Allegion plc
Form 10-K
February 19, 2019
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UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-K
(Mark One)
X ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2018
or
TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from to
Commission File No. 001-35971
ALLEGION PUBLIC LIMITED COMPANY
(Exact name of registrant as specified in its charter)

Ireland	98-1108930
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

Block D
Iveagh Court
Harcourt Road
Dublin 2, Ireland
(Address of principal executive offices)
Registrant’s telephone number, including area code: +(353) (1) 2546200
Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Ordinary Shares, Par Value $0.01 per Share	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: None
Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. YES x NO ¨
Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. YES ¨ NO x
Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. YES x NO ¨
Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). YES x NO ¨
Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant’s knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. YES x NO ¨
Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.:

Large accelerated filer	x	Accelerated filer	¨
Non-accelerated filer	¨	Smaller reporting company	¨
		Emerging growth company	¨

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ¨
Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act).
YES ¨ NO x

The aggregate market value of ordinary shares held by non-affiliates on June 30, 2018 was approximately $7.3 billion based on the closing price of such stock on the New York Stock Exchange.

The number of ordinary shares outstanding as of February 14, 2019 was 94,458,335.

DOCUMENTS INCORPORATED BY REFERENCE
Portions of the registrant’s definitive proxy statement to be filed within 120 days of the close of the registrant’s fiscal year in connection with the registrant’s Annual General Meeting of Shareholders to be held June 5, 2019 (the "Proxy Statement") are incorporated by reference into Part II and Part III of this Form 10-K.

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CAUTIONARY STATEMENT FOR FORWARD LOOKING STATEMENTS

Certain statements in this report, other than purely historical information, are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. These forward-looking statements generally are identified by the words "believe," "project," "expect," "anticipate," "estimate," "forecast," "outlook," "intend," "strategy," "future", "opportunity", "plan," "may," "should," "will," "would," "will be," "will continue," "will likely result," or the negative thereof or variations thereon or similar expressions generally intended to identify forward-looking statements. Forward-looking statements may relate to such matters as projections of revenue, margins, expenses, tax provisions, earnings, cash flows, benefit obligations, dividends, share purchases or other financial items; any statements of the plans, strategies and objectives of management for future operations, including those relating to any statements concerning expected development, performance or market share relating to our products and services; any statements regarding future economic conditions or our performance; any statements regarding pending investigations, claims or disputes; any statements of expectation or belief; and any statements of assumptions underlying any of the foregoing. These statements are based on currently available information and our current assumptions, expectations and projections about future events. While we believe that our assumptions, expectations and projections are reasonable in view of the currently available information, you are cautioned not to place undue reliance on our forward-looking statements. You are advised to review any further disclosures we make on related subjects in materials we file with or furnish to the United States Securities and Exchange Commission (SEC). Forward-looking statements speak only as of the date they are made and are not guarantees of future performance. They are subject to future events, risks and uncertainties - many of which are beyond our control - as well as potentially inaccurate assumptions, that could cause actual results to differ materially from our expectations and projections. We do not undertake to update any forward-looking statements.

Factors that might affect our forward-looking statements include, among other things:

- economic, political and business conditions in the markets in which we operate;
- the demand for our products and services, including changes in customer preferences, conditions of the commercial and residential construction and remodeling markets and our ability to maintain beneficial relationships with large customers;
- competitive factors in the industry in which we compete, including new technical developments;
- the development, commercialization and acceptance of new products and services;
- the ability to protect and use intellectual property;
- fluctuations in currency exchange rates;
- the ability to complete and integrate any acquisitions;
- results of investments made to complement our existing businesses and our pursuit of business opportunities that may diverge from our core businesses;
- our ability to operate efficiently and productively;
- disruptions in our global supply chain, including product manufacturing and logistical services provided by outsourcing partners;
- improper conduct by any of our employees, agents or business partners;
- our ability to manage risks related to our information technology and operational technology systems and cyber-security, including disruption and breaches of our information systems and implementation of new processes that may cause disruptions and be more difficult, costly or time consuming than expected;
- our reliance on third-party vendors for many of the critical elements of our global information and operational technology infrastructure and their failure to provide effective support for such infrastructure;
- changes in tax requirements, including tax rate changes, the adoption of new United States (U.S.) or non-U.S. tax legislation or exposure to additional tax liabilities and revised tax law interpretations;
- changes to trade agreements, sanctions, import and export regulations and custom duties;
- the outcome of any litigation, governmental investigations or proceedings;
- interest rate fluctuations and other changes in borrowing costs, in addition to risks associated with our outstanding and future indebtedness;

- other capital market conditions, including availability of funding sources and currency exchange rate fluctuations;
- availability of and fluctuations in the prices of key commodities and the impact of higher energy prices;

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- potential further impairment of our goodwill, indefinite-lived intangible assets and/or our long-lived assets;
- ability to recruit and retain a highly qualified and diverse workforce;
- risks related to our spin-off from Ingersoll Rand plc;
- the possible effects on us of future legislation or interpretations in the U.S. that may limit or eliminate potential U.S. tax benefits resulting from our incorporation in a non-U.S. jurisdiction, such as Ireland, or deny U.S. government contracts to us based upon our incorporation in such non-U.S. jurisdiction; and
- the impact our outstanding indebtedness may have on our business and operations.

Some of the significant risks and uncertainties that could cause actual results to differ materially from our expectations and projections are described more fully in Item 1A "Risk Factors." You should read that information in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Item 7 of this report and our Consolidated Financial Statements and related notes in Item 8 of this report. We note such information for investors as permitted by the Private Securities Litigation Reform Act of 1995.

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PART I
Item 1. BUSINESS
Overview

Allegion plc ("Allegion," "we," "us" or "the Company") is a leading global provider of security products and solutions that keep people safe, secure and productive. We make the world safer as a company of experts, securing the places where people thrive, and we create peace of mind by pioneering safety and security. We offer an extensive and versatile portfolio of mechanical and electronic security products across a range of market-leading brands. Our experts across the globe deliver high-quality security products, services and systems, and we use our deep expertise to serve as trusted partners to end-users who seek customized solutions to their security needs.

Allegion Principal Products

Door closers and controls	Doors and door systems
Electronic security products	Electronic, biometric and mobile access control systems
Exit devices	Locks, locksets, portable locks, key systems and services
Time, attendance and workforce productivity systems	Other accessories

Access control security products and solutions are critical elements in every building and home. Many door openings are configured to maximize a room's particular form and function while also meeting local and national building and safety code requirements and end-user security needs. Most buildings have multiple door openings, each serving its own purpose and requiring different specific access-control solutions. Each door must fit exactly within its frame, be prepared precisely for its hinges, synchronize with its specific lockset and corresponding latch and align with a specific key to secure the door. Moreover, security products are increasingly linked electronically, integrated into software and popular consumer technology platforms and controlled with mobile applications, creating additional functionality and complexity.

We believe our ability to deliver a wide range of solutions that can be custom-configured to meet end-users' security needs is a key driver of our success. We accomplish this with:

- Our extensive and versatile product portfolio, combined with our deep expertise, which enables us to deliver the right products and solutions to meet diverse security and functional specifications and to successfully and securely integrate into leading technology and systems;
- Our consultative approach and expertise, which enables us to develop the most efficient and appropriate building security and access-control specifications to fulfill the unique needs of our end-users and their partners, including architects, contractors, home-builders and engineers;
- Our access to and management of key channels in the market, which is critical to delivering our products in an efficient and consistent manner; and
- Our enterprise excellence capabilities, including our global manufacturing operations and agile supply chain, which facilitate our ability to deliver specific product and system configurations to end-users and consumers worldwide, quickly and efficiently.

We believe that the security products industry is growing and will continue to benefit from several global macroeconomic and long-term demographic trends, including:

- the convergence of mechanical and electronic security products;
- heightened awareness of security requirements;
- increased global urbanization; and
- the shift to a digital, interconnected environment.

We believe the security products industry will also benefit from continued growth in institutional, commercial and residential end-markets. As end-users adopt newer technologies in their facilities and homes, we also expect growth in the global electronic product categories we serve to outperform growth in mechanical products.

We operate in three geographic regions: Americas; Europe, Middle East, India and Africa ("EMEIA"); and Asia Pacific. We sell our products and solutions under the following brands:

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Allegion Brands (listed for each region)

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We sell a wide range of security products and solutions for end-users in commercial, institutional and residential facilities worldwide, including the education, healthcare, government, hospitality, commercial office and single and multi-family residential markets. Our leading brands include CISA®, Interflex®, LCN®, Schlage®, SimonsVoss® and Von Duprin®. We believe LCN, Schlage and Von Duprin hold the No. 1 position in their primary product categories in North America while CISA, Interflex and SimonsVoss hold the No.1 or No. 2 position in their primary product categories in certain European markets.

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For the year ended December 31, 2018, we generated Net revenues of $2,731.7 million and operating income of $525.8 million.

History and Developments

We were incorporated in Ireland on May 9, 2013, to hold the commercial and residential security businesses of Ingersoll Rand plc ("Ingersoll Rand"). On December 1, 2013, we became a stand-alone public company after Ingersoll Rand completed the separation of these businesses from the rest of Ingersoll Rand via the transfer of these businesses from Ingersoll Rand to us and the issuance by us of ordinary shares directly to Ingersoll Rand’s shareholders (the "Spin-off"). Our security businesses have long and distinguished operating histories. Several of our brands were established nearly 100 years ago, and many originally created their categories:

- Von Duprin, established in 1908, was awarded the first exit device patent;
- Schlage, established in 1920, was awarded the first patents granted for the cylindrical lock and the push button lock;
- LCN, established in 1926, created the first door closer;
- CISA, established in 1926, devised the first electronically controlled lock; and
- SimonsVoss, established in 1995, created the first keyless digital transponder.

We have built upon these founding legacies since our entry into the security products market through the acquisition of Schlage, Von Duprin and LCN in 1974. Today, we continue to develop and introduce innovative and market-leading products. In 2018, product innovation spanned:

- Improvements to the user experience, product design and ergonomics;
- New technology solutions, software, mobile applications and integration with leading platforms; and
- Improved locks and lights for portable security.

Recent examples of successful product launches are illustrated in the table below:

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Product	Brands	Year	Innovation
Residential Locks, Cylinders and Levers	Schlage (Touch, Connect, Sense, Control, Encode, Custom, SEL, Q6, X7), Bricard, Milre	2016/2017/ 2018	Updates to single and multi-family residential electronic locking platforms that provide for keyless entry (Touch); connected locking (Connect); integration with the Internet of Things (IoT), Apple HomeKit, Amazon Alexa, Google Assistant and Android platforms (Sense); multi-family interconnected locking (Control); next-generation smart lock that is the first-ever WiFi enabled deadbolt to work with Key by Amazon and Ring devices with built-in connectivity (Encode); and 4-in-1 lock with fingerprint sensors, smart card, code access or a physical key (SEL). Expanded handlesets for Schlage's new universal functionality solution that allows homeowners to change from a doorknob to a lever and convert a non-locking door to lockable in minutes (Custom) and expanded ranges of cylinders and new aluminum trims for DIY customers (Bricard). Continual technology upgrades include Z-Wave Plus and Zigbee Certified to improve battery life and range, improve the user experience and enable partnerships with leading providers like Key by Amazon (Connect). New residential e-locks for Asia Pacific and improved biometric sensors, new designs and push-pull electronic locks with Bluetooth modules (Q6, X7, Milre).
Commercial Locks, Cylinders, Levers and Electronic Access Platforms	Schlage (AD, CO, LE, NDE, S-series), Bricard, Briton, SimonsVoss, CISA	2016/2017/ 2018	Enhancements to the comprehensive portfolio of globally available mechanical, wired electrified and wireless electronic solutions to give a common aesthetic and consistent user experience throughout a building; wireless locks can be managed with Allegion's ENGAGE web and mobile apps or with Software Alliance Member systems (AD, CO, LE, NDE). New rim and mortice locks for Southeast Asia (S-series), expanded cylinders for the European locksmith channel and multipoint mortise locks (Bricard), new stainless-steel trims (Bricard, Briton) and enhancements to the electronic Smart Handle (SimonsVoss). Firmware releases for the U.S. channel-partner readers to give new functionality and USB communication mode for readers (Schlage). Mobile credentials, new Bluetooth Low Energy and RFID technology and integrations between electronic locks and exit devices (CISA).
Exit Devices and Closers	Von Duprin, Falcon, CISA	2018	New award-winning and cost-effective retrofit exit device that allows for remote undogging and monitoring with partner software (Von Duprin).

			New fire-rated retrofit series (Falcon), quiet exit solutions (Von Duprin) and a new range of asymmetric rack-and-pinion door closers (CISA).
Bike Lighting and Portable Locking Solutions	AXA, Kryptonite, Trelock	2017/2018	Broad range of innovation in bike safety from each of our Global Portable Security brands (AXA, Kryptonite and Trelock), ranging from compact dynamo lights and e-bike lights to USB, battery powered and rechargeable lights. New and expanded lines of folding locks, integrated chains and ring locks and applications for bikes and motorcycles (AXA, Kryptonite, Trelock) and expanded track-and-trace services (AXA).
Software, Mobile and Web Applications	Allegion (Overtur, ENGAGE), Interflex	2018	Introduction of a new cloud-based suite of tools for project teams to collaborate on specifications and the security design of doors and openings, which provides a centralized place to capture and maintain door hardware requirements and decisions with easy options to push information back to the design tools (Overtur). Multiple enhancements to the user experience include biometric login for the mobile app, simplified account and site set-up and gateway site survey (ENGAGE). New modules for visitor management, encouraging self-service and Microsoft Outlook functionality (Interflex).

In addition, in 2018 we announced the formation of Allegion Ventures, a corporate venture fund that aims to supplement Allegion innovation by investing in innovative technologies and companies.

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Industry and Competition

The global markets we serve encompass commercial, institutional and residential construction markets throughout North America, EMEIA and Asia Pacific. In recent years, as end-users adopt newer technologies in their facilities and single and multi-family homes, growth in electronic security products and solutions continues to outperform growth in mechanical security products and solutions. We expect the security products industry will benefit from favorable long-term demographic trends such as continued urbanization of the global population, increased concerns about safety and security and technology-driven innovation.

The security products markets are highly competitive and fragmented throughout the world, with a number of large multi-national companies and thousands of smaller regional and local companies. This high fragmentation primarily reflects local regulatory requirements and highly variable end-user needs. We believe our principal global competitors are Assa Abloy AB and dormakaba Group. We also face competition in various markets and product categories throughout the world, including from Spectrum Brands Holdings, Inc. in the North American residential market. As we move into more technologically-advanced product categories, we may also compete against new, more specialized competitors.

Our success depends on a variety of factors, including brand and reputation, product breadth, integration with popular technology platforms, quality and delivery capabilities, price and service capabilities. As many of our businesses sell through wholesale distribution, our success also depends on building and partnering with a strong channel network. Although price often serves as an important customer decision criterion, we also compete based on the breadth and quality of our products and solutions, our ability to custom-configure solutions to meet individual end-user requirements and our global supply chain.

Products and Services

We offer an extensive and versatile portfolio of mechanical and electronic security products across a range of market-leading brands:

- Locks, locksets, portable locks and key systems and services: A broad array of cylindrical and mortise door locksets, security levers and master key systems that are used to protect and control access and a range of portable security products, including bicycle, small vehicle and travel locks. We also offer locksmith services in select locations;
- Door closers, controls and exit devices: An extensive portfolio of life-safety products generally installed on fire doors and facility entrances and exits. Door closers are devices that automatically close doors after they are opened. Exit devices are generally horizontal attachments to doors and enable rapid egress;
- Electronic security products and access control systems: A broad range of electrified locks, access control systems, key card and reader systems and accessories, including Internet of Things (IoT), Bluetooth Low Energy (BLE), Power over Ethernet and cloud-based solutions;
- Time, attendance and workforce productivity systems: Products and services designed to help business customers manage and monitor workforce access control parameters, attendance and employee scheduling. We offer ongoing aftermarket services in addition to design and installation offerings;
- Doors and door systems: A portfolio of hollow metal, glass, wood and specialty doors and door systems; and
- Other accessories: A variety of additional security and product components, including hinges, door levers, door stops, bike lights, louvers, weather stripping, thresholds and other accessories, as well as certain bathroom fittings and accessibility aids.

Customers

We sell most of our products and solutions through distribution and retail channels, including specialty distribution, e-commerce and wholesalers. We have built a network of channel partners that help our customers choose the right solution to meet their security needs and help commercial and institutional end-users fulfill and install orders. We also sell through a variety of retail channels, including large do-it-yourself home improvement centers, multiple on-line and e-commerce platforms, as well as small, specialty showroom outlets. We work with our retail partners on developing marketing and merchandising strategies to maximize their sales per square foot of shelf space. Through our Interflex and API Locksmiths businesses and Global Portable Security brands, we also provide products and solutions directly to end-users.

