ARROW ELECTRONICS INC
Form 10-K
February 07, 2019

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

FORM 10-K

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

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

For the transition period from _____ to _____

Commission file number 1-4482

ARROW ELECTRONICS INC

(Exact name of registrant as specified in its charter)

New York	**11-1806155**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number)
9201 East Dry Creek Road, Centennial, Colorado	**80112**
(Address of principal executive offices)	(Zip Code)
(303) 824-4000	
(Registrant's telephone number, including area code)	

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common Stock, $1 par value	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 o

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Exchange Act. Yes o 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 o

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted 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 and post such files). Yes x No o

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 the 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. o

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or 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 o
Non-accelerated filer o	Smaller reporting company o
	Emerging growth company o

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. o

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

The aggregate market value of voting stock held by non-affiliates of the registrant as of the last business day of the registrant's most recently completed second fiscal quarter was $6,477,885,555.

There were 84,917,353 shares of Common Stock outstanding as of February 1, 2019.

DOCUMENTS INCORPORATED BY REFERENCE

The definitive proxy statement related to the registrant's Annual Meeting of Shareholders, to be held May 9, 2019 is incorporated by reference in Part III to the extent described therein.

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PART I
Item 1. Business.

Arrow Electronics, Inc. (the "company" or "Arrow") is a global provider of products, services, and solutions to industrial and commercial users of electronic components and enterprise computing solutions. The company has one of the world’s broadest portfolios of product offerings available from leading electronic components and enterprise computing solutions suppliers, coupled with a range of services, solutions, and tools that help industrial and commercial customers introduce innovative products, reduce their time to market, and enhance their overall competitiveness. Arrow was incorporated in New York in 1946 and serves over 200,000 customers.

Arrow's diverse worldwide customer base consists of original equipment manufacturers ("OEMs"), value-added resellers ("VARs"), Managed Service Providers ("MSPs"), contract manufacturers ("CMs"), and other commercial customers. These customers include manufacturers of industrial equipment (such as machine tools, factory automation, and robotic equipment) and consumer products serving industries ranging from telecommunications, automotive and transportation, aerospace and defense, medical, professional services, and alternative energy, among others.

The company has two business segments, the global components business and the global enterprise computing solutions ("ECS") business. The company distributes electronic components to OEMs and CMs through its global components business segment and provides enterprise computing solutions to VARs and MSPs through its global ECS business segment. For 2018, approximately 70% of the company's sales were from the global components business segment, and approximately 30% of the company's sales were from the global ECS business segment. The financial information about the company's business segments and geographic operations is found in Note 16 to the Consolidated Financial Statements.

The company maintains over 300 sales facilities and 49 distribution and value-added centers, serving over 80 countries. Both business segments have operations in each of the three largest electronics markets; the Americas; Europe, Middle East, and Africa ("EMEA"); and Asia Pacific regions. Through this network, Arrow guides innovation forward by helping its customers deliver new technologies, new materials, new ideas, and new electronics that impact the business community and consumers.

The company's financial objectives are to grow sales faster than the market, increase the markets served, grow profits faster than sales, and increase return on invested capital. To achieve its objectives, the company seeks to capture significant opportunities to grow across products, markets, and geographies. To supplement its organic growth strategy, the company continually evaluates strategic acquisitions to broaden its product and value-added service offerings, increase its market penetration, and expand its geographic reach.

Global Components

Global components markets and distributes electronic components and provides a comprehensive range of value-added capabilities throughout the entire life cycle of technology products and services. The company provides customers with the ability to deliver the latest technologies to the market through design engineering, global marketing and integration, global logistics, and supply chain management. The company offers the convenience of accessing, from a single source, multiple technologies and products from its suppliers with rapid or scheduled deliveries. Additionally, the company offers expertise in sustainable technology solutions to guide enterprise customers through the entire technology life cycle. Most of the company's customers require delivery of their orders on schedules or volumes that are generally not available on direct purchases from manufacturers.

Within the global components business segment, net sales of approximately 68% consist of semiconductor products and related services; approximately 19% consist of passive, electro-mechanical, and interconnect products, consisting primarily of capacitors, resistors, potentiometers, power supplies, relays, switches, and connectors; approximately 10% consist of computing and memory; and approximately 3% consist of other products and services.

Over the past three years, the global components business segment completed 6 strategic acquisitions to broaden its digital capabilities to meet the evolving needs of customers and suppliers. These acquisitions also expanded the global components business segment's portfolio of products and services offerings at every phase of technology deployment, including custom hardware and software, and new Internet of Things based business models.

