2017, creditors (amounts falling due after more than one year) were comprised of ($ in millions):

	2018	2017
Amounts falling due after more than one year:		
Amounts due to subsidiary undertakings	$ 6,113	$ 4,688
Long-term debt	8,680	7,864
	$ 14,793	**$ 12,552**

The amount due to subsidiary undertakings consisted of $4,688 million of unsecured, 2.07% interest-bearing loans to JCI Inc. maturing on October 7, 2019, which were created in connection with Adient spin-off transaction, and $1,425 million of unsecured, 0.56% interest-bearing loans to Obsidian HCM Med Holdings Ireland Unlimited Company maturing on May 31, 2022.

Long-term debt as of September 30, 2018 and 2017 was as follows ($ in millions; due dates by fiscal year):

	September 30,	
	2018	2017
Unsecured notes:		
1.4% due in 2018 ($259 million par value)	$ —	$ 258
3.75% due in 2018 ($49 million par value)	—	49
5.00% due in 2020 ($453 million par value)	469	479
0.00% due in 2021 (EUR 750 million par value)	868	—
4.25% due in 2021 ($447 million par value)	461	467
3.75% due in 2022 ($428 million par value)	436	439
0.4006% due in 2022 (JPY 35,000 million par value)	309	311
4.625% due in 2023 ($35 million par value)	37	37
1.00% due in 2023 (EUR 1,000 million par value)	1,154	1,171
3.625% due in 2024 ($468 million par value)	469	470
1.375% due in 2025 (EUR 423 million par value)	498	507
3.90% due in 2026 ($698 million par value)	704	705
6.00% due in 2036 ($392 million par value)	435	437
5.70% due in 2041 ($270 million par value)	301	302
5.25% due in 2042 ($242 million par value)	257	257
4.625% due in 2044 ($445 million par value)	435	435
5.125% due in 2045 ($727 million par value)	766	766
6.95% due in 2046 ($121 million par value)	161	162
4.50% due in 2047 ($500 million par value)	496	495
4.95% due in 2064 ($435 million par value)	424	424
Gross long-term debt	8,680	8,171
Less: current portion	—	307
Net long-term debt	$ 8,680	$ 7,864

In January 2018, the Company retired $49 million in principal amount, plus accrued interest, of its 3.75% fixed rate notes that expired in January 2018.

In November 2017, the Company issued 750 million euro in principal amount of 0.0% senior unsecured fixed rate notes due in December 2020. Proceeds from the issuance were used to repay existing debt and for other general corporate purposes.

In November 2017, the Company retired $259 million in principal amount, plus accrued interest, of its 1.4% fixed rate notes that expired in November 2017.

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 2018 and 2017, 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, 2018 and 2017 was $1,053 million and $710 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, 2018 and 2017 was $297 million and $210 million, respectively.

12. Dividends

Dividends of $954 million and $702 million were paid to external shareholders during financial years 2018 and 2017, respectively. As of September 30, 2018, there were $240 million of outstanding dividends declared. As of September 30, 2017, there were $232 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. JCI plc's loss (income) for financial years 2018 and 2017 as determined in accordance with FRS 102 were $438 million and $460 million, respectively, which includes the foreign currency translation adjustment on intercompany permanent loans and foreign currency denominated third party debt designated as net investment hedge of $(46) million and $116 million, respectively.

14. Subsequent Events

On November 13, 2018, the Group entered into a Stock and Asset Purchase Agreement ("Purchase Agreement") with BCP Acquisitions LLC ("Purchaser"). The Purchaser is a newly-formed entity controlled by investment funds managed by Brookfield Capital Partners LLC. Pursuant to the Purchase Agreement, on the terms and subject to the conditions therein, the Group has agreed to sell, and Purchaser has agreed to acquire, the Group's Power Solutions business for a purchase price of $13.2 billion. Net cash proceeds are expected to be $11.4 billion after tax and transaction-related expenses. The transaction is expected to close by June 30, 2019, subject to customary closing conditions and required regulatory approvals. The operating results of the Power Solutions business will be reported as a discontinued operation for the Group beginning in the first quarter of fiscal 2019.

On November 8, 2018, the Board of Directors has approved an incremental $1 billion increase to its share repurchase authorization.

15. Approval of Financial Statements

The financial statements were approved and authorized for issue by the Board of Directors on January 8, 2019 and were signed on its behalf on that date.