Our 10 largest customers represented approximately 25% of our total Net revenues in 2018. No single customer represented 10% or more of our total Net revenues in 2018.

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Sales and Marketing

In markets where we sell through commercial and institutional distribution channels, we employ sales professionals around the world who work with a combination of end-users, security professionals, architects, contractors, engineers and distribution partners to develop specific custom-configured solutions for our end-users’ needs. Our field sales professionals are assisted by specification writers who work with architects, engineers and consultants to help design door openings and security systems to meet end-users’ functional, aesthetic and regulatory requirements. Both groups are supported by dedicated customer care and technical sales-support specialists worldwide. We also support our sales efforts with a variety of marketing efforts, including trade-specific advertising, cooperative distributor merchandising, digital marketing and marketing at a variety of industry trade shows.

In markets in which we sell through retail and home-builder distribution channels, we have teams of sales, merchandising and marketing professionals who help drive brand and product awareness through our channel partners and to consumers. We utilize a variety of advertising and marketing strategies, including traditional consumer media, retail merchandising, digital marketing, retail promotions and builder and consumer trade shows, to support these teams.

We also work actively with several industry bodies around the world to help promote effective and consistent safety and security standards. For example, we are members of Builders Hardware Manufacturers Association (BHMA), Security Industry Association, Smart Card Alliance, American Society of Healthcare Engineering, American Institute of Architects, Construction Specification Institute, ASSOFERMA (Italy), BHE (Germany) and UNIQ (France).

Production and Distribution

We manufacture our products in our geographic markets around the world. We operate 34 production and assembly facilities, including 16 in Americas, 12 in EMEIA and 6 in Asia Pacific. We own 17 of these facilities and lease the others. Our strategy is to produce in the region of use, wherever appropriate, to allow us to be closer to the end-user and increase efficiency and timely product delivery. Much of our U.S. based residential portfolio is manufactured in the Baja region of Mexico under a NAFTA Maquiladora. In managing our network of production facilities, we focus on eliminating excess capacity, reducing cycle time through productivity and harmonizing production practices and safety procedures.

We distribute our products through a broad network of channel partners. In addition, third-party manufacturing and logistics providers perform certain manufacturing, storage and distribution services for us to support certain parts of our manufacturing and distribution network.

Raw Materials

We support our region-of-use production strategy with corresponding region-of-use supplier partners, where available. Our global and regional commodity teams work with production leadership, product management and materials management teams to ensure adequate materials are available for production.

We purchase a wide range of raw materials, including steel, zinc, brass and other non-ferrous metals, to support our production facilities. Where appropriate, we may enter into fixed-cost contracts to lower overall costs.

Intellectual Property

Intellectual property, inclusive of certain patents, trademarks, copyrights, know-how, trade secrets and other proprietary rights, is important to our business. We create, protect and enforce our intellectual property investments in a variety of ways. We work actively in the U.S. and internationally to try to ensure the protection and enforcement of our intellectual property rights. We use trademarks on nearly all of our products and believe such distinctive marks are an important factor in creating a market for our goods, in identifying us and in distinguishing our products from others. We consider our CISA, Interflex, LCN, Schlage, SimonsVoss, Von Duprin and other associated trademarks to be among our most valuable assets, and we have registered these trademarks in a number of countries. Although certain proprietary intellectual property rights are important to our success, we do not believe we are materially dependent on any particular patent or license, or any particular group of patents or licenses.

Facilities

We operate through a broad network of sales offices, engineering centers, 34 production and assembly facilities and several distribution centers throughout the world. Our active properties represent approximately 6.9 million square feet, of which approximately 37% is leased. The following table shows the location of our worldwide production and assembly facilities:

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Production and Assembly Facilities

Americas	EMEIA	Asia Pacific
Blue Ash, Ohio	Clamecy, France	Auckland, New Zealand
Bogota, Colombia	Dubai, United Arab Emirates	Brooklyn, Australia
Boulder, Colorado	Durchhausen, Germany	Bucheon, South Korea
Chino, California	Duzce, Turkey	Jinshan, China
Ensenada, Mexico	Faenza, Italy	Melbourne, Australia
Everett, Washington	Feuquieres, France	Sydney, Australia
Indianapolis, Indiana	Monsampolo, Italy	
Irving, Texas	Muenster, Germany	
McKenzie, Tennessee	Osterfeld, Germany	
Mississauga, Ontario	Renchen, Germany	
Perrysburg, Ohio	Veenendaal, Netherlands	
Princeton, Illinois	Zawiercie, Poland	
Security, Colorado		
Snoqualmie, Washington		
Tecate, Mexico		
Tijuana, Mexico		

Research and Development

We are committed to investing in highly productive research and development capabilities, particularly in electro-mechanical systems. We concentrate on developing technology innovations that will deliver growth through the introduction of new products and solutions, as well as driving continuous improvements in product cost, quality, safety and sustainability.

We manage our R&D team as a global group, with an emphasis on a global collaborative approach, to identify and develop new technologies and worldwide product platforms. We are organized on a regional basis to leverage expertise in local standards and configurations. In addition to regional engineering centers in each geographic region, we also operate a global engineering design center in Bangalore, India.

Seasonality

Our business experiences seasonality that varies by product line. Because more construction and do-it-yourself projects occur during the second and third calendar quarters of each year in the Northern Hemisphere, our security product sales related to those projects are typically higher in those quarters than in the first and fourth calendar quarters. However, certain other businesses typically experience higher sales in the fourth calendar quarter due to project timing. Net revenues by quarter for the years ended December 31, 2018, 2017 and 2016 are as follows:

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
2018	22%	26%	26%	26%
2017	23%	26%	25%	26%
2016	22%	26%	26%	26%

Employees

As of December 31, 2018, we had approximately 11,000 employees.

Environmental Regulation

We have a dedicated environmental program that is designed to reduce the utilization and generation of hazardous materials during the manufacturing process as well as to remediate identified environmental concerns. As to the latter, we are currently engaged in site investigations and remediation activities to address environmental cleanup from past operations at current and former production facilities. We regularly evaluate our remediation programs and consider alternative remediation methods that are in addition to, or in replacement of, those we currently utilize based upon enhanced technology and regulatory changes.

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We are sometimes a party to environmental lawsuits and claims and have received notices of potential violations of environmental laws and regulations from the U.S. Environmental Protection Agency (the "EPA") and similar state authorities. We have also been identified as a potentially responsible party ("PRP") for cleanup costs associated with off-site waste disposal at federal Superfund and state remediation sites. For all such sites, there are other PRPs and, in most instances, our involvement is minimal.
In estimating our liability, we have assumed that we will not bear the entire cost of remediation of any site to the exclusion of other PRPs who may be jointly and severally liable. The ability of other PRPs to participate has been taken into account, based on our understanding of the parties' financial condition and probable contributions on a per site basis. Additional lawsuits and claims involving environmental matters are likely to arise from time to time in the future.

We incurred $2.4 million, $3.2 million and $23.3 million of expenses during the years ended December 31, 2018, 2017 and 2016, respectively, for environmental remediation at sites presently or formerly owned or leased by us. As of December 31, 2018 and 2017, we have recorded reserves for environmental matters of $22.6 million and $28.9 million, respectively. Of these amounts $6.3 million and $8.9 million, respectively, relate to remediation of sites previously disposed by us. Given the evolving nature of environmental laws, regulations and technology, the ultimate cost of future compliance is uncertain.

Available Information

We are required to file annual, quarterly and current reports, proxy statements and other documents with the SEC under the Securities Exchange Act of 1934. The SEC maintains an Internet website that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC. The public can obtain any documents that are filed by us at http://www.sec.gov.

In addition, this Annual Report on Form 10-K, as well as future quarterly reports on Form 10-Q, current reports on Form 8-K and any amendments to all of the foregoing reports, are made available free of charge on our Internet website (http://www.allegion.com) as soon as reasonably practicable after such reports are electronically filed with or furnished to the SEC. The contents of our website are not incorporated by reference in this report.

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Item 1A. RISK FACTORS

We discuss our expectations regarding future performance, events and outcomes in this Form 10-K, quarterly and annual reports, press releases and other written and oral communications. All statements except for historical and present factual information are "forward-looking statements" and are based on financial data and business plans available only as of the time the statements are made, which may become outdated or incomplete. Forward-looking statements are inherently uncertain, and investors must recognize that events could significantly differ from our expectations. You should carefully consider the risk factors discussed below, together with all the other information included in this Form 10-K, in evaluating us, our ordinary shares and our senior notes. If any of the risks below actually occurs, our business, financial condition, results of operations and cash flows could be materially and adversely affected. Any such adverse effect may cause the trading price of our ordinary shares to decline, and as a result, you could lose all or part of your investment in us. Our business may also be adversely affected by risks and uncertainties not known to us or risks that we currently believe to be immaterial. We assume no obligation to update any forward-looking statements as a result of new information, future events or other factors.

Risks Related to Our Business

Our global operations subject us to economic risks.

We are incorporated in Ireland and operate in countries worldwide. Our global operations depend on products manufactured, purchased and sold in the U.S. and internationally, including in Australia, China, Colombia, Europe, Korea, Mexico, New Zealand, Turkey and the United Arab Emirates. The political, economic and regulatory environments in which we operate are becoming increasingly volatile and uncertain. Accordingly, we are subject to risks that are inherent in operating globally, including:

- changes in laws and regulations or imposition of currency restrictions and other restraints in various jurisdictions;
- limitation of ownership rights, including expropriation of assets by a local government, and limitation on the ability to repatriate earnings;
- sovereign debt crises and currency instability in developed and developing countries;
- changes in applicable tax regulations and interpretations;
- changes to trade agreements, sanctions, import and export regulations, including imposition of burdensome tariffs and quotas, and customs duties;
- difficulty in staffing and managing global operations;
- difficulty in enforcing agreements, collecting receivables and protecting assets through non-U.S. legal systems;
- political unrest, national and international conflict, including war, civil disturbances and terrorist acts; and
- economic downturns and social and political instability.

These risks could increase our cost of doing business in the U.S. and internationally, increase our counterparty risk, disrupt our operations, disrupt the ability of suppliers and customers to fulfill their obligations, increase our effective tax rate, increase the cost of our products, limit our ability to sell products in certain markets, reduce our operating margin, reduce cash flow and negatively impact our ability to compete.

Our business relies on the institutional, commercial and residential construction and remodeling markets.

We primarily rely on the institutional, commercial and residential construction and remodeling markets, which are marked by cyclicality based on overall economic conditions. Weakness or instability in these markets may cause current and potential customers to delay or choose not to make purchases, which could negatively impact the demand for our products and services.

Increased competition, including from technical developments, could adversely affect our business.

The markets in which we operate include a large number of participants, including multi-national companies, regional companies and small local companies. We primarily compete on the basis of quality, innovation, expertise, effective channels to market, breadth of product offering and price. We may be unable to effectively compete on all these bases. If we are unable to anticipate evolving trends in the market or the timing and scale of our competitors' activities and initiatives, the demand for our products and services could be negatively impacted.

In addition, we compete in an industry that is experiencing the convergence of mechanical, electronic and digital products. Technology and innovation play significant roles in the competitive landscape. Our success depends, in part, upon the research, development and implementation of new technologies and products including obtaining, maintaining and enforcing necessary intellectual property protections. Securing and maintaining key partnerships and alliances, recruiting and retaining highly skilled and qualified employee talent and having access to technologies, services, intellectual property and solutions developed by others

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will play a significant role in our ability to effectively compete. The continual development of new technologies by existing and new competitors, including non-traditional competitors with significant resources, could adversely affect our ability to sustain operating margins and desirable levels of sales volumes. To remain competitive, we must develop new products and respond to new technologies in a timely manner.

Our growth is dependent, in part, on the development, commercialization and acceptance of new products and services.

We must develop and commercialize new products and services in order to remain competitive in our current and future markets and in order to continue to grow our business. The speed of development by our competitors and new market entrants is increasing. We cannot provide any assurance that any new product or service will be successfully commercialized in a timely manner, if ever, or, if commercialized, will result in returns greater than our investment. Investment in a product or service could divert our attention and resources from other projects that become more commercially viable in the market. We also cannot provide any assurance that any new product or service will be accepted by the market.

Changes in customer preferences and the inability to maintain beneficial relationships with large customers could adversely affect our business.

We have significant customers, particularly major retailers, although no one customer represented 10% or more of our total Net revenues in any of the past three fiscal years. The loss or material reduction of business, the lack of success of sales initiatives or changes in customer preferences or loyalties for our products related to any such significant customer could have a material adverse impact on our business. In addition, major customers who are volume purchasers are much larger than us and have strong bargaining power with suppliers. This limits our ability to recover cost increases through higher selling prices. Furthermore, unanticipated inventory adjustments by these customers can have a negative impact on sales.

Our brands are important assets of our businesses, and violation of our trademark rights by imitators could negatively impact revenues and brand reputation.

Our brands and trademarks enjoy a reputation for quality and value and are important to our success and competitive position. Unauthorized use of our trademarks may not only erode sales of our products but may also cause significant damage to our brand name and reputation, interfere with relationships with our customers and increase litigation costs. There can be no assurance that our on-going effort to protect our brand and trademark rights will prevent all violations.

Currency exchange rate fluctuations may adversely affect our results.

We are exposed to a variety of market risks, including the effects of changes in currency exchange rates. See "Management’s Discussion and Analysis of Financial Condition and Results of Operations - Quantitative and Qualitative Disclosure About Market Risk."

Approximately 30% of our 2018 Net revenues were derived outside the U.S., and we expect sales to non-U.S. customers to continue to represent a significant portion of our consolidated Net revenues. Although we may enter into currency exchange contracts to reduce our risk related to currency exchange fluctuations, changes in the relative fair values of currencies occur from time to time and may, in some instances, have a material impact on our results of operations. We do not hedge against all of our currency exposure and therefore, our business will continue to be susceptible to currency fluctuations.

We also translate assets, liabilities, revenues and expenses denominated in non-U.S. dollar currencies into U.S. dollars for our Consolidated Financial Statements based on applicable exchange rates. Consequently, fluctuations in the value of the U.S. dollar compared to other currencies may have a material impact on the value of these items in our Consolidated Financial Statements, even if their value has not changed in their original currency.

Our business strategy includes making acquisitions and investments that complement our existing business. These acquisitions and investments could be unsuccessful or consume significant resources, which could adversely affect our operating results.

We will continue to analyze and evaluate the acquisition of strategic businesses or product lines with the potential to strengthen our industry position or enhance our existing set of products and services offerings. We cannot provide assurance that we will identify or successfully complete transactions with suitable acquisition candidates in the future, nor can we provide assurance that completed acquisitions will be successful.

Some of the businesses we may seek to acquire or invest in may be marginally profitable or unprofitable. For these businesses to achieve acceptable levels of profitability, we must improve their management, operations, products and market penetration. We

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may not be successful in this regard and we may encounter other difficulties in integrating acquired businesses into our existing operations.

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

- diversion of management time and attention from daily operations;
- difficulties integrating acquired businesses, technologies and personnel into our business;
- difficulties completing the transaction in a timely manner;
- difficulties realizing synergies expected to result from acquisitions;
- difficulties in obtaining and verifying the financial statements and other business information of acquired businesses;
- inability to obtain regulatory approvals and/or required financing on favorable terms;
- potential loss of key employees, key contractual relationships or key customers of acquired companies or of us;
- difficulties competing in the new markets we enter;
- assumption of the liabilities and exposure to unforeseen liabilities of acquired companies;
- dilution of interests of holders of our ordinary shares through the issuance of equity securities or equity-linked securities; and
- difficulty in integrating financial reporting systems and implementing controls, procedures and policies, including disclosure controls and procedures and internal control over financial reporting, appropriate for public companies of our size at companies that, prior to the acquisition, had lacked such controls, procedures and policies.

We continually look to expand our services and products into international markets. As we expand into new international markets, we will have only limited experience in marketing and operating services and products in such markets. In some instances, we may rely on the efforts and abilities of foreign business partners in such markets. Certain international markets may be slower than U.S. markets in adopting our services and products, and our operations in such markets may not develop at a rate that supports our level of investment. In addition to the risks outlined above, expansion into certain international markets may require us to compete with local businesses with greater knowledge of the market, including the tastes and preferences of customers and businesses with dominant market shares. Any acquisitions or investments may ultimately harm our business or financial condition; as such, acquisitions may not be successful and may ultimately result in impairment charges.

We may pursue business opportunities that diverge from core business.