Global ECS

The company's global ECS business segment is a leading value-added provider of comprehensive computing solutions and services. Global ECS' portfolio of computing solutions includes data-center, cloud, security, and analytics solutions. Global ECS brings broad market access, extensive supplier relationships, scale, and resources to help its VARs and MSPs meet the needs of their end-users. Global ECS works with VARs and MSPs to tailor complex IT solutions for their end-users. Customers have access to various services including engineering and integration support, warehousing and logistics, marketing resources, and authorized hardware and software training. Global ECS' suppliers benefit from demand creation, speed to market, and efficient supply chain management.

Within the global ECS business segment, net sales of approximately 39% consist of software, 37% consist of storage, 12% consist of industry standard servers, 6% consist of proprietary servers, and 6% consist of other products and services.

Over the past three years, the global ECS business segment completed two strategic acquisitions to further expand its portfolio of products. Aligned with the vision of guiding innovation forward in the IT channel, the company is investing in emerging and adjacent markets, such as managed services and unified computing, within the ECS business.

Customers and Suppliers

The company and its affiliates serve over 200,000 industrial and commercial customers. Industrial customers range from major OEMs and CMs to small engineering firms, while commercial customers primarily include VARs, MSPs, and OEMs. No single customer accounted for more than 2% of the company's 2018 consolidated sales.

The company's sales teams focus on an extensive portfolio of products and services to support customers' material management and production needs, including connecting customers to the company's field application engineers that provide technical support and serve as a gateway to the company's supplier partners. The company's sales representatives generally focus on a specific customer segment, particular product lines or a specific geography, and provide end-to-end product offerings and solutions with an emphasis on helping customers introduce innovative products, reduce their time to market, and enhance their overall competitiveness.

Substantially all of the company's sales are made on an order-by-order basis, rather than through long-term sales contracts. As such, the nature of the company's business does not provide visibility of material forward-looking information from its customers and suppliers beyond a few months.

No single supplier accounted for more than 10% of the company's consolidated sales in 2018. The company believes that many of the products it sells are available from other sources at competitive prices. However, certain parts of the company's business, such as the company's global ECS business segment, rely on a limited number of suppliers with the strategy of providing focused support, extensive product knowledge, and customized service to suppliers and VARs. Most of the company's purchases are pursuant to distributor agreements, which are typically non-exclusive and cancelable by either party at any time or on short notice.

Distribution Agreements

Certain agreements with suppliers protect the company against the potential write-down of inventories due to technological change or suppliers' price reductions. These contractual provisions typically provide certain protections to the company for product obsolescence and price erosion in the form of return privileges, scrap allowances, and price protection. Under the terms of the related distributor agreements and assuming the company complies with certain conditions, such suppliers are required to credit the company for reductions in suppliers' list prices. As of

December 31, 2018, this type of arrangement covered approximately 49% of the company's consolidated inventories. In addition, under the terms of many such agreements, the company has the right to return to the supplier, for credit, a defined portion of those inventory items purchased within a designated period of time.

A supplier, which elects to terminate a distribution agreement, may be required to purchase from the company the total amount of its products carried in inventory. As of December 31, 2018, this type of repurchase arrangement covered approximately 54% of the company's consolidated inventories.

While these inventory practices do not wholly protect the company from inventory losses, the company believes that they currently provide substantial protection from such losses.

Competition

The company operates in a highly competitive environment, both in the United States and internationally. The company competes with other large multinational and national electronic components and enterprise computing solutions distributors, as well as numerous other smaller, specialized competitors who generally focus on narrower markets, products, or particular sectors. The company also competes for customers with its suppliers. The size of the company's competitors vary across markets sectors, as do the resources the company has allocated to the sectors in which it does business. Therefore, some of the company's competitors may have a more extensive customer and/or supplier base than the company in one or more of its market sectors. There is significant competition within each market sector and geography served that creates pricing pressure and the need to continually improve services. Other competitive factors include rapid technological changes, product availability, credit availability, speed of delivery, ability to tailor solutions to customer needs, quality and depth of product lines and training, as well as service and support provided by the distributor to the customer.

The company also faces competition from companies entering or expanding into the logistics and product fulfillment, electronic catalog distribution, and e-commerce supply chain services markets. As the company seeks to expand its business into new areas in order to stay competitive in the market, the company may encounter increased competition from its current and/or new competitors.