We may pursue business opportunities that diverge from our core business, including expanding our products or service offerings, investing in new and unproven technologies and forming new alliances with companies to distribute our products and services. We can offer no assurance that any such business opportunities will prove to be successful. Among other negative effects, our investment in new business opportunities may exceed the returns we realize. Additionally, any new investments could have higher cost structures than our current business, which could reduce operating margins and require more working capital. In the event that working capital requirements exceed operating cash flow, we may be required to draw on our revolving credit facility or pursue other external financing, which may not be readily available.

Our enterprise excellence efforts may not achieve the improvements we expect.

We utilize a number of tools to improve efficiency and productivity. Implementation of new processes to our operations could cause disruptions and may prove to be more difficult, costly or time consuming than expected. There is no assurance that all of our planned enterprise excellence projects will be fully implemented, or if implemented, will realize the expected improvements.

Our periodic restructuring plans may not be successful.

We have in the past restructured or made other adjustments to our workforce and manufacturing footprint in response to market changes, product changes, performance issues, changes in strategy, acquisitions and other internal and external considerations. Historically, these types of restructuring activities have resulted in increased restructuring costs and temporarily reduced productivity. In addition, we may not achieve or sustain the expected growth or cost savings benefits of these restructurings or do so within the expected timeframe. These effects could recur in connection with future acquisitions and other restructurings and our Net revenues and other results of operations could be negatively affected.

Material adverse legal judgments, fines, penalties or settlements could adversely affect our business.

We are currently and may in the future become involved in legal proceedings and disputes incidental to the operation of our business. Our business may be adversely affected by the outcome of these proceedings and other contingencies (including, without limitation, environmental, product liability, intellectual property, data protection and labor and employment matters) that cannot be predicted with certainty. As required by U.S. generally accepted accounting principles ("GAAP"), we establish reserves based on our assessment of contingencies. Subsequent developments in legal proceedings and other contingencies may affect our assessment and estimates of the loss contingency recorded as a reserve, and we may be required to make additional material payments.

Allegations that we have infringed the intellectual property rights of third parties could negatively affect us.

We may be subject to claims of infringement of intellectual property rights by third parties. In particular, we often compete in areas having extensive intellectual property rights owned by others and we have become subject to claims alleging infringement of intellectual property rights of others. In general, if it is determined that one or more of our technologies, products or services infringes the intellectual property rights owned by others, we may be required to cease marketing those services, to obtain licenses from the holders of the intellectual property at a material cost or to take other actions to avoid infringing such intellectual property rights. The litigation process is costly and subject to inherent uncertainties, and we may not prevail in litigation matters regardless of the merits of our position. Adverse intellectual property litigation or claims of infringement against us may become extremely disruptive if the plaintiffs succeed in blocking the trade of our products and services and may have a material adverse effect on our business.

Our reputation, ability to do business and results of operations could be impaired by improper conduct by any of our employees, agents or business partners.

We are subject to regulation under a variety of U.S. federal and state and non-U.S. laws, regulations and policies including laws related to anti-corruption, export and import compliance, anti-trust and money laundering due to our global operations. We cannot provide assurance that our internal controls will always protect us from the improper conduct of our employees, agents and business partners. Any improper conduct could damage our reputation and subject us to, among other things, civil and criminal penalties, material fines, equitable remedies (including profit disgorgement and injunctions on future conduct), securities litigation and a general loss of investor confidence.

Disruptions in our global supply chain, including product manufacturing and logistical services provided by outsourcing partners, may negatively impact our business.

Our ability to meet our customers' needs and achieve cost targets depends on our ability to maintain key manufacturing and supply arrangements, including execution of supply chain optimizations and certain sole supplier or sole manufacturing arrangements. The loss or disruption of such manufacturing and supply arrangements could interrupt product supply and, if not effectively managed and remedied, have an adverse impact on our business.

We outsource certain manufacturing and logistical services to partners located throughout the world. Our reliance on these third parties reduces our control over the manufacturing and delivery process, exposing us to risks including reduced control over quality assurance, product costs, product supply and delivery delays. If we are unable to effectively manage these relationships, or if these third parties experience delays, disruptions, capacity constraints, regulatory issues or quality control problems in their operations or otherwise fail to meet our future requirements for timely delivery, our ability to ship and deliver certain of our products to our customers could be impaired and our business could be harmed.

We may be subject to risks relating to our information technology and operational technology systems.

We rely extensively on information technology and operational technology systems, networks and services including hardware, software, firmware and technological applications and platforms (collectively, "IT Systems") to manage and operate our business from end-to-end, including ordering and managing materials from suppliers, design and development, manufacturing, marketing, selling and shipping to customers, invoicing and billing, managing our banking and cash liquidity systems, managing our enterprise resource planning and other accounting and financial systems and complying with regulatory, legal and tax requirements. There can be no assurance that our current IT Systems will function properly. We have invested and will continue to invest in improving our IT Systems. Some of these investments are significant and impact many important operational processes and procedures. There is no assurance that any newly implemented IT Systems will improve our current systems, improve our operations or yield the expected returns on the investments. In addition, the implementation of new IT Systems may cause disruptions in our operations and, if not properly implemented and maintained, negatively impact our business. If our IT Systems cease to function properly or if these systems do not provide the anticipated benefits, our ability to manage our operations could be impaired.

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We currently rely on third-party vendors for many of the critical elements of our global information and operational technology infrastructure and their failure to provide effective support for such infrastructure could negatively impact our business and financial results.

We have outsourced many of the critical elements of our global information and operational technology infrastructure to third-party service providers in order to achieve efficiencies. If such service providers do not perform or do not perform effectively, we may not be able to achieve the expected efficiencies and may have to incur additional costs to address failures in providing service by the service providers. Depending on the function involved, such non-performance, ineffective performance or failures of service may lead to business disruptions, processing inefficiencies or security breaches.

Disruptions or breaches of our information systems could adversely affect us.

Despite our implementation of network security measures which have focused on prevention, mitigation, resilience and recovery, our network and products, including access solutions, may be vulnerable to cybersecurity attacks, computer viruses, malicious codes, malware, ransomware, phishing, social engineering, denial of service, hacking, break-ins and similar disruptions. Cybersecurity attacks and intrusion efforts are continuous and evolving, and in certain cases they have been successful at the most robust institutions. The scope and severity of risks that cyber threats present have increased dramatically and include, but are not limited to, malicious software, attempts to gain unauthorized access to data or premises, exploiting weaknesses related to vendors or other third parties that could be exploited to attack our systems, denials of service and other electronic security breaches that could lead to disruptions in systems, unauthorized release of confidential or otherwise protected information and corruption of data. Any such event could have a material adverse effect on our business, operating results and financial condition, as we face regulatory, reputational and litigation risks resulting from potential cyber incidents, as well as the potential of incurring significant remediation costs.

Our daily business operations also require us to retain sensitive data such as intellectual property, proprietary business information and data related to customers, suppliers and business partners within our networking infrastructure including data from individuals subject to the European Union's General Data Protection Regulation. The loss or breach of such information due to various causes including catastrophic events, natural disasters, power outages, system failures, computer viruses, improper data handling and employee error or malfeasance could result in wide reaching negative impacts to our business, and as such, the ongoing maintenance and security of this information is pertinent to the success of our business operations and our strategic goals.

Our networking infrastructure and related assets may be subject to unauthorized access by hackers, employee error or malfeasance or other unforeseen activities. Such issues could result in the disruption of business processes, network degradation and system downtime, along with the potential that a third party will exploit our critical assets such as intellectual property, proprietary business information and data related to our customers, suppliers and business partners. To the extent that such disruptions occur and our business continuity plans do not effectively address these disruptions in a timely manner, they may cause delays in the manufacture or shipment of our products and the cancellation of customer orders and, as a result, our business operating results and financial condition could be materially and adversely affected, resulting in a possible loss of business or brand reputation.

Commodity shortages, price increases and higher energy prices could negatively affect our financial results.

We rely on suppliers to secure commodities, including steel, zinc, brass and other non-ferrous metals, required for the manufacture of our products. A disruption of deliveries from our suppliers or decreased availability of commodities could have an adverse effect on our ability to meet our commitments to customers or increase our operating costs. We believe that available sources of supply will generally be sufficient for our needs for the foreseeable future.

Nonetheless, the unavailability of some commodities could have a material adverse impact on our business.

Volatility in the prices of these commodities could increase the costs of our products and services, and we may not be able to pass on these costs to our customers. We do not currently use financial derivatives to hedge against this volatility; however, we utilize firm purchase commitments to mitigate risk. The pricing of some commodities we use is based on market prices. To mitigate this exposure, we may use annual price contracts to minimize the impact of inflation and to benefit from deflation.

Additionally, we are exposed to fluctuations in energy prices due to the instability of current market prices. Higher energy costs increase our operating costs and the cost of shipping our products and supplying services to our customers around the world. Consequently, sharp price increases, the imposition of taxes or an interruption of supply could cause us to lose the ability to effectively manage the risk of rising energy prices and may have an adverse impact on our results of operations and cash flows.

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We may be required to recognize impairment charges for our goodwill, indefinite-lived intangible assets and other long-lived assets.

At December 31, 2018, the net carrying value of our goodwill and other indefinite-lived intangible assets totaled approximately $883.0 million and $130.6 million, respectively. Pursuant to GAAP, we are required to annually assess our goodwill, indefinite-lived intangibles and other long-lived assets to determine if they are impaired. In addition, interim assessments must be performed whenever events or changes in circumstances indicate that impairment may have occurred. If the testing performed indicates that impairment has occurred, we are required to record a non-cash impairment charge for the difference between the carrying value of the goodwill or other indefinite-lived intangible assets and the fair value of the goodwill or other indefinite-lived intangible assets in the period the determination is made. Disruptions to our business, end market conditions and protracted economic weakness, unexpected significant declines in operating results of reporting units, divestitures and market capitalization declines may result in additional charges for goodwill and other asset impairments. We have significant intangible assets, including goodwill with an indefinite life, which are susceptible to valuation adjustments as a result of changes in such factors and conditions.

The basis of the fair value for our impairment assessments is determined by projecting future cash flows using assumptions concerning future operating performance and economic conditions that may differ from actual cash flows. Financial and credit market volatility directly impacts our fair value measurement through our weighted-average cost of capital that we use to determine our discount rate and through our stock price that we use to determine our market capitalization. Although our last analysis regarding the fair values of the goodwill and indefinite-lived intangible assets for our reporting units indicates that they exceed their respective carrying values, materially different assumptions regarding the future performance of our businesses or significant declines in our stock price could result in goodwill and intangible asset impairment losses. Specifically, an unanticipated deterioration in Net revenues and operating margins generated by our EMEIA and/or Asia Pacific segments could trigger future impairment in those segments. While we currently believe that our projected results will not result in future impairment, a deterioration in results or other factors could trigger a future impairment.

Our ability to successfully grow and expand our business depends on our ability to recruit and retain a highly qualified and diverse workforce.

Our ability to successfully grow and expand our business depends on the contributions and abilities of our employees and key management, including, for example, the ability of our sales force to adapt to any changes made in the sales organization and achieve adequate customer coverage. We must therefore continue to effectively recruit, retain and motivate key management, sales and other highly qualified and skilled personnel to maintain our current business and support our projected growth. A shortage of these key employees for various reasons, including changes in laws and policies regarding immigration and work authorizations in jurisdictions where we have operations, might jeopardize our ability to grow and expand our business.

Our operations are subject to regulatory risks.

Our U.S. and non-U.S. operations are subject to a number of laws and regulations, including fire and building codes and environmental, health and safety standards. We have incurred, and will be required to continue to incur, significant expenditures to comply with these laws and regulations. Changes to, or changes in interpretations of, current laws and regulations could require us to increase our compliance expenditures, cause us to significantly alter or discontinue offering existing products and services or cause us to develop new products and services. Altering current products and services or developing new products and services to comply with changes in the applicable laws and regulations could require significant research and development investments, increase the cost of providing the products and services and adversely affect the demand for our products and services.

In the event a regulatory authority concludes that we are not or have not at all times been in full compliance with these laws or regulations, we could be fined, criminally charged or otherwise sanctioned.

Certain environmental laws assess liability on current or previous owners of real property or operators of manufacturing facilities for the costs of investigation, removal or remediation of hazardous substances or materials at such properties or at properties at which parties have disposed of hazardous substances. Liability for investigative, removal and remedial costs under certain U.S. federal and state laws and certain non-U.S. laws are retroactive, strict and joint and several. In addition to cleanup actions brought by governmental authorities, private parties could bring personal injury or other claims due to the presence of, or exposure to, hazardous substances. We have received notification from U.S. and non-U.S. governmental agencies, including the EPA and similar state environmental agencies, that conditions at a number of current and formerly owned sites where we and others have disposed of hazardous substances require investigation, cleanup and other possible remedial action. These agencies may require that we reimburse the government for its costs incurred at these sites or otherwise pay for the costs of investigation and cleanup of these sites, including by providing compensation for natural resource damage claims from such sites. For more information, see "Business - Environmental Regulation."

While we have planned for future capital and operating expenditures to maintain compliance with environmental laws and have accrued for costs related to current remedial efforts, our costs of compliance, or our liabilities arising from past or future releases of, or exposures to, hazardous substances, may exceed our estimates. We may also be subject to additional environmental claims for personal injury or cost recovery actions for remediation of facilities in the future based on our past, present or future business activities.

The capital and credit markets are important to our business.

Instability in U.S. and global capital and credit markets, including market disruptions, limited liquidity and interest rate volatility or reductions in the credit ratings assigned to us by independent ratings agencies, could reduce our access to capital markets or increase the cost of funding our short and long-term credit requirements. In particular, if we are unable to access capital and credit markets on terms that are acceptable to us, we may not be able to make certain investments or fully execute our business plans and strategy.

Our suppliers and customers are also dependent upon the capital and credit markets. Limitations on the ability of customers, suppliers or financial counterparties to access credit could lead to insolvencies of key suppliers and customers, limit or prevent customers from obtaining credit to finance purchases of our products and services and cause delays in the delivery of key products from suppliers.

As a global business, we have a relatively complex tax structure, and there is a risk that tax authorities will disagree with our tax positions.

Since we conduct operations worldwide through our subsidiaries, we are subject to complex transfer pricing regulations in the countries in which we operate. Transfer pricing regulations generally require that, for tax purposes, transactions between us and our affiliates be priced on a basis that would be comparable to an arm's length transaction and that contemporaneous documentation be maintained to support the tax allocation. Although uniform transfer pricing standards are emerging in many of the countries in which we operate, there is still a relatively high degree of uncertainty and inherent subjectivity in complying with these rules. To the extent that any tax authority disagrees with our transfer pricing policies, we could become subject to significant tax liabilities and penalties. Our tax returns are subject to review by taxing authorities in the jurisdictions in which we operate. Although we believe that we have provided for all tax exposures, the ultimate outcome of a tax review could differ materially from our provisions.

We could be subject to changes in tax rates, the adoption of new U.S. or international tax legislation or exposure to additional tax liabilities.

Our future effective tax rate and cash tax obligations could be adversely affected by shifts in our mix of earnings in countries with varying statutory tax rates, changes in the valuation of our deferred tax assets or liabilities or changes in tax laws, regulations, interpretations or accounting principles, as well as certain discrete items. In addition, we are subject to regular review and audit by both U.S. and non-U.S. tax authorities. As a result, we have received, and may in the future receive, assessments in multiple jurisdictions on various tax-related assertions. Any adverse outcome of such a review or audit could have a negative effect on our operating results and financial condition. In addition, the determination of our worldwide provision for income taxes and other tax liabilities requires significant judgment, and there are many transactions and calculations where the ultimate tax determination is uncertain. Although we believe our estimates are reasonable, the ultimate tax outcome may differ from the amounts recorded in our financial statements and may materially affect our financial results in the period or periods for which such determination is made. Furthermore, due to shifting economic and political conditions, tax policies, laws, interpretations and rates in various jurisdictions may be subject to significant change, which could materially affect our financial position and results of operations. For example, the 2017 Tax Cuts and Jobs Act (the “Tax Reform Act”) enacted in December 2017 in the U.S. had a significant impact on our cash tax obligations and the issuance of additional regulatory guidance related to the Tax Reform Act could materially affect our cash tax obligations and effective tax rate. In addition, many countries in Europe, as well as a number of other countries and organizations, have recently proposed or recommended changes to existing tax laws or have enacted new laws that could significantly increase our effective tax rate or cash tax obligations in many countries where we do business or require us to change the manner in which we operate our business.

There are risks associated with our outstanding and future indebtedness.

We have approximately $1.5 billion of outstanding indebtedness at December 31, 2018. In addition, we have a senior unsecured revolving credit facility that permits borrowings of up to an additional $500 million. Volatility in the credit markets could adversely impact our ability to obtain favorable financing terms in the future. A substantial portion of our cash flows from operations is dedicated to the payment of principal and interest on our indebtedness and will not be available for other purposes, including our operations, capital expenditures, payment of dividends, share repurchase programs or future business opportunities.

Our ability to make scheduled payments or to refinance our debt obligations depends on our financial and operating performance, which is subject to prevailing economic and competitive conditions and to certain financial, business and other factors beyond our control. If our cash flows and capital resources are insufficient to fund our debt service obligations, we may be forced to reduce or delay capital expenditures, reduce or eliminate the payment of dividends, sell assets, seek additional capital or seek to restructure or refinance our indebtedness. These alternative measures may not be successful and may not permit us to meet our scheduled debt service obligations. In the absence of such operating results and resources, we could face substantial liquidity problems and might be required to sell material assets or operations to attempt to meet our debt service and other obligations.

Additionally, a portion of our borrowings at December 31, 2018 includes a term loan with a variable rate of interest, which exposes us to interest rate risk. We are exposed to the risk of rising interest rates to the extent that we fund our operations with short-term or variable-rate borrowings. At December 31, 2018, our $1.5 billion of aggregate debt outstanding includes $656 million of floating-rate term loans and $800 million of fixed-rate senior notes. We have the ability to incur up to $500 million of additional floating-rate debt under our senior unsecured revolving credit facility. We have entered into interest rate swaps for $250 million of our floating-rate term loans to manage our interest rate risk. A 100 basis-point increase in LIBOR would have resulted in incremental 2018 interest expense of approximately $4.3 million. If the LIBOR or other applicable base rates under our senior unsecured credit facilities increase in the future, the interest on floating-rate debt could have a material impact on our interest expense.

Risks Relating to the Spin-off

In connection with the Spin-off, Ingersoll Rand indemnified us for certain liabilities and we indemnified Ingersoll Rand for certain liabilities. If we are required to act on these indemnities to Ingersoll Rand, we may need to divert cash to meet those obligations and our financial results could be negatively impacted. The Ingersoll Rand indemnity may not be sufficient to insure us against the full amount of liabilities for which it will be allocated responsibility, and Ingersoll Rand may not be able to satisfy its indemnification obligations in the future.

Pursuant to the Separation and Distribution Agreement, the Employee Matters Agreement and the Tax Matters Agreement with Ingersoll Rand, Ingersoll Rand agreed to indemnify us for certain liabilities, and we agreed to indemnify Ingersoll Rand for certain liabilities, in each case for uncapped amounts. Such indemnities may be significant and could negatively impact our business, particularly indemnities relating to our actions that could impact the tax-free nature of the Spin-off. Third parties could also seek to hold us responsible for any of the liabilities that Ingersoll Rand retained. Further, the indemnity from Ingersoll Rand may not be sufficient to protect us against the full amount of such liabilities, and Ingersoll Rand may not be able to fully satisfy its indemnification obligations. Moreover, even if we ultimately succeed in recovering from Ingersoll Rand any amounts for which we are held liable, we may be temporarily required to bear these losses ourselves.

If the distribution or certain internal transactions undertaken in anticipation of the Spin-off are determined to be taxable for U.S. federal income tax purposes, we, our shareholders that are subject to U.S. federal income tax and/or Ingersoll Rand could incur significant U.S. federal income tax liabilities and, in certain circumstances, we could be required to indemnify Ingersoll Rand for material taxes pursuant to indemnification obligations under the Tax Matters Agreement.

Ingersoll Rand has received an IRS ruling substantially to the effect that, among other things, the distribution of our ordinary shares, together with certain related transactions, qualify under Sections 355 and 368(a) of the Internal

Revenue Code ("the Code"), with the result that Ingersoll Rand and Ingersoll Rand's shareholders will not recognize any taxable income, gain or loss for U.S. federal income tax purposes as a result of the Spin-off, except to the extent of cash received in lieu of fractional shares (the "IRS Ruling"). The IRS Ruling also provided that certain internal transactions undertaken in anticipation of the distribution qualify for favorable treatment under the Code. In addition to obtaining the IRS Ruling, Ingersoll Rand received opinions from the law firm of Simpson Thacher & Bartlett LLP substantially to the effect that certain requirements, including certain requirements that the IRS did not rule on, necessary to obtain tax-free treatment have been satisfied, such that the distribution for U.S. federal income tax purposes and certain other matters relating to the distribution, including certain internal transactions undertaken in anticipation of the distribution, received tax-free treatment under Section 355 of the Code. The receipt and effectiveness of the IRS Ruling and the opinions were conditions to the distribution that were satisfied or waived by Ingersoll Rand. The IRS Ruling and the opinions rely on certain facts and assumptions and certain representations and undertakings from us and Ingersoll Rand regarding the past and future conduct of our respective businesses and other matters. Notwithstanding the IRS Ruling and the opinions, the IRS could determine on audit that the distribution or the internal transactions should be treated as taxable transactions if it determines that any of these facts, assumptions, representations or undertakings is not correct or has been violated, or that the distribution or the internal transactions should be taxable for other reasons, including as a result of significant changes in shares or asset ownership after the distribution. A legal opinion represents the tax adviser's best legal judgment, is not binding on the IRS or the courts, and

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the IRS or the courts may not agree with the opinion. In addition, the opinion will be based on then current law, and cannot be relied upon if current law changes with retroactive effect. If the distribution is determined to be taxable, the distribution could be treated as a taxable dividend or capital gain for U.S. federal income tax purposes, and our shareholders could incur significant U.S. federal income tax liabilities. In addition, we or Ingersoll Rand could incur significant U.S. federal income tax liabilities if it is ultimately determined that certain internal transactions undertaken in anticipation of the distribution are taxable.

In addition, under the terms of the Tax Matters Agreement, in the event the distribution or the internal transactions were determined to be taxable as a result of actions taken after the distribution by us or Ingersoll Rand, the party responsible for such failure would be responsible for all taxes imposed on us or Ingersoll Rand as a result thereof. If such failure is not the result of actions taken after the distribution by us or Ingersoll Rand, then we would be responsible for any taxes imposed on us or Ingersoll Rand as a result of such determination. Such tax amounts could be significant.

If the distribution is determined to be taxable for Irish tax purposes, significant Irish tax liabilities may arise.

Ingersoll Rand has received an opinion of the Irish Revenue regarding the Irish tax consequences of the distribution to the effect that certain reliefs and exemptions for corporate reorganizations apply. In addition to obtaining the opinion from Irish Revenue, Ingersoll Rand received an opinion from the law firm of Arthur Cox confirming the applicability of the relevant exemptions and reliefs to the distribution and that certain internal transactions will not trigger tax costs. These opinions rely on certain facts and assumptions and certain representations and undertakings from us and Ingersoll Rand regarding the past and future conduct of our respective businesses and other matters. Notwithstanding the opinions, the Irish Revenue could determine on audit that the distribution or the internal transactions do not qualify for the relevant exemptions or reliefs if it determines that any of these facts, assumptions, representations or undertakings is not correct or has been violated. A legal opinion represents the tax adviser’s best legal judgment, is not binding on the Irish Revenue or the courts and the Irish Revenue or the courts may not agree with the legal opinion. In addition, the legal opinion was based on then current law, and cannot be relied upon if current law changes with retroactive effect. If the distribution ultimately is determined not to fall within certain exemptions or reliefs, the distribution could result in our shareholders having an Irish tax liability as a result of the distribution (if a shareholder is an Irish resident or holds shares in Ingersoll Rand in an Irish branch or agency), or we or Ingersoll Rand could incur Irish tax liabilities.

In addition, under the terms of the Tax Matters Agreement, in the event the distribution does not qualify for certain reliefs or exemptions, then we would be responsible for any taxes imposed on us or Ingersoll Rand as a result of such determination. Such tax amounts could be significant.

Risks Related to Our Incorporation in Ireland

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

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. As such, 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 U.S. federal or state civil liability laws, including the civil liability provisions of the U.S. federal or state securities laws, or hear actions against us or those persons based on those laws.

As an Irish company, we are governed by the Companies Act 2014 of Ireland, as amended, which differs 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 our securities may have more difficulty protecting their interests than would holders of securities of a corporation incorporated in a jurisdiction of the U.S.

In addition, Irish law allows shareholders to authorize share capital which then can be issued by a board of directors without shareholder approval. Also, subject to specified exceptions, Irish law grants statutory preemptive rights to existing shareholders to subscribe for new issuances of shares for cash. At our annual meeting of shareholders, our shareholders authorized our Board of Directors to issue up to 33% of our issued ordinary shares and further authorized our Board of Directors to issue up to 5% of such shares for cash without first offering them to our existing shareholders. Both of these authorizations will expire after a certain period unless renewed by our shareholders, and we cannot guarantee that the renewal of these authorizations will always be approved.

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Changes in tax laws, regulations or treaties, changes in our status under the tax laws of many jurisdictions or adverse determinations by taxing authorities could increase our tax burden or otherwise affect our financial condition or operating results, as well as subject our shareholders to additional taxes.

The realization of any tax benefit related to our incorporation and tax residence in Ireland could be impacted by changes in tax laws, tax treaties or tax regulations or the interpretation or enforcement thereof by the tax authorities of many jurisdictions. From time to time, proposals have been made and/or legislation has been introduced to change the tax laws of various jurisdictions or limit tax treaty benefits that if enacted could materially increase our tax burden and/or our effective tax rate. For instance, pending regulatory guidance on the recently enacted U.S. tax legislation could modify or eliminate the tax deductibility of various currently deductible payments, which could materially and adversely affect our effective tax rate and cash tax position. Moreover, other legislative proposals could have a material adverse impact on us by overriding certain tax treaties and limiting the treaty benefits on certain payments, which could increase our tax liability. We cannot predict the outcome of any specific legislation in any jurisdiction.

While we monitor proposals that would materially impact our tax burden and/or our effective tax rate and investigate our options, we could still be subject to increased taxation on a going forward basis no matter what action we undertake if certain legislative proposals are enacted, certain tax treaties are amended and/or our interpretation of applicable tax law is challenged and determined to be incorrect. In particular, any changes and/or differing interpretations of applicable tax law that have the effect of disregarding our incorporation in Ireland, limiting our ability to take advantage of tax treaties between jurisdictions, modifying or eliminating the deductibility of various currently deductible payments or increasing the tax burden of operating or being resident in a particular country, could subject us to increased taxation.

Dividends received by our shareholders may be subject to Irish dividend withholding tax.

In certain circumstances, we are required to deduct Irish dividend withholding tax (currently at the rate of 20%) from dividends paid to our shareholders. In the majority of cases, shareholders residing in the U.S. will not be subject to Irish withholding tax, and shareholders resident in a number of other countries will not be subject to Irish withholding tax provided that they complete certain Irish dividend withholding tax forms. However, some shareholders may be subject to withholding tax, which could discourage the investment in our stock and adversely impact the price of our shares.

Dividends received by our shareholders could be subject to Irish income tax.

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

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

Certain provisions in our Memorandum and Articles of Association, among other things, could prevent or delay an acquisition of us, which could decrease the trading price of our ordinary shares.

Our Memorandum and Articles of Association contains provisions to deter takeover practices, inadequate takeover bids and unsolicited offers. These provisions include, amongst others:

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a provision of our Articles of Association which generally prohibits us from engaging in a business combination with an interested shareholder (being (i) the beneficial owner, directly or indirectly, of 10% or more of our voting shares or (ii) an affiliate or associate of us that has at any time within the last five years been the beneficial owner, directly or indirectly, or 1% or more of our voting shares), subject to certain exceptions;

- rules regarding how shareholders may present proposals or nominate directors for election at shareholder meetings;
- the right of our Board of Directors to issue preferred shares without shareholder approval in certain circumstances, subject to applicable law; and
- the ability of our Board of Directors to set the number of directors and to fill vacancies on our Board of Directors in certain circumstances.

We believe these provisions will provide some protection to our shareholders from coercive or otherwise unfair takeover tactics. These provisions are not intended to make us immune from takeovers. However, these provisions will apply even if the offer may be considered beneficial by some shareholders and could delay or prevent an acquisition that our Board of Directors determines

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is in our best interests and our shareholders' best interests. These provisions may also prevent or discourage attempts to remove and replace incumbent directors.

In addition, several mandatory provisions of Irish law could prevent or delay an acquisition of us. For example, Irish law does not permit shareholders of an Irish public limited company to take action by written consent with less than unanimous consent. We also will be subject to various provisions of Irish law relating to mandatory bids, voluntary bids, requirements to make a cash offer and minimum price requirements, as well as substantial acquisition rules and rules requiring the disclosure of interests in our shares in certain circumstances. Also, Irish companies, including us, may alter their Memorandum of Association and Articles of Association only with the approval of at least 75% of the votes of the company’s shareholders cast in person or by proxy at a general meeting of the company.

The agreements that we entered into with Ingersoll Rand in connection with the Spin-off generally require Ingersoll Rand’s consent to any assignment by us of our rights and obligations under the agreements. The consent and termination rights set forth in these agreements might discourage, delay or prevent a change of control that shareholders may consider favorable.

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Item 1B. UNRESOLVED STAFF COMMENTS
None.

Item 2. PROPERTIES

We operate through a broad network of sales offices, engineering centers, 34 production and assembly facilities and several distribution centers throughout the world. Our active properties represent about 6.9 million square feet, of which approximately 37% is leased.
The majority of our plant facilities are owned by us with the remainder under long-term lease arrangements. We believe that our plants have been well maintained, are generally in good condition and are suitable for the conduct of our business.

Item 3. LEGAL PROCEEDINGS
In the normal course of business, we are involved in a variety of lawsuits, claims and legal proceedings, including commercial and contract disputes, employment matters, product liability claims, environmental liabilities, intellectual property disputes and tax-related matters. In our opinion, pending legal matters are not expected to have a material adverse impact on our results of operations, financial condition, liquidity or cash flows.
This item should be read in conjunction with the Company's Risk Factors in Part I, Item 1A for additional information.

Item 4. MINE SAFETY DISCLOSURES

Not applicable.

EXECUTIVE OFFICERS OF THE REGISTRANT
The following is a list of executive officers of the Company as of February 19, 2019.

David D. Petratis, age 61, has served as our Chairman, President and Chief Executive Officer since 2013.

Patrick S. Shannon, age 56, has served as our Senior Vice President and Chief Financial Officer since 2013.

Jeffrey N. Braun, age 59, has served as our Senior Vice President, General Counsel and Chief Compliance Officer since 2014, and Secretary since 2018. Mr. Braun served as our Deputy General Counsel and Chief Compliance Officer from 2013 to 2014.

Timothy P. Eckersley, age 57, has served as our Senior Vice President and President - Americas since 2013.

Tracy L. Kemp, age 50, has served as our Senior Vice President and Chief Information Officer since 2015. Ms. Kemp served as our Vice President and Chief Information Officer from 2013 to 2015.

Shelley A. Meador, age 47, has served as our Senior Vice President and Chief Human Resources Officer since 2016. Ms. Meador served as our Vice President - Tax from 2013 to 2016.

Lucia Veiga Moretti, age 54, has served as our Senior Vice President and President - EMEIA since 2014. Previously, Ms. Moretti served as Senior Vice President and President, Delphi Product and Service Solutions for Delphi Automotive (a supplier of automotive technologies) from 2011 to 2014.

Chris E. Muhlenkamp, age 61, has served as our Senior Vice President - Global Operations and Integrated Supply Chain since 2014. Mr. Muhlenkamp served as our Vice President - Global Operations and Integrated Supply Chain from 2013 to 2014.

Douglas P. Ranck, age 60, has served as our Vice President, Controller and Chief Accounting Officer since 2013.

Vincent Wenos, age 52, has served as our Vice President - Global Technology and Engineering since 2018. Mr. Wenos served as both our Vice President - Americas Engineering and Vice President - Global Mechanical Products from 2016 to 2018. Mr. Wenos

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previously served as Vice President - Global Product Development and Technology at Stanley Black & Decker, Inc. (a global diversified consumer and industrial products company).

Jeffrey M. Wood, age 48, has served as our Senior Vice President and President - Asia Pacific since 2017. Mr. Wood served as our Vice President, Global Supply Management from 2013 to 2017.

All above-listed officers except for Ms. Moretti and Mr. Wenos have been employed by the Company for more than the past five years. No family relationship exists between any of the above-listed executive officers of the Company. All officers are elected to hold office for one year or until their successors are elected and qualified.

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PART II

Item 5. MARKET FOR REGISTRANT’S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Information regarding the principal market for our ordinary shares and related shareholder matters is as follows:
Our ordinary shares are traded on the NYSE under the symbol ALLE. As of February 14, 2019, the number of record holders of ordinary shares was 2,648. Information regarding equity compensation plans required to be disclosed pursuant to this Item is incorporated by reference from our Proxy Statement.