The company believes that it is well equipped to compete effectively with its competitors in all of these areas due to its comprehensive product and service offerings, highly-skilled work force, and global distribution network.

Employees

The company and its affiliates employed approximately 20,100 employees worldwide as of December 31, 2018.

Available Information

The company files its Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, Proxy Statements, and other documents with the U.S. Securities and Exchange Commission ("SEC") under the Securities Exchange Act of 1934. The SEC maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC. The company's SEC filings are available to the public on the SEC's Web site at http://www.sec.gov and through the New York Stock Exchange ("NYSE"), 11 Wall Street, New York, New York 10005, on which the company's common stock is listed.

A copy of any of the company's filings with the SEC, or any of the agreements or other documents that constitute exhibits to those filings, can be obtained by request directed to the company at the following address and telephone number:

Arrow Electronics, Inc.
9201 East Dry Creek Road
Centennial, Colorado 80112
(303) 824-4000
Attention: Corporate Secretary

The company also makes these filings available, free of charge, through its website (http://www.arrow.com) as soon as reasonably practicable after the company files such materials with the SEC. The company does not intend this internet address to be an active link or to otherwise incorporate the contents of the website into this Annual Report on Form 10-K.

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Executive Officers

The following table sets forth the names, ages, and the positions held by each of the executive officers of the company as of February 7, 2019:

Name	Age	Position
Michael J. Long	60	Chairman, President, and Chief Executive Officer
Matt Anderson	40	Senior Vice President, Chief Digital Officer
Sean J. Kerins	56	President, Arrow Global Enterprise Computing Solutions
Andy King	55	President, Arrow Global Components
Chuck Kostalnick	53	Senior Vice President, Chief Supply Chain Officer
Vincent P. Melvin	55	Senior Vice President, Chief Information Officer
M. Catherine Morris	60	Senior Vice President, Chief Strategy Officer
Chris D. Stansbury	53	Senior Vice President, Chief Financial Officer
Gregory P. Tarpinian	57	Senior Vice President, Chief Legal Officer
Gretchen K. Zech	49	Senior Vice President, Chief Human Resources Officer

Set forth below is a brief account of the business experience during the past five years of each executive officer of the company.

Michael J. Long has been Chairman of the Board of Directors, President, and Chief Executive Officer of the company for more than five years.

Matt Anderson was appointed Senior Vice President, Chief Digital Officer in July 2017. Prior thereto he served as Chief Digital Officer from October 2014 to June 2017. Prior to joining Arrow he served as General Manager and Chief Digital Officer at Hibu from January 2013 to September 2014.

Sean J. Kerins was appointed President of Arrow Global Enterprise Computing Solutions in May 2014. Prior thereto he served as President of North America Enterprise Computing Solutions from July 2010 to May 2014.

Andy King was appointed President of Arrow Global Components in November 2015. Prior thereto he served as President of EMEA Components from November 2013 to November 2015.

Chuck Kostalnick was appointed Senior Vice President, Chief Supply Chain Officer in July 2017. Prior thereto he served as President, Arrow Sustainable Technology Solutions from August 2016 to July 2017. Before joining Arrow he served as Executive Vice President and Chief Business Officer at Sanmina from September 2013 to July 2016.

Vincent P. Melvin has been Senior Vice President and Chief Information Officer of the company for more than five years.

M. Catherine Morris has been Senior Vice President and Chief Strategy Officer of the company for more than five years.

Chris D. Stansbury was appointed Senior Vice President and Chief Financial Officer in May 2016. Prior thereto he served as Vice President, Finance and Chief Accounting Officer from August 2014 to May 2016. Prior to joining Arrow he served as the Vice President, Finance and Chief Financial Officer for Hewlett Packard’s Global Networking business from September 2013 to July 2014.

Gregory P. Tarpinian was appointed Senior Vice President and Chief Legal Officer in January 2015. Prior thereto he served as the Vice President of Legal Affairs for more than five years.

Gretchen K. Zech has been Senior Vice President and Chief Human Resources Officer of the company for more than five years.

Item 1A. Risk Factors.

Described below and throughout this report are certain risks that the company's management believes are applicable to the company's business and the industries in which it operates. If any of the described events occur, the company's business, results of operations, financial condition, liquidity, or access to the capital markets could be materially adversely affected. When stated below that a risk may have a material adverse effect on the company's business, it means that such risk may have one or more of these effects. There may be additional risks that are not presently material or known. There are also risks within the economy, the industry, and the capital markets that could materially adversely affect the company, including those associated with an economic recession, inflation, a global economic slowdown, political instability, employee attraction and retention, and those associated with customers' inability or refusal to pay for the products and services provided by the company. There are also risks associated with the occurrence of natural disasters such as tsunamis, hurricanes, tornadoes, and floods. These factors affect businesses generally, including the company, its customers and suppliers and, as a result, are not discussed in detail below, but are applicable to the company. Included below are some risks pertaining to specific government regulation, however, not all regulations applicable to the company or unanticipated regulation changes (such as changes in tax regulations in the various geographies we operate) have been described. The continuing expansion of government laws and regulations, some that may apply specifically to the company's industry and others to the market generally, as well as any actions taken by activist investors, could negatively impact the company's profitability.

If the company is unable to maintain its relationships with its suppliers or if the suppliers materially change the terms of their existing agreements with the company, the company's business could be materially adversely affected.

A substantial portion of the company's inventory is purchased from suppliers with which the company has entered into non-exclusive distribution agreements. These agreements are typically cancelable on short notice (generally 30 to 90 days). Some of the company's businesses rely on a limited number of suppliers to provide a high percentage of their revenues. For example, sales of products from one of the company's suppliers accounted for approximately 9% of the company's consolidated sales. To the extent that the company's significant suppliers reduce the number of products they sell through distribution, are unwilling to continue to do business with the company, or are unable to continue to meet or significantly alter their obligations, the company's business could be materially adversely affected. In addition, to the extent that the company's suppliers modify the terms of their contracts to the detriment of the company, limit supplies due to capacity constraints, or other factors, there could be a material adverse effect on the company's business. Further, the supplier landscape has experienced a consolidation, which could negatively impact the company if the surviving, consolidated suppliers decide to exclude the company from their supply chain efforts.

The competitive pressures the company faces could have a material adverse effect on the company's business.

The company operates in a highly competitive international environment. The company competes with other large multinational and national electronic components and enterprise computing solutions distributors, as well as numerous other smaller, specialized competitors who generally focus on narrower markets, products, industries, or particular sectors. The company also competes for customers with its suppliers. The size of the company's competitors vary across market sectors, as do the resources the company has allocated to the sectors in which it does business. Therefore, some of the company's competitors may have a more extensive customer and/or supplier base than the company in one or more of its market sectors. There is significant competition within each market sector and geography that creates pricing pressure and the need for constant attention to improve services. Other competitive factors include rapid technological changes, product availability, credit availability, speed of delivery, ability to tailor solutions to customer needs, quality and depth of product lines and training, as well as service and support provided by the distributor to the customer. The company also faces competition from companies in the logistics and product fulfillment, catalog distribution, and e-commerce supply chain services markets. As the company continues to expand its business into new areas in order to stay competitive in the market, such as in the area of the "Internet of Things" and its expansion in the digital market, the company may encounter increased competition from its current and/or new competitors. The company's failure to maintain and enhance its competitive position could have a material adverse effect on its business.

The company may not be able to adequately anticipate, prevent, or mitigate damage resulting from criminal and other illegal or fraudulent activities committed against it.

It is clear that global businesses like ours are facing increasing risks of criminal, illegal, and other fraudulent acts. The evolving nature of such threats, in light of new and sophisticated methods used by criminals, including phishing, misrepresentation, social engineering and forgery, are making it increasingly difficult for us to anticipate and adequately mitigate these risks. In addition, designing and implementing measures to defend against, prevent, and detect these types of activities are increasingly costly and invasive into the operations of the business. As a result, we could experience a material loss in the future to the extent that controls and other measures we implement to address these threats fail to prevent or detect such acts.

Products sold by the company may be found to be defective and, as a result, warranty and/or product liability claims may be asserted against the company, which may have a material adverse effect on the company.

The company sells its components at prices that are significantly lower than the cost of the equipment or other goods in which they are incorporated. As a result, the company may face claims for damages (such as consequential damages) that are disproportionate to the revenues and profits it receives from the components involved in the claims. While the company typically has provisions in its supplier agreements that hold the supplier accountable for defective products, and the company and its suppliers generally exclude consequential damages in their standard terms and conditions, the company's ability to avoid such liabilities may be limited as a result of differing factors, such as the inability to exclude such damages due to the laws of some of the countries where it does business. The company's business could be materially adversely affected as a result of a significant quality or performance issue in the products sold by the company, if it is required to pay for the associated damages. Although the company currently has product liability insurance, such insurance is limited in coverage and amount. Further, when relying on contractual liability exclusions, the company could lose customers if their claims are not addressed to their satisfaction.