Dividend Policy

Our Board of Directors declared dividends of $0.21 per ordinary share on February 8, 2018, April 5, 2018, September 6, 2018 and December 6, 2018. On February 5, 2019, our Board of Directors declared a dividend of $0.27 per ordinary share payable March 29, 2019. We paid a total of $79.4 million in cash for dividends to ordinary shareholders during the year ended December 31, 2018. Future dividends on our ordinary shares, if any, will be at the discretion of our Board of Directors and will depend on, among other things, our results of operations, cash requirements and surplus, financial condition, contractual restrictions and other factors that the Board of Directors may deem relevant, as well as our ability to pay dividends in compliance with the Irish Companies Act. Under the Irish Companies Act, dividends and distributions may only be made from distributable reserves. Distributable reserves, broadly, means the accumulated realized profits of Allegion plc (ALLE-Ireland). In addition, no distribution or dividend may be made unless the net assets of ALLE-Ireland are equal to, or in excess of, the aggregate of ALLE-Ireland’s called up share capital plus undistributable reserves and the distribution does not reduce ALLE-Ireland’s net assets below such aggregate.

Issuer Purchases of Equity Securities

In February 2017, our Board of Directors approved a new stock repurchase authorization of up to $500 million of the Company's ordinary shares ("2017 Share Repurchase Authorization"). The 2017 Share Repurchase Authorization does not have a prescribed expiration date. We paid a total of $67.3 million to repurchase 0.9 million ordinary shares during the year ended December 31, 2018 and $60.0 million to repurchase 0.8 million ordinary shares during the year ended December 31, 2017. At December 31, 2018, we have approximately $372.7 million available under the 2017 Share Repurchase Authorization.

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Performance Graph

The annual changes for the period shown December 1, 2013 (when our ordinary shares began trading) to December 31, 2018 in the graph on this page are based on the assumption that $100 had been invested in Allegion plc ordinary shares, the Standard & Poor’s 500 Stock Index ("S&P 500") and the Standard & Poor's 400 Capital Goods Index ("S&P 400 Capital Goods") on December 1, 2013, and that all quarterly dividends were reinvested. The total cumulative dollar returns shown on the graph represent the value that such investments would have had on December 31, 2018.

	December 1, 2013	December 31, 2013	December 31, 2014	December 31, 2015	December 31, 2016	December 31, 2017	December 31, 2018
Allegion plc	100.00	102.20	129.03	154.37	150.97	189.19	191.42
S&P 500	100.00	102.53	116.57	118.18	132.31	161.20	154.13
S&P 400 Capital Goods	100.00	104.58	104.84	99.07	130.70	162.97	140.14

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Item 6. SELECTED FINANCIAL DATA (1)
In millions, except per share amounts:

As of and for the years ended December 31,	2018	2017	2016	2015	2014
Net revenues	$2,731.7	$2,408.2	$2,238.0	$2,068.1	$2,118.3
Net earnings (loss) attributable to Allegion plc ordinary shareholders:					
Continuing operations	434.9 (a)	273.3 (b)	229.1 (c)	154.3 (d)	186.3 (e)
Discontinued operations	—	—	—	(0.4)	(11.1)
Total assets	2,810.2	2,542.0	2,247.4	2,263.0	2,015.9
Total debt	1,444.8	1,477.3	1,463.8	1,523.1	1,264.6
Total Allegion plc shareholders' equity (deficit)	651.0	401.6	113.3	25.6	(4.8)
Earnings (loss) per share attributable to Allegion plc ordinary shareholders:					
Basic:					
Continuing operations	$4.58	$2.87	$2.39	$1.61	$1.94
Discontinued operations	—	—	—	(0.01)	(0.12)
Diluted:					
Continuing operations	$4.54	$2.85	$2.36	$1.59	$1.92
Discontinued operations	—	—	—	—	(0.12)
Dividends declared per ordinary share	$0.84	$0.64	$0.48	$0.40	$0.32

(a) Net earnings for the year ended December 31, 2018 includes a $21.9 million tax benefit related to an adjustment to the provisional amounts previously recognized related to the enactment of the U.S. Tax Reform Act.

(b) Net earnings for the year ended December 31, 2017 includes $44.7 million of costs related to the refinancing of our credit facilities and senior notes and a net tax charge of $53.5 million related to the U.S. Tax Reform Act.

(c) Net earnings for the year ended December 31, 2016 includes $84.4 million of losses related to our previously divested Systems Integration business.

(d) Net earnings from continuing operations for the year ended December 31, 2015 includes $104.2 million of losses related to the divestitures of our Venezuelan operations and our majority stake in our Systems Integration business.

(e) Net earnings from continuing operations for the year ended December 31, 2014 includes an after-tax, non-cash inventory impairment charge of $18.7 million and a $9.1 million after-tax, non-cash charge related to the devaluation of the Venezuelan bolivar.

(1) The Company has not restated 2014 - 2017 for the impact of the adoption of ASC 606 as of January 1, 2018. The Company has also not restated 2015 or 2014 for the impact of the adoption of ASU 2016-09 in the fourth quarter of 2016, nor 2014 for the impact of the adoption of ASU 2015-17 and ASU 2015-03 as of December 31, 2015. The impact of excluding the above standards in prior period presentation is not material.

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

The following Management's Discussion and Analysis of Financial Condition and Results of Operations contains forward-looking statements that involve risks and uncertainties. Our actual results may differ materially from the results discussed in the forward-looking statements. Factors that might cause a difference include, but are not limited to, those discussed under Item 1A. Risk Factors in this Annual Report on Form 10-K. The following section is qualified in its entirety by the more detailed information, including our consolidated financial statements and the notes thereto, which appears elsewhere in this Annual Report.

Overview

Organization

We are a leading global provider of security products and solutions operating in three geographic regions: Americas, EMEIA and Asia Pacific. We sell a wide range of security products and solutions for end-users in commercial, institutional and residential markets worldwide, including the education, healthcare, government, commercial office and single and multi-family residential markets. Our leading brands include CISA, Interflex, LCN, Schlage, SimonsVoss and Von Duprin.

Trends and Economic Events

The security products industry has benefited from accelerated growth in institutional, commercial and residential end-markets in recent years. We also expect the security products industry will benefit from favorable long-term demographic trends such as continued urbanization of the global population, increased concerns about safety and security and technology-driven innovation.

In recent years, growth in electronic security products and solutions continues to outperform mechanical products, and we expect growth in the global electronic product categories we serve to continue to outperform growth in mechanical products, as end-users adopt newer technologies in their facilities and homes. Our recent acquisitions have been made to capitalize on this trend.

The economic conditions discussed above and a number of other challenges and uncertainties that could affect our business are described under Part I, Item 1A, "Risk Factors."

2018 and 2017 Significant Events

Acquisitions

We completed six business acquisitions in 2018 and one business acquisition in 2017:

Business	Date
Republic Doors & Frames, LLC ("Republic")	January 2017
Technical Glass Products, Inc. ("TGP")	January 2018
Hammond Enterprises, Inc. ("Hammond")	January 2018
Qatar Metal Industries LLC ("QMI")	February 2018
AD Systems, Inc. ("AD Systems")	March 2018
Gainsborough Hardware and API Locksmiths ("Door and Access Systems")	July 2018
ISONAS Security Systems, Inc. ("ISONAS")	July 2018

Republic provides hollow metal doors and frames throughout the U.S. and in select non-U.S. markets, complementing our Steelcraft® brand and core business in the Americas segment. Republic has been integrated into our Americas segment.

TGP provides fire-rated architectural glass and framing solutions for commercial buildings, as well as non-fire rated architectural glass and framing, including channel glass systems and curtain walls throughout the U.S., Canada and select markets in the Middle East. TGP has been integrated into our Americas and EMEIA segments.

We acquired 100% of the machinery, equipment and intellectual property of a division of Hammond. The assets acquired have been integrated into our existing production facilities and are specific to our Schlage-branded products.

QMI specializes in fire rated and non-fire rated steel and wooden doors, acoustic doors, wooden cabinets and access panels in the Middle East and Africa. QMI has been integrated into our EMEIA segment.

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AD Systems designs and manufactures high-performance interior and storefront door systems, specializing in sliding and acoustic solutions for the U.S. market. AD Systems' portfolio includes sliding and swinging doors, perimeter frames, door hardware, gasketing, seals and sidelite panels. AD Systems has been integrated into our Americas segment.

Door and Access Systems, based in Australia, includes the brands Gainsborough Hardware, the market-leading residential door hardware brand in Australia, and API Locksmiths, which serves the Australian market with its keying, installation and access control services. Door and Access Systems has been integrated into our Asia Pacific segment.

ISONAS designs and manufactures edge-computing technology that produces Power over Ethernet access control solutions for non-residential end-markets in the U.S. ISONAS has been integrated into our Americas segment.

The incremental impact of the 2018 acquisitions for the twelve months ended December 31, 2018 was an increase in Net revenues of approximately $160.2 million and an increase to Operating income of approximately $2.8 million. The incremental impact of acquisitions for the twelve months ended December 31, 2017 was an increase in Net revenues of approximately $32.3 million and a decrease to Operating income of approximately $0.6 million.

During the years ended December 31, 2018 and 2017, we incurred $10.0 million and $4.7 million of acquisition and integration related expenses, respectively.

2018 Dividends

We paid quarterly dividends of $0.21 per ordinary share to shareholders on record as of March 15, 2018, June 15, 2018, September 17, 2018, and December 17, 2018. We paid a total of $79.4 million in cash for dividends to ordinary shareholders during the year ended December 31, 2018.

Restructuring charges

We incurred charges of $4.9 million and $12.3 million for the years ended December 31, 2018 and 2017, respectively, in conjunction with ongoing restructuring actions. We also incurred other non-qualified restructuring charges of $1.6 million and $1.5 million for the years ended December 31, 2018 and 2017, respectively, related to costs directly attributable to restructuring activities but that do not fall into the severance, exit or disposal category.

Financing activities

In 2017, we entered into a new $1.2 billion unsecured credit agreement (the "Credit Agreement"), consisting of a $700.0 million term loan facility (the “Term Facility”) and a $500.0 million revolving credit facility (the “Revolving Facility”, and together with the Term Facility, the “Credit Facilities”), and repaid in full our previously outstanding secured credit facility, the Second Amended and Restated Credit Agreement, dated as of September 30, 2015.

Also in 2017, we issued $400.0 million of 3.200% Senior Notes due 2024 (the “3.200% Senior Notes”) and $400.0 million of 3.550% Senior Notes due 2027 (the “3.550% Senior Notes” and, together with the 3.200% Senior Notes, the “Notes”). We used a portion of the net proceeds from the Notes to redeem in full our previously outstanding $300.0 million Senior Notes due 2021 and $300.0 million Senior Notes due 2023.

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Results of Operations - For the years ended December 31

Dollar amounts in millions, except per share amounts	2018	% of Net Revenues	2017	% of Net Revenues	2016	% of Net Revenues
Net revenues	$2,731.7		$2,408.2		$2,238.0	
Cost of goods sold	1,558.4	57.0 %	1,335.3	55.4 %	1,248.3	55.8 %
Selling and administrative expenses	647.5	23.7 %	580.4	24.1 %	555.4	24.8 %
Operating income	525.8	19.2 %	492.5	20.5 %	434.3	19.4 %
Interest expense	54.0		105.7		64.3	
Loss on divestitures	—		—		84.4	
Other income, net	(3.4)		(8.9)		(9.4)	
Earnings before income taxes	475.2		395.7		295.0	
Provision for income taxes	39.8		119.0		63.8	
Net earnings	435.4		276.7		231.2	
Less: Net earnings attributable to noncontrolling interests	0.5		3.4		2.1	
Net earnings attributable to Allegion plc	$434.9		$273.3		$229.1	
Diluted net earnings per ordinary share attributable to Allegion plc ordinary shareholders:	$4.54		$2.85		$2.36	

Net Revenues

Net revenues for the year ended December 31, 2018 increased by 13.4%, or $323.5 million, compared to the same period in 2017 due to the following:

Pricing	1.6 %
Volume	4.4 %
Acquisitions	6.6 %
Currency exchange rates	0.8 %
Total	13.4%

The increase in Net revenues was primarily driven by higher volumes in all segments, improved pricing, incremental Net revenues from the acquisitions discussed above and favorable foreign currency exchange rate movements relative to the U.S. Dollar.

Net revenues for the year ended December 31, 2017 increased by 7.6%, or $170.2 million, compared to the same period in 2016 due to the following:

Pricing	1.8%
Volume	3.9%
Acquisitions	1.4%
Currency exchange rates	0.5%
Total	7.6%

The increase in Net revenues was primarily driven by higher volumes and improved pricing in all segments, incremental Net revenues from acquisitions and favorable foreign currency exchange rate movements relative to the U.S. Dollar.

Cost of Goods Sold

For the year ended December 31, 2018, Cost of goods sold as a percentage of Net revenues increased to 57.0% from 55.4% due to the following:

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Inflation in excess of pricing and productivity	0.1 %
Volume / product mix	(0.1)%
Acquisitions	1.5 %
Investment spending	0.3 %
Currency exchange rates	(0.1)%
Restructuring / acquisition costs	(0.1)%
Total	1.6 %

Costs of goods sold as a percentage of Net revenues for the year ended December 31, 2018 increased primarily due to inflation in excess of pricing and productivity, the impact of acquisitions and increased investment spending. These increases were partially offset by favorable currency exchange rate movements, favorable product mix and volume and decreased restructuring and acquisition costs.

For the year ended December 31, 2017, Cost of goods sold as a percentage of Net revenues decreased to 55.4% from 55.8% due to the following:

Pricing and productivity in excess of inflation	(0.4)%
Volume / product mix	0.4 %
Acquisitions	0.5 %
Currency exchange rates	(0.1)%
Environmental remediation charge	(0.7)%
Restructuring / acquisition costs	(0.1)%
Total	(0.4)%

Costs of goods sold as a percentage of Net revenues for the year ended December 31, 2017 decreased primarily due to pricing and productivity benefits in excess of inflation, favorable foreign currency exchange rate movements, a decrease related to an environmental remediation charge in 2016 and decreased restructuring and acquisition costs. These decreases were partially offset by unfavorable product mix and volume and the impact of acquisitions.

Selling and Administrative Expenses

For the year ended December 31, 2018, Selling and administrative expenses as a percentage of Net revenues decreased to 23.7% from 24.1% due to the following:

Inflation in excess of productivity	0.5 %
Volume leverage	(0.8)%
Acquisitions	(0.4)%
Investment spending	0.3 %
Total	(0.4)%

Selling and administrative expenses as a percentage of Net revenues for the year ended December 31, 2018 decreased primarily due to favorable leverage due to increased volume and the impact of acquisitions. These decreases were partially offset by inflation in excess of productivity benefits and increased investment spending.

For the year ended December 31, 2017, Selling and administrative expenses as a percentage of Net revenues decreased to 24.1% from 24.8% due to the following:

Productivity in excess of inflation	(0.6)%
Volume leverage	(0.9)%
Acquisitions	(0.2)%
Investment spending	0.7 %
Restructuring / acquisition costs	0.3 %
Total	(0.7)%

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Selling and administrative expenses as a percentage of Net revenues for the year ended December 31, 2017 decreased primarily due to favorable leverage due to increased volume, productivity benefits in excess of inflation and acquisitions. These decreases were partially offset due to increased investment spending and higher restructuring and acquisition costs.

Operating Income/Margin

Operating income for the year ended December 31, 2018 increased $33.3 million from the same period in 2017 and Operating margin decreased to 19.2% from 20.5% for the same period in 2017 due to the following:

In millions	Operating Income	Operating Margin
December 31, 2017	$ 492.5	20.5 %
Inflation in excess of pricing and productivity	(6.4)	(0.6)%
Volume / product mix	45.3	0.9 %
Currency exchange rates	3.1	— %
Investment spending	(13.5)	(0.5)%
Acquisitions	2.8	(1.2)%
Restructuring / acquisition costs	2.0	0.1 %
December 31, 2018	$ 525.8	19.2 %

Operating income increased due to favorable volume/product mix in all segments, foreign currency exchange rate movements, the impact of acquisitions and lower restructuring and acquisition costs. These increases were partially offset by inflation in excess of pricing and productivity and increased investment spending.

Operating margin decreased primarily due to inflation in excess of pricing and productivity, increased investment spending and lower margins from acquisitions during the current year. These decreases were partially offset by favorable volume/product mix and lower restructuring and acquisition costs.

Operating income for the year ended December 31, 2017 increased $58.2 million and Operating margin increased to 20.5% from 19.4% for the same period in 2016 due to the following:

In millions	Operating Income	Operating Margin
December 31, 2016	$ 434.3	19.4 %
Pricing and productivity in excess of inflation	30.7	1.0 %
Volume / product mix	29.4	0.5 %
Currency exchange rates	4.2	0.1 %
Investment spending	(15.4)	(0.7)%
Acquisitions	(0.6)	(0.3)%
Environmental remediation charge	15.0	0.7 %
Restructuring / acquisition costs	(5.1)	(0.2)%
December 31, 2017	$ 492.5	20.5 %

Operating income and Operating margin both increased due to favorable volume/product mix in all segments, pricing improvements and productivity in excess of inflation, favorable foreign currency exchange rate movements and lower environmental remediation charges in 2017 due to a charge in 2016 for a change in approach for environmental remediation related to two sites in the Americas. These increases were partially offset by increased investment spending, the impact of acquisitions and higher restructuring and acquisition costs.

Interest Expense

Interest expense for the year ended December 31, 2018 decreased $51.7 million compared to the same period of 2017 primarily due to $44.7 million of costs in the prior year associated with the refinancing of our Credit Facilities, issuance of our 3.200% and 3.550% Senior Notes and redemption of our previously outstanding Senior notes due 2021 and 2023 in the third and fourth quarters of 2017. Lower interest rates on our outstanding indebtedness also contributed to the decrease in Interest expense.

Interest expense for the year ended December 31, 2017 increased $41.4 million compared to the same period of 2016. Interest expense increased primarily due to $44.7 million of costs associated with the refinancing of our Credit Facilities, issuance of our

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3.200% and 3.550% Senior Notes and redemption of our previously outstanding Senior notes due 2021 and 2023 in the third and fourth quarters of 2017, as discussed above.

Other income, net

The components of Other income, net, for the year ended December 31 were as follows:

In millions	2018	2017	2016
Interest income	$(0.8)	$(1.2)	$(1.9)
Foreign currency exchange loss	0.3	0.7	2.0
Earnings from and gains on the sale of equity investments	(0.4)	(5.4)	(3.6)
Net periodic pension and postretirement benefit (income) cost, less service cost	(2.8)	4.3	8.8
Other	0.3	(7.3)	(14.7)
Other income, net	$(3.4)	$(8.9)	$(9.4)

For the year ended December 31, 2018, Other income, net decreased by $5.5 million compared to the same period in 2017, due to a cumulative gain of $5.4 million from the sale of iDevices, LLC and gains of $7.3 million related to legal entity liquidations in our Asia Pacific region, of which $2.2 million was attributed to noncontrolling interests, in 2017, neither of which were recurring in 2018. These decreases were partially offset by Net periodic pension and postretirement benefit income, less service cost of $2.8 million in 2018, compared to Net periodic pension and postretirement benefit cost, less service cost of $4.3 million in 2017.

For the year ended December 31, 2017, Other income, net decreased by $0.5 million compared with the same period in 2016. This decrease was due to gains from the sale of marketable securities of $12.4 million in 2016, which did not recur in 2017. This decrease is partially offset by the cumulative $5.4 million gain from the sale of iDevices, LLC and the gains of $7.3 million related to legal entity liquidations in our Asia Pacific region discussed above, as well as decreased Net periodic pension and postretirement benefit cost, less service cost in 2017 compared to 2016.

Provision for Income Taxes

On December 22, 2017, the President of the United States signed comprehensive tax legislation commonly referred to as the Tax Cuts and Jobs Act (the “Tax Reform Act”). The Tax Reform Act makes broad and complex changes to the U.S. tax code which impacted our years ended December 31, 2018 and 2017, including, but not limited to (1) reducing the U.S. federal corporate tax rate, (2) requiring a one-time transition tax on certain unrepatriated earnings of foreign subsidiaries, and (3) requiring a review of the future realizability of deferred tax balances.

For the year ended December 31, 2018, our effective tax rate was 8.4% compared to 30.1% for the year ended December 31, 2017. The effective income tax rate for the year ended December 31, 2018 was positively impacted by a $21.9 million tax benefit related to the Tax Reform Act and the reduction in the US statutory tax rate from 35% to 21%. The effective income tax rate for the year ended December 31, 2017 was negatively impacted by a $53.5 million tax charge related to the Tax Reform Act, which was partially offset by the release of $10.4 million of valuation allowances.

For the year ended December 31, 2017, our effective tax rate was 30.1% compared to 21.6% for the year ended December 31, 2016. The effective income tax rate for the year ended December 31, 2017 was negatively impacted by a $53.5 million tax charge related to the Tax Reform Act, which was partially offset by the release of $10.4 million of valuation allowances. The effective income tax rate for the year ended December 31, 2016 was negatively impacted by $84.4 million (before and after tax) of charges related to the divestiture of our Systems Integration business in China during 2015.

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Review of Business Segments

We operate in and report financial results for three segments: Americas, EMEIA, and Asia Pacific. These segments represent the level at which our chief operating decision maker reviews company financial performance and makes operating decisions.

Segment operating income is the measure of profit and loss that our chief operating decision maker uses to evaluate the financial performance of the business and as the basis for resource allocation, performance reviews and compensation. For these reasons, we believe that Segment operating income represents the most relevant measure of Segment profit and loss. Our chief operating decision maker may exclude certain charges or gains, such as corporate charges and other special charges, to arrive at a Segment operating income that is a more meaningful measure of profit and loss upon which to base our operating decisions. We define Segment operating margin as Segment operating income as a percentage of the segment's Net revenues.

The segment discussions that follow describe the significant factors contributing to the changes in results for each segment included in Net earnings.

Segment Results of Operations - For the years ended December 31

In millions	2018	2017	% Change	2017	2016	% Change
Net revenues						
Americas	$1,988.6	$1,767.5	12.5 %	$1,767.5	$1,645.7	7.4 %
EMEIA	589.9	523.5	12.7 %	523.5	485.9	7.7 %
Asia Pacific	153.2	117.2	30.7 %	117.2	106.4	10.2 %
Total	$2,731.7	$2,408.2		$2,408.2	$2,238.0	
Segment operating income						
Americas	$544.5	$508.5	7.1 %	$508.5	$456.7	11.3 %
EMEIA	49.3	44.1	11.8 %	44.1	35.3	24.9 %
Asia Pacific	6.9	9.5	(27.4)%	9.5	6.1	55.7 %
Total	$600.7	$562.1		$562.1	$498.1	
Segment operating margin						
Americas	27.4 %	28.8 %		28.8 %	27.8 %	
EMEIA	8.4 %	8.4 %		8.4 %	7.3 %	
Asia Pacific	4.5 %	8.1 %		8.1 %	5.7 %	

Americas

Our Americas segment is a leading provider of security products and solutions in approximately 30 countries throughout North America, Central America, the Caribbean and South America. The segment sells a broad range of products and solutions including, locks, locksets, portable locks, key systems, door closers, exit devices, doors and door systems, electronic products and access control systems to end-users in commercial, institutional and residential facilities, including the education, healthcare, government, commercial office and single and multi-family residential markets. This segment's primary brands are LCN, Schlage, Steelcraft and Von Duprin.

2018 vs 2017

Net revenues

Net revenues for the year ended December 31, 2018 increased by 12.5%, or $221.1 million, compared to the same period in 2017 due to the following:

Pricing	1.7 %
Volume	5.1 %
Acquisitions	5.7 %
Total	12.5 %

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The increase in Net revenues is due to higher volumes, improved pricing and acquisitions during the current year. Net revenues from non-residential products for the year ended December 31, 2018 increased mid-teens compared to the prior year, primarily driven by higher volumes, improved pricing and acquisitions in the current year. Net revenues from residential products for the year ended December 31, 2018 increased mid-single digits compared to the prior year.

Operating income/margin
Segment operating income for the year ended December 31, 2018 increased $36.0 million and Segment operating margin decreased to 27.4% from 28.8% compared to the same period in 2017 due to the following:

In millions	Operating Income	Operating Margin
December 31, 2017	$ 508.5	28.8 %
Inflation in excess of pricing and productivity	(4.2)	(0.8)%
Volume / product mix	42.1	0.9 %
Currency exchange rates	0.7	0.1 %
Investment spending	(7.2)	(0.4)%
Acquisitions	3.3	(1.3)%
Restructuring / acquisition costs	1.3	0.1 %
December 31, 2018	$ 544.5	27.4 %

Operating income increased primarily due to favorable volume/product mix, favorable foreign currency exchange rate movements, acquisitions during the current year and year-over-year decreases in restructuring and acquisition costs. These increases were partially offset by inflation in excess of pricing and productivity and increased investment spending.

Operating margin decreased primarily due to inflation in excess of pricing and productivity, increased investment spending and lower margins from acquisitions during the current year. These decreases were partially offset by favorable volume/product mix, favorable foreign currency exchange rate movements and year-over-year decreases in restructuring and acquisition costs.

2017 vs 2016

Net revenues
Net revenues for the year ended December 31, 2017 increased by 7.4%, or $121.8 million, compared to the same period in 2016 due to the following:

Pricing	2.0%
Volume	3.8%
Acquisitions	1.4%
Currency exchange rates	0.2%
Total	7.4%

The increase in Net revenues was due to higher volumes, improved pricing, the impact of an acquisition in January 2017 and favorable foreign currency exchange rate movements. Net revenues from non-residential products for the year ended December 31, 2017 increased high single digits compared to the prior year due to market growth, product launches, and channel initiatives. Net revenues from residential products for the year ended December 31, 2017 increased mid-single digits compared to the prior year.

Operating income/margin
Segment operating income for the year ended December 31, 2017 increased $51.8 million and Segment operating margin increased to 28.8% from 27.8% compared to the same period in 2016 due to the following:

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In millions	Operating Income	Operating Margin
December 31, 2016	$ 456.7	27.8 %
Pricing and productivity in excess of inflation	25.9	1.0 %
Volume / product mix	22.2	0.3 %
Currency exchange rates	2.6	0.1 %
Investment spending	(10.7)	(0.7)%
Acquisitions	0.3	(0.4)%
Environmental remediation charge	15.0	0.9 %
Restructuring / acquisition costs	(3.5)	(0.2)%
December 31, 2017	$ 508.5	28.8 %

Operating income increased primarily due to pricing improvements and productivity in excess of inflation, favorable volume/product mix, favorable foreign currency exchange rate movements, lower environmental remediation charges in 2017 due to a 2016 charge for a change in approach for environmental remediation related to two sites in the U.S. and the impact of acquisitions. These increases were partially offset by increased investment spending primarily for new product development and channel development and restructuring and acquisition costs.

Operating margin increased primarily due to pricing improvements and productivity in excess of inflation, favorable volume/product mix, favorable foreign currency exchange rate movements and lower environmental remediation charges in 2017 due to a charge in 2016 for a change in approach for environmental remediation related to two sites in the U.S. These increases were partially offset by increased investment spending primarily for new product development and channel development, restructuring and acquisition costs and the impact of acquisitions.

EMEIA

Our EMEIA segment provides security products and solutions in approximately 85 countries throughout Europe, the Middle East, India and Africa. The segment offers end-users a broad range of products, services and solutions including, locks, locksets, portable locks, key systems, door closers, exit devices, doors and door systems, electronic products and access control systems, as well as time and attendance and workforce productivity solutions. This segment’s primary brands are AXA, Bricard, Briton, CISA, Interflex and SimonsVoss. This segment also resells LCN, Schlage and Von Duprin products, primarily in the Middle East.

2018 vs 2017

Net revenues

Net revenues for the year ended December 31, 2018 increased by 12.7%, or $66.4 million, compared to the same period in 2017 due to the following:

Pricing	1.5 %
Volume	2.2 %
Acquisitions	5.1 %
Currency exchange rates	3.9 %
Total	12.7%

The increase in Net revenues is due to higher volumes, improved pricing, favorable foreign currency exchange rate movements and the impact of acquisitions in the current year.

Operating income/margin

Segment operating income for the year ended December 31, 2018 increased $5.2 million compared to the same period in 2017, while Segment operating margin remained consistent at 8.4% in 2018, the same as in 2017, due to the following:

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In millions	Operating Income	Operating Margin
December 31, 2017	$ 44.1	8.4 %
Pricing and productivity in excess of inflation	0.2	(0.1)%
Volume / product mix	5.3	0.8 %
Currency exchange rates	3.0	0.3 %
Investment spending	(4.1)	(0.8)%
Acquisitions	(2.6)	(0.9)%
Restructuring / acquisition costs	3.4	0.7 %
December 31, 2018	$ 49.3	8.4 %

Operating income increased due to favorable volume/product mix, pricing improvements and productivity in excess of inflation, favorable foreign currency exchange rate movements and year-over-year decreases in restructuring and acquisition costs. These increases were partially offset by increased investment spending and the impact of acquisitions in the current year.

Operating margin was unchanged year-over-year at 8.4%. Improvements due to favorable volume/product mix, foreign currency exchange rate movements and year-over-year changes in restructuring and acquisition costs were offset by lower pricing improvements and productivity in excess of inflation, increased investment spending and lower margins from acquisitions during the current year.

2017 vs 2016

Net revenue

Net revenues for the year ended December 31, 2017 increased by 7.7%, or $37.6 million, compared to the same period in 2016 due to following:

Pricing	1.6%
Volume	3.1%
Acquisitions / divestitures	1.6%
Currency exchange rates	1.4%
Total	7.7%

The increase in Net revenues was due to higher volumes, improved pricing, the impact of an acquisition made in the prior year and favorable foreign currency exchange rate movements.

Operating income/margin

Segment operating income for the year ended December 31, 2017 increased $8.8 million and Segment operating margin increased to 8.4% from 7.3% compared to the same period in 2016 due to the following:

In millions	Operating Income	Operating Margin
December 31, 2016	$ 35.3	7.3 %
Pricing and productivity in excess of inflation	4.6	0.8 %
Volume / product mix	5.2	0.8 %
Currency exchange rates	1.3	0.1 %
Investment spending	(2.4)	(0.5)%
Acquisitions	(0.9)	(0.3)%
Restructuring / acquisition costs	1.0	0.2 %
December 31, 2017	$ 44.1	8.4 %

The increases were primarily due to favorable volume/product mix, pricing improvements and productivity in excess of inflation, favorable foreign currency exchange rate movements and year-over-year change in restructuring and acquisition costs. These increases were partially offset by increased investment spending and the impact from an acquisition in 2016.

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Asia Pacific

Our Asia Pacific segment provides security products, services and solutions in approximately 15 countries throughout the Asia Pacific region. The segment offers end-users a broad range of products, services and solutions including, locks, locksets, portable locks, key systems, door closers, exit devices, electronic products and access control systems. This segment's primary brands are Brio, Briton, FSH, Gainsborough, Legge, Milre and Schlage.

2018 vs 2017

Net revenues

Net revenues for the year ended December 31, 2018 increased by 30.7%, or $36.0 million, compared to the same period in 2017, due to the following:

Pricing	(0.1)%
Volume	3.2 %
Acquisitions	28.6 %
Currency exchange rates	(1.0)%
Total	30.7 %

The increase in Net revenues was primarily due to an acquisition during the current year and higher volumes. These increases were partially offset by unfavorable foreign currency exchange rate movements and slightly lower pricing.

Operating income/margin

Segment operating income for the year ended December 31, 2018 decreased $2.6 million and Segment operating margin decreased to 4.5% from 8.1% compared to the same period in 2017 due to the following:

In millions	Operating Income	Operating Margin
December 31, 2017	$ 9.5	8.1 %
Pricing and productivity in excess of inflation	1.3	1.1 %
Volume / product mix	(2.1)	(2.0)%
Currency exchange rates	(0.6)	(0.4)%
Investment spending	(1.0)	(0.8)%
Acquisitions	2.1	(0.4)%
Restructuring / acquisition costs	(2.3)	(1.1)%
December 31, 2018	$ 6.9	4.5 %

Operating income decreased due to unfavorable volume/product mix, unfavorable foreign currency exchange rate movements, increased investment spending and year-over-year increases in restructuring and acquisition costs. These decreases were partially offset by pricing and productivity improvements in excess of inflation and an acquisition during the current year.

Operating margin decreased due to unfavorable volume/product mix, unfavorable foreign currency exchange rate movements, increased investment spending, lower margins from an acquisition during the current year and year-over-year increases in restructuring and acquisition expenses. These decreases were partially offset by pricing and productivity improvements in excess of inflation.

2017 vs 2016

Net revenues

Net revenues for the year ended December 31, 2017 increased by 10.2%, or $10.8 million, compared with the same period in 2016, due to the following:

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Pricing	0.4 %
Volume	7.3 %
Acquisitions	0.7 %
Currency exchange rates	1.8 %
Total	10.2%

The increase in Net revenues was due to higher volumes, improved pricing, the impact of an acquisition in 2016 and favorable foreign currency exchange rate movements.

Operating income/margin

Segment operating income for the year ended December 31, 2017 increased $3.4 million and Segment operating margin increased to 8.1% from 5.7% compared with the same period in 2016 due to the following:

In millions	Operating Income	Operating Margin
December 31, 2016	$ 6.1	5.7 %
Pricing and productivity in excess of inflation	1.5	1.3 %
Volume / product mix	2.0	1.3 %
Currency exchange rates	0.4	0.3 %
Investment spending	(0.4)	(0.4)%
Acquisitions	(0.1)	(0.1)%
December 31, 2017	$ 9.5	8.1 %

The increases were primarily related to pricing improvements and productivity in excess of inflation, improved volume/product mix and favorable foreign currency exchange rate movements. These increases were partially offset by increased investment spending and the impact of an acquisition in 2016.

Liquidity and Capital Resources

Sources and uses of liquidity

Our primary source of liquidity is cash provided by operating activities. Cash provided by operating activities is used to invest in new product development, fund capital expenditures and fund working capital requirements and is expected to be adequate to service any future debt, pay any declared dividends and potentially fund acquisitions and share repurchases. Our ability to fund these capital needs depends on our ongoing ability to generate cash from our operating activities and to access our borrowing facilities (including unused availability under our Revolving Facility) and capital markets. We believe that our future cash provided by operating activities, availability under our Revolving Facility and access to funds on hand and capital markets will provide adequate resources to fund our operating and financing needs.

The following table reflects the major categories of cash flows for the years ended December 31. For additional details, please see the Consolidated Statements of Cash Flows in the Consolidated Financial Statements.

In millions	2018	2017	2016
Net cash provided by operating activities	$457.8	$347.2	$377.5
Net cash used in investing activities	(443.8)	(50.2)	(64.0)
Net cash used in financing activities	$(183.4)	$(150.9)	$(196.0)

Operating activities

Net cash provided by operating activities for the year ended December 31, 2018 increased $110.6 million compared to 2017. This increase in Net cash provided by operating activities for 2018 was primarily due to higher Net earnings in the current year and a discretionary $50.0 million contribution to the U.S. qualified defined benefit pension plan in 2017, partially offset by changes in working capital and an increase in cash paid for taxes.

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Net cash provided by operating activities for the year ended December 31, 2017 decreased $30.3 million compared to 2016, reflecting the $50.0 million discretionary contribution to the U.S. qualified defined benefit pension plan discussed above, as well as increased cash paid for taxes, partially offset by higher Net earnings in 2017 compared to 2016.

Investing activities

Net cash used in investing activities for the year ended December 31, 2018 increased $393.6 million compared to 2017. The increase in Net cash used in investing activities is primarily due to approximately $368 million of cash payments related to acquisitions and approximately $8 million of investments in unconsolidated entities during the year ended December 31, 2018, compared to $20.8 million for an acquisition in 2017. Additionally contributing to the increase in Net cash used in investing activities was the purchase of $14.3 million of investments during the year ended December 31, 2018 and the sale of an equity investment during 2017, which resulted in an investing cash inflow of $15.6 million that did not recur in 2018.

Net cash used in investing activities for the year ended December 31, 2017 decreased $13.8 million compared to 2016. The decrease in Net cash used in investing activities is primarily due to $15.6 million in proceeds from the sale of an equity investment during 2017 that did not occur in 2016 and a $10.6 million decrease of cash payments related to acquisitions. These changes were partially offset by $14.1 million of cash received from the sale of marketable securities in 2016 that did not recur in 2017.

Financing activities

Net cash used in financing activities for the year ended December 31, 2018 increased $32.5 million compared to the year ended December 31, 2017. The increase in Net cash used in financing activities is primarily due to an increase in dividend payments of $18.5 million year-over-year. Additionally, during the year ended December 31, 2018, we repurchased $67.3 million of common shares, compared to $60.0 million during 2017.

Net cash used in financing activities for the year ended December 31, 2017 decreased $45.1 million compared to 2016. The decrease in Net cash used in financing activities is due to net proceeds from debt issuances over debt repayments of $10.1 million in 2017 versus net debt repayments of $64.4 million during 2016. Debt financing activity in 2017 included the redemption of the 2021 and 2023 Senior Notes for a total of $600.0 million and the settlement of the previously outstanding Term Loan A Facility of $856.3 million, offset by the issuance of the 3.200% and 3.550% Senior Notes in an aggregate amount of $800.0 million and a new term loan facility maturing on September 12, 2022 (the "Term Facility") in the amount of $700.0 million. Additionally, during the year ended December 31, 2017, we repurchased $60.0 million of common shares, compared to $85.1 million during 2016. We also made dividend payments to ordinary shareholders of $60.9 million in 2017, compared to $46.0 million in 2016.

Capitalization

Long-term debt at December 31 consisted of the following:

In millions	2018	2017
Term Facility	$656.3	$691.3
Revolving Facility	—	—
3.200% Senior Notes due 2024	400.0	400.0
3.550% Senior Notes due 2027	400.0	400.0
Other debt	1.2	1.0
Total borrowings outstanding	1,457.5	1,492.3
Less discounts and debt issuance costs, net	(12.7)	(15.0)

Total debt	1,444.8	1,477.3
Less current portion of long-term debt	35.3	35.0
Total long-term debt	$1,409.5	$1,442.3

As of December 31, 2018, we have an unsecured Credit Agreement in place that provides for up to $1,200.0 million in unsecured financing, consisting of a $700.0 million term loan facility (the “Term Facility”) and a $500.0 million revolving credit facility (the “Revolving Facility” and, together with the Term Facility, the “Credit Facilities”). The Credit Facilities mature on September 12, 2022. The Term Facility amortizes in quarterly installments at the following rates: 1.25% per quarter starting December 31, 2017 through December 31, 2020, 2.5% per quarter from March 31, 2021 through June 30, 2022, with the balance due on September 12, 2022. The Revolving Facility provides aggregate commitments of up to $500.0 million, which includes up to $100.0 million

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for the issuance of letters of credit. At December 31, 2018, there were no borrowings outstanding on the Revolving Facility, and we had $17.1 million of letters of credit outstanding.

Outstanding borrowings under the Credit Facilities accrue interest at our option of (i) a LIBOR rate plus the applicable margin or (ii) a base rate plus the applicable margin. The applicable margin ranges from 1.125% to 1.500% depending on our credit ratings. To manage our exposure to fluctuations in LIBOR rates, we have interest rate swaps to fix the interest rate for $250.0 million of the outstanding borrowings (see Note 10 to the Consolidated Financial Statements).

As of December 31, 2018, we also have $400.0 million outstanding of 3.200% Senior Notes due 2024 (the "3.200% Senior Notes") and $400.0 million outstanding of 3.550% Senior Notes due 2027 (the "3.550% Senior Notes" and, together with the 3.200% Senior Notes, the "Notes"). The Notes require semi-annual interest payments on April 1 and October 1 of each year and will mature on October 1, 2024 and October 1, 2027, respectively.

Historically, the majority of our earnings were considered to be permanently reinvested in jurisdictions where we have made, and intend to continue to make, substantial investments to support the ongoing development and growth of our global operations. As a result of the Tax Reform Act transition tax, we analyzed our global working capital requirements and the potential tax liabilities that would be incurred if certain non-U.S. subsidiaries made distributions, which include local country withholding tax and potential U.S. state taxation. Based on this analysis, we made no changes to our permanent reinvestment assertions to reinvest earnings in our non-U.S. subsidiaries outside of the U.S.

Pension Plans

Our investment objective in managing defined benefit plan assets is to ensure that all present and future benefit obligations are met as they come due. We seek to achieve this goal while trying to mitigate volatility in plan funded status, contributions and expense by better matching the characteristics of the plan assets to that of the plan liabilities. Global asset allocation decisions are based on a dynamic approach whereby a plan's allocation to fixed income assets increases as the funded status increases. We monitor plan funded status and asset allocation regularly in addition to investment manager performance.

We monitor the impact of market conditions on our defined benefit plans on a regular basis. In January 2017, we made a discretionary $50.0 million contribution to the U.S. qualified defined benefit pension plan. At December 31, 2018, the funded status of our qualified pension plan for U.S. employees decreased to 93.1% from 93.3% at December 31, 2017. The funded status for our non-U.S. pension plans decreased to 98.7% at December 31, 2018 from 100.5% at December 31, 2017. Funded status for all of our pension plans at December 31, 2018 decreased to 94.1% from 95.5% at December 31, 2017. For further details on pension plan activity, see Note 11 to the Consolidated Financial Statements.

Contractual Obligations

The following table summarizes our contractual cash obligations by required payment periods:

In millions	2019	2020-2021	2022-2023	Thereafter	Total
Long-term debt (including current maturities)	$35.3	$ 105.0	$ 516.3	$ 800.9	$1,457.5
Interest payments on long-term debt	49.9	99.6	69.5	62.9	281.9
Purchase obligations	402.7	—	—	—	402.7
Operating leases	30.3	35.5	14.8	17.4	98.0
Total contractual cash obligations	$518.2	$ 240.1	$ 600.6	$ 881.2	$2,240.1

Future interest payments on variable rate long-term debt are estimated based on the rate in effect as of December 31, 2018. Future expected obligations under our pension and postretirement benefit plans, income taxes, environmental and product liability matters have not been included in the contractual cash obligations table above.

Pensions

At December 31, 2018, we had net pension liabilities of $38.5 million, which consist of plan assets of $611.6 million and benefit obligations of $650.1 million. It is our objective to contribute to the pension plans to ensure adequate funds are available in the plans to make benefit payments to plan participants and beneficiaries when required. The funded status for all of our pension plans decreased to 94.1% at December 31, 2018 from 95.5% at December 31, 2017. We currently project that an additional approximately $11.6 million will be contributed to our plans worldwide in 2019. Because the timing and amounts of long-term funding requirements for pension obligations are uncertain, they have been excluded from the preceding table. See Note 11 to the Consolidated Financial Statements for additional information.

Postretirement Benefits Other than Pensions

At December 31, 2018, we had postretirement benefit obligations of $7.6 million. We fund postretirement benefit costs principally on a pay-as-you-go basis as medical costs are incurred by covered retiree populations. Benefit payments, which are net of expected plan participant contributions and Medicare Part D subsidies, are not expected to be material in 2019. Because the timing and amounts of long-term funding requirements for postretirement obligations are uncertain, they have been excluded from the preceding table.

Income Taxes

At December 31, 2018, we have total unrecognized tax benefits for uncertain tax positions of $42.0 million and $5.7 million of related accrued interest and penalties, net of tax. These liabilities have been excluded from the preceding table as we are unable to reasonably estimate the amount and period in which these liabilities might be paid. See Note 17 to the Consolidated Financial Statements for additional information regarding matters relating to income taxes, including unrecognized tax benefits and tax authority disputes.

Contingent Liabilities

We are involved in various litigation, claims and administrative proceedings, including those related to environmental, asbestos-related and product liability matters. We believe that these liabilities are subject to the uncertainties inherent in estimating future costs for contingent liabilities and will likely be resolved over an extended period of time. Because the timing and amounts of potential future cash flows are uncertain, they have been excluded from the preceding table. See Note 20 to the Consolidated Financial Statements for additional information.

Critical Accounting Policies

Management's Discussion and Analysis of Financial Condition and Results of Operations are based upon our Consolidated Financial Statements, which have been prepared in accordance with GAAP. The preparation of financial statements in conformity with those accounting principles requires management to use judgment in making estimates and assumptions based on the relevant information available at the end of each period. These estimates and assumptions have a significant effect on reported amounts of assets and liabilities, revenues and expenses as well as the disclosure of contingent assets and liabilities because they result primarily from the need to make estimates and assumptions on matters that are inherently uncertain. Actual results may differ from estimates. If updated information or actual amounts are different from previous estimates, the revisions are included in our results for the period in which they become known.

The following is a summary of certain accounting estimates and assumptions made by management that we consider critical:

- Goodwill and indefinite-lived intangible assets – We have significant goodwill and indefinite-lived intangible assets on our Consolidated Balance Sheets related to previous business combinations. Our goodwill and other indefinite-lived intangible assets are tested annually during the fourth quarter for impairment or when there is a significant change in events or circumstances that indicate that the fair value of an asset is more likely than not less than the carrying amount of the asset.

Recoverability of goodwill is measured at the reporting unit level and starts with a comparison of the carrying amount of the reporting unit to its estimated fair value. If the estimated fair value of a reporting unit exceeds its carrying amount, goodwill of the reporting unit is not impaired. To the extent that the carrying value of the reporting unit exceeds its estimated fair value, a goodwill impairment charge will be recognized for the amount by which the carrying value of the reporting unit exceeds its fair value, not to exceed the carrying amount of goodwill.

As quoted market prices are not available for our reporting units, the calculation of their estimated fair values is based on two valuation techniques, a discounted cash flow model (income approach) and a market adjusted multiple of earnings and revenues (market approach), with each method being weighted in the calculation. The income approach relies on the Company’s estimates of future cash flows and explicitly addresses factors such as timing, growth and margins, with due consideration given to forecasting risk. The market approach reflects the market’s expectations for future growth and risk, with adjustments to account for differences between the guideline publicly-traded companies and the subject reporting units.

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The estimated fair values for each of our reporting units exceeded their carrying values by more than 15% for the 2018 goodwill impairment test. Additionally, a 1% increase in the discount rate used or a 1% decrease in the terminal growth rate would not result in the carrying value of any reporting unit exceeding its estimated fair value.

Assessing the fair value of our reporting units includes, among other things, making key assumptions for estimating future cash flows and appropriate market multiples. These assumptions are subject to a high degree of judgment and complexity. We make every effort to estimate future cash flows as accurately as possible with the information available at the time the forecast is developed. However, changes in assumptions and estimates may affect the estimated fair value of the reporting unit and could result in impairment charges in future periods. Factors that have the potential to create variances in the estimated fair value of the reporting unit include, but are not limited to, the following:

- Decreases in estimated market sizes or market growth rates due to greater-than-expected declines in volumes, pricing pressures or disruptive technology;
- Declines in our market share and penetration assumptions due to increased competition or an inability to develop or launch new products;
- The impacts of the market volatility, including greater-than-expected declines in pricing, reductions in volumes or fluctuations in foreign exchange rates;
- The level of success of on-going and future research and development efforts, including those related to recent acquisitions, and increases in the research and development costs necessary to obtain regulatory approvals and launch new products;
- Increase in the price or decrease in the availability of key commodities and the impact of higher energy prices; and
- Increases in our market-participant risk-adjusted weighted-average cost of capital.

Other Indefinite-lived intangible assets - We performed our annual indefinite-lived intangible asset impairment testing in 2018 and determined our indefinite-lived intangible assets were not impaired. Recoverability of intangible assets with indefinite useful lives is determined on a relief from royalty methodology, which is based on the implied royalty paid, at an appropriate discount rate, to license the use of an asset rather than owning the asset. The present value of the after-tax cost savings (i.e. royalty relief) indicates the estimated fair value of the asset. Any excess of the carrying value over the estimated fair value is recognized as an impairment loss equal to that excess.

A significant increase in the discount rate, decrease in the long-term growth rate, decrease in the royalty rate or substantial reductions in our end-markets and volume assumptions could have a negative impact on the estimated fair values of any of our indefinite-lived intangible assets. The estimates of fair value are based on the best information available as of the date of the assessment, which primarily incorporates management assumptions about expected future cash flows.

- Long-lived assets and finite-lived intangible assets – Long-lived assets and finite-lived intangible assets are reviewed for impairment whenever events or changes in business circumstances indicate that the carrying amount of an asset may not be fully recoverable. Assets are grouped with other assets and liabilities at the lowest level for which identifiable cash flows can be generated. Impairment in the carrying value of an asset could be recognized whenever anticipated future undiscounted cash flows from an asset are less than its carrying value. The impairment is measured as the amount by which the carrying value exceeds the fair value of the asset as determined by an estimate of discounted cash flows. The estimates of fair value are based on the best information available as of the date of the assessment, and changes in business conditions could potentially require future adjustments to these valuations.
- Loss contingencies – Liabilities are recorded for various contingencies arising in the normal course of business, including litigation and administrative proceedings, environmental and asbestos matters and product liability, product warranty, worker's compensation and other claims. We have recorded reserves in the Consolidated Financial Statements related to these matters, which are developed using input derived from actuarial estimates and historical and anticipated experience data depending on the nature of the reserve, and in certain instances with consultation of legal counsel, internal and external consultants and engineers. Subject to the uncertainties inherent in estimating future costs for these types of liabilities, we believe our estimated reserves are reasonable and do not believe the final determination of the liabilities with respect to these matters would have a material effect on our financial condition, results of operations, liquidity or cash flows for any year.

- Revenue recognition – Net revenues are recognized based on the satisfaction of performance obligations under the terms of a contract. A performance obligation is a promise in a contract to transfer control of a distinct product or to provide a

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service, or a bundle of products or services, to a customer, and is the unit of account under ASC 606. We have two principal revenue streams, tangible product sales and services. Approximately 99% of consolidated Net revenues involve contracts with a single performance obligation, the transfer of control of a product or bundle of products to a customer. Transfer of control typically occurs when goods are shipped from our facilities or at other predetermined control transfer points (for instance, destination terms). Net revenues are measured as the amount of consideration we expect to receive in exchange for transferring control of the products and takes into account variable consideration, such as sales incentive programs, including discounts and volume rebates. The existence of these programs does not preclude revenue recognition but does require our best estimate of the variable consideration to be made based on expected activity, as these items are reserved for as a deduction to Net revenues over time based on our historical rates of providing these incentives and annual forecasted sales volumes.

Our remaining Net revenues involve services, including installation and consulting. Unlike the single performance obligation to ship a product or bundle of products, the service revenue stream delays revenue recognition until the service performance obligations are satisfied. In some instances, customer acceptance provisions are included in sales arrangements to give the buyer the ability to ensure the service meets the criteria established in the order. In these instances, revenue recognition is deferred until the performance obligations are satisfied, which could include acceptance terms specified in the arrangement being fulfilled through customer acceptance or a demonstration that established criteria have been satisfied.

We do not adjust the transaction price for the effects of a significant financing component, as the time period between control transfer of goods and services is less than one year. Sales, value-added and other similar taxes collected by us are excluded from Net revenues. We also have elected to account for shipping and handling activities that occur after control of the related goods transfers as fulfillment activities instead of performance obligations. Our payment terms are generally consistent with the industries in which our businesses operate.

Sales returns and customer disputes involving a question of quantity or price are accounted for as variable consideration, and therefore, as a reduction in revenue and a contra receivable. At December 31, 2018 and 2017, we had a customer claim accrual (contra receivable) of $31.6 million and $32.5 million, respectively. All other incentives or incentive programs where the customer is required to reach a certain level of purchases, remain a customer for a certain period, provide a rebate form or is subject to additional requirements are also considered variable consideration and are accounted for as a reduction of revenue and a liability. At December 31, 2018 and 2017, we had a sales incentive accrual of $33.9 million and $31.8 million, respectively. Variable consideration is estimated based on the most likely amount we expect to receive from customers. Each of these accruals represents the Company's best estimate of the most likely amount expected to be received from customers based on historical experience. These estimates are reviewed regularly for accuracy. If updated information or actual amounts are different from previous estimates, the revisions are included in the Company's results for the period in which they become known. Historically, the aggregate differences, if any, between the Company's estimates and actual amounts in any year have not had a material impact on the Consolidated Financial Statements. We also offer a standard warranty with most product sales, and the value of such warranty is included in the contractual price. The corresponding cost of the warranty obligation is accrued as a liability (see Note 20).

- Income taxes – We account for income taxes in accordance with ASC Topic 740. Deferred tax assets and liabilities are determined based on temporary differences between financial reporting and tax bases of assets and liabilities, applying enacted tax rates expected to be in effect for the year in which the differences are expected to reverse. We recognize future tax benefits, such as net operating losses and non-U.S. tax credits, to the extent that realizing these benefits is considered in our judgment to be more likely than not. We regularly review the recoverability of our deferred tax assets considering our historic profitability, projected future taxable income, timing of the reversals of existing temporary differences and the feasibility of our tax planning strategies. Where appropriate, we record a valuation allowance with respect to future tax benefits.

The provision for income taxes involves a significant amount of management judgment regarding interpretation of relevant facts and laws in the jurisdictions in which we operate. Future changes in applicable laws, projected levels of taxable income and tax planning could change the effective tax rate and tax balances recorded by us. In addition, tax authorities periodically review income tax returns filed by us and can raise issues regarding our filing positions,

timing and amount of income or deductions and the allocation of income among the jurisdictions in which we operate. A significant period of time may elapse between the filing of an income tax return and the ultimate resolution of an issue raised by a revenue authority with respect to that return. We believe that we have adequately provided for any reasonably foreseeable resolution of these matters. We will adjust our estimates if significant events so dictate. To the extent that the ultimate results differ from our original or adjusted estimates, the effect will be recorded in the provision for income taxes in the period that the matter is finally resolved.
The Tax Reform Act constituted a major change to the U.S. tax system. The estimated impact of the Tax Reform Act is based on current interpretations and related assumptions. As discussed further in Note 17 to the Consolidated Financial

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Statements, where applicable, we included estimates in our Consolidated Financial Statements for impacts of the new Tax Reform Act. The actual impact to us may be materially different from current estimates based on future regulatory developments.

- Employee benefit plans – We provide a range of benefits to eligible employees and retirees, including pensions, postretirement and postemployment benefits. Determining the cost associated with such benefits is dependent on various actuarial assumptions including discount rates, expected return on plan assets, compensation increases, employee mortality, turnover rates and healthcare cost trend rates. Actuarial valuations are performed to determine expense in accordance with GAAP. Actual results may differ from the actuarial assumptions and are generally accumulated into Accumulated other comprehensive loss and amortized into earnings over future periods.

We review our actuarial assumptions at each measurement date and make modifications to the assumptions based on current rates and trends, if appropriate. The discount rate, the rate of compensation increase and the expected long-term rates of return on plan assets are determined as of each measurement date. Discount rates for all plans are established using hypothetical yield curves based on the yields of corporate bonds rated AA quality. Spot rates are developed from the yield curve and used to discount future benefit payments. The rate of compensation increase is dependent on expected future compensation levels. The expected long-term rate of return on plan assets reflects the average rate of returns expected on the funds invested or to be invested to provide for the benefits included in the projected benefit obligation. The expected long-term rate of return on plan assets is based on what is achievable given the plan's investment policy, the types of assets held and the target asset allocation. The expected long-term rate of return is determined as of each measurement date.

We believe the assumptions utilized in recording our obligations under our plans are reasonable based on input from our actuaries, outside investment advisors and information as to assumptions used by plan sponsors.

Changes in any of the assumptions can have an impact on the net periodic pension and postretirement benefit cost. Estimated sensitivities to the expected 2018 net periodic pension benefit cost of a 0.25% rate decline in the two basic assumptions are as follows: the decline in the discount rate would increase expense by approximately $0.8 million and the decline in the estimated return on assets would increase expense by approximately $0.6 million.

- Business combinations – The fair value of the consideration paid in a business combination is allocated to tangible assets and identifiable intangible assets, liabilities assumed and goodwill. Acquired intangible assets primarily include indefinite-lived trade names, customer relationships and completed technologies. The accounting for acquisitions involves a considerable amount of judgment and estimation, including the fair value of acquired intangible assets involving projections of future revenues and cash flows that are either discounted at an estimated discount rate or measured at an estimated royalty rate; fair value of other acquired assets and assumed liabilities, including potential contingencies; and the useful lives of the acquired assets. The assumptions used to determine the fair value of acquired intangible assets include projections developed using internal forecasts, available industry and market data, estimates of long-term growth rates, profitability, customer attrition and royalty rates, which are determined at the time of the business combination. The Company uses an income approach or market approach (or both) in accordance with accepted valuation models for each acquired intangible asset to determine the fair value. The impact of prior or future business combinations on our financial condition or results of operations may be materially impacted by the change in or initial selection of assumptions and estimates.

Recent Accounting Pronouncements

See Note 2 to our Consolidated Financial Statements included in Item 8 herein for a discussion of recently issued and adopted accounting pronouncements.

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Item 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURE ABOUT MARKET RISK

We are exposed to fluctuations in currency exchange rates, interest rates and commodity prices which could impact our results of operations and financial condition.

Foreign Currency Exposures

We have operations throughout the world that manufacture and sell products in various international markets. As a result, we are exposed to movements in exchange rates of various currencies against the U.S. dollar as well as against other currencies throughout the world. We actively manage material currency exposures that are associated with purchases and sales and other assets and liabilities at the legal entity level; however, we do not hedge currency translation risk. We attempt to hedge exposures that cannot be naturally offset to an insignificant amount with foreign currency derivatives. Derivative instruments utilized by us in our hedging activities are viewed as risk management tools, involve little complexity and are not used for trading or speculative purposes. To minimize the risk of counter party non-performance, derivative instrument agreements are made only through major financial institutions with significant experience in such derivative instruments.

We evaluate our exposure to changes in currency exchange rates on our foreign currency derivatives using a sensitivity analysis. The sensitivity analysis is a measurement of the potential loss in fair value based on a percentage change in exchange rates. Based on the firmly committed currency derivative instruments in place at December 31, 2018, a hypothetical change in fair value of those derivative instruments assuming a 10% adverse change in exchange rates would result in an additional unrealized loss of approximately $6.8 million. This amount, when realized, would be partially offset by changes in the fair value of the underlying transactions.

Commodity Price Exposures

We are exposed to volatility in the prices of commodities used in some of our products and we use fixed price contracts to manage this exposure. We do not have committed commodity derivative instruments in place at December 31, 2018.

Interest Rate Exposure

Outstanding borrowings under the Credit Facilities accrue interest at the option of the Company of (i) a LIBOR rate plus the applicable margin or (ii) a base rate plus the applicable margin. The applicable margin ranges from 1.125% to 1.500% depending on the Company's credit ratings. At December 31, 2018, the outstanding borrowings under the Term Facility accrue interest at LIBOR plus a margin of 1.250%. To manage the Company's exposure to fluctuations in LIBOR rates, the Company has interest rate swaps to fix the interest rate for $250.0 million of the outstanding borrowings.

These swaps expire in September 2020. A 100 basis-point increase in LIBOR would have resulted in incremental 2018 interest expense of approximately $4.3 million. If the base interest rate in our credit facilities increases in the future, our floating-rate debt could have a material effect on our interest expense.

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Item 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

(a) The following Consolidated Financial Statements and Financial Statement Schedule and the report thereon of PricewaterhouseCoopers LLP dated February 19, 2019, are presented following Item 16 of this Annual Report on Form 10-K.

Consolidated Financial Statements:
Report of independent registered public accounting firm
Consolidated Statements of Comprehensive Income for the years ended December 31, 2018, 2017 and 2016
Consolidated Balance Sheets at December 31, 2018 and 2017
For the years ended December 31, 2018, 2017 and 2016:
Consolidated Statements of Equity
Consolidated Statements of Cash Flows
Notes to Consolidated Financial Statements
Financial Statement Schedule:
Schedule II – Valuation and Qualifying Accounts for the years ended December 31, 2018, 2017 and 2016

(b) The unaudited selected quarterly financial data for the two years ended December 31, is as follows:

In millions, except per share amounts	2018			
	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Net revenues	$613.1	$704.7	$711.5	$702.4
Cost of goods sold	355.3	399.1	402.1	401.9
Operating income	98.7	143.4	142.3	141.4
Net earnings	72.4	114.0	116.1	132.9
Net earnings attributable to Allegion plc	72.2	113.9	116.0	132.8
Earnings per share attributable to Allegion plc ordinary shareholders:				
Basic	$0.76	$1.20	$1.22	$1.40
Diluted	$0.75	$1.19	$1.21	$1.39

	2017			
	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Net revenues	$548.8	$627.0	$609.4	$623.0
Cost of goods sold	307.6	345.7	335.0	347.0
Operating income	99.5	135.0	127.1	130.9
Net earnings	68.7	105.8	90.1	12.1
Net earnings attributable to Allegion plc	68.4	105.5	89.8	9.6
Earnings per share attributable to Allegion plc ordinary shareholders:				
Basic	$0.72	$1.11	$0.95	$0.10
Diluted	$0.71	$1.10	$0.94	$0.10

Net earnings from the fourth quarter of 2018 includes a net tax benefit of $18.6 million related to an adjustment to the provisional accounting related to the U.S. Tax Reform Act.

Net earnings from the fourth quarter of 2017 includes a $41.3 million charge related to the refinancing of our senior notes and a net tax charge of $53.5 million related to the U.S. Tax Reform Act.

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Item 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

Item 9A. CONTROLS AND PROCEDURES

(a) Evaluation of Disclosure Controls and Procedures

The Company's management, including its Chief Executive Officer and Chief Financial Officer, have conducted an evaluation of the effectiveness of the Company's disclosure controls and procedures (as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the Exchange Act)), as of the end of the period covered by this Annual Report on Form 10-K. Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded as of December 31, 2018, that the Company's disclosure controls and procedures were effective in ensuring that information required to be disclosed by the Company in reports that it files or submits under the Exchange Act has been recorded, processed, summarized and reported, within the time periods specified in the Commission's rules and forms, and that such information has been accumulated and communicated to the Company's management including its Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

(b) Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as defined under Exchange Act Rules 13a-15(f) and 15d-15(f). Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. Internal control over financial reporting includes those policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the Company’s assets;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that the Company’s receipts and expenditures are being made only in accordance with authorizations of the Company’s management and directors; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the Company’s assets that could have a material effect on the financial statements.

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

Management assessed the effectiveness of our internal control over financial reporting as of December 31, 2018. In making this assessment, management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control-Integrated Framework (2013). We concluded that our internal control over financial reporting was effective as of December 31, 2018.

As discussed in Item 7, we have completed six business acquisitions during 2018. Because they were acquired by us in 2018, we have excluded these businesses, AD Systems, Door and Access Systems, Hammond, Isonas, QMI and TGP, from our assessment of internal control over financial reporting as of December 31, 2018. These entities are wholly-owned subsidiaries whose total assets and total revenues represent approximately 3% and 6%, respectively, of the related consolidated financial statement amounts as of and for the year ended December 31, 2018. We are currently integrating these entities into our compliance programs and internal control processes.

The effectiveness of our internal control over financial reporting has been audited by PricewaterhouseCoopers LLP, the independent registered public accounting firm, as stated in their report herein.

(c) Changes in Internal Control Over Financial Reporting

There were no changes in the Company's internal control over financial reporting that occurred during the quarter ended December 31, 2018 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

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Item 9B. OTHER INFORMATION

None.

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PART III

Item 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information regarding our executive officers is included in Part I under the caption "Executive Officers of Registrant."

The other information required by this item is incorporated herein by reference to the information contained under the headings "Item 1. Election of Directors", "Section 16(a) Beneficial Ownership Reporting Compliance" and "Corporate Governance" in our Proxy Statement.

Item 11. EXECUTIVE COMPENSATION

The other information required by this item is incorporated herein by reference to the information contained under the headings "Compensation Discussion and Analysis", "Executive Compensation" and "Compensation Committee Report" in our Proxy Statement.

Item 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The other information required by this item is incorporated herein by reference to the information contained under the headings "Security Ownership of Certain Beneficial Owners and Management" and "Equity Compensation Plan Information" of our Proxy Statement.

Item 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The other information required by this item is incorporated herein by reference to the information contained under the headings "Corporate Governance" and "Certain Relationships and Related Person Transactions" of our Proxy Statement.

Item 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this item is incorporated herein by reference to the information contained under the caption "Fees of the Independent Auditors" in our Proxy Statement.

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PART IV
Item 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a) 1. and 2. Financial statements and financial statement schedule
See Item 8.

3. Exhibits
The exhibits listed on the accompanying index to exhibits are filed as part of this Annual Report on Form 10-K.

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ALLEGION PLC
INDEX TO EXHIBITS
(Item 15(a))
Description

Pursuant to the rules and regulations of the SEC, we have filed certain agreements as exhibits to this Annual Report on Form 10-K. These agreements may contain representations and warranties by the parties. These representations and warranties have been made solely for the benefit of the other party or parties to such agreements and (i) may have been qualified by disclosures made to such other party or parties, (ii) were made only as of the date of such agreements or such other date(s) as may be specified in such agreements and are subject to more recent developments, which may not be fully reflected in our public disclosure, (iii) may reflect the allocation of risk among the parties to such agreements and (iv) may apply materiality standards different from what may be viewed as material to investors. Accordingly, these representations and warranties may not describe our actual state of affairs at the date hereof and should not be relied upon.

(a) Exhibits

Exhibit Number	Exhibit Description	Method of Filing
2.1	Separation and Distribution Agreement between Ingersoll-Rand plc and Allegion plc, dated November 29, 2013.	Incorporated by reference to Exhibit 2.1 to the Company’s Form 8-K filed with the SEC on December 2, 2013 (File No. 001-35971).
3.1	Amended and Restated Memorandum and Articles of Association of Allegion plc.	Incorporated by reference to Exhibit 3.1 to the Company’s Form 8-K filed with the SEC on June 13, 2016 (File No. 001-35971).
4.1	Indenture, dated as of October 2, 2017, among Allegion US Holding Company Inc., Allegion plc and Wells Fargo Bank, National Association.	Incorporated by reference to Exhibit 4.1 of Allegion plc's Current Report on Form 8-K filed October 2, 2017.
4.2	First Supplemental Indenture, dated as of October 2, 2017, among Allegion US Holding Company Inc., Allegion plc and Wells Fargo Bank, National Association.	Incorporated by reference to Exhibit 4.2 of Allegion plc's Current Report on Form 8-K filed October 2, 2017.