Declines in value and other factors pertaining to the company's inventory could materially adversely affect its business.

The market for the company's products and services is subject to rapid technological change, evolving industry standards, changes in end-market demand, oversupply of product, and regulatory requirements, which can contribute to the decline in value or obsolescence of inventory. Although most of the company's suppliers provide the company with certain protections from the loss in value of inventory (such as price protection and certain rights of return), the company cannot be sure that such protections will fully compensate it for the loss in value, or that the suppliers will choose to, or be able to, honor such agreements. For example, many of the company's suppliers will not allow products to be returned after they have been held in inventory beyond a certain amount of time, and, in most instances, the return rights are limited to a certain percentage of the amount of product the company purchased in a particular time frame. All of these factors pertaining to inventory could have a material adverse effect on the company's business.

The company is subject to environmental laws and regulations that could materially adversely affect its business.

A number of jurisdictions in which the company's products are sold have enacted laws addressing environmental and other impacts from product disposal, use of hazardous materials in products, use of chemicals in manufacturing, recycling of products at the end of their useful life, and other related matters. These laws prohibit the use of certain substances in the manufacture of the company's products and impose a variety of requirements for modification of manufacturing processes, registration, chemical testing, labeling, and other matters. Failure to comply with these laws or any other applicable environmental regulations could result in fines or suspension of sales. Additionally, these directives and regulations may result in the company having non-compliant inventory that may be less readily salable or have to be written off.

Some environmental laws impose liability, sometimes without fault, for investigating or cleaning up contamination on or emanating from the company's currently or formerly owned, leased, or operated property, as well as for damages to property or natural resources and for personal injury arising out of such contamination. As the distribution business, in general, does not involve the manufacture of products, it is typically not subject to significant liability in this area. However, there may be occasions, including through acquisitions, where environmental liability arises. Two sites for which the company assumed responsibility as part of the Wyle Electronics ("Wyle") acquisition are known to have environmental issues, one at Norco, California and the other at Huntsville, Alabama. The company was also named as a defendant in a private lawsuit filed in connection with alleged contamination at a small industrial building formerly leased by Wyle Laboratories in El Segundo, California. The lawsuit was settled, but the possibility remains that government entities or others may attempt to involve the company in further characterization or remediation of groundwater issues in the area. The presence of environmental contamination could also interfere with ongoing operations or adversely affect the company's ability to sell or lease its properties. The discovery of contamination for which the company is responsible, the enactment of new laws and regulations, or changes in how existing requirements are enforced, could require the company to incur costs for compliance or subject it to unexpected liabilities.

Expansion into the electronic asset disposition market has broadened the company's risk profile.

The company provides services related to electronic devices being disposed of by business customers. These services include, the data sanitation of storage devices from customer equipment and either recycling the equipment through resale or disposing of it in an environmentally compliant manner. The company may also hold equipment in order to protect and preserve customer data. If the company does not meet its contractual and regulatory obligations with respect to such data, it could be subject to financial damages, penalties, and damage to reputation. Also, the company's or its subcontractors' failure to comply with applicable environmental laws and regulations in disposing of the equipment could result in liability. Such environmental liability may be joint and several, meaning that the company could be held responsible for more than its share of the liability involved. To the extent that company fails to comply with its obligations and such failure is not covered by insurance, the company's business could be adversely affected.

The company may not have adequate or cost-effective liquidity or capital resources.

The company requires cash or committed liquidity facilities for general corporate purposes, such as funding its ongoing working capital, acquisitions, and capital expenditure needs, as well as to refinance indebtedness. At December 31, 2018, the company had cash and cash equivalents of $509.3 million. In addition, the company currently has access to committed credit lines of $2.0 billion and a committed asset securitization program of $1.2 billion, of which the company had outstanding borrowings of $810.0 million at December 31, 2018. The company's ability to satisfy its cash needs depends on its ability to generate cash from operations and to access the financial markets, both of which are subject to general economic, financial, competitive, legislative, regulatory, and other factors that are beyond its control.

The company may, in the future, need to access the financial markets to satisfy its cash needs. The company's ability to obtain external financing is affected by various factors including general financial market conditions and the company's debt ratings. Further, any increase in the company's level of debt, change in status of its debt from unsecured to secured debt, or deterioration of its operating results may cause a reduction in its current debt ratings. Any downgrade in the company's current debt rating or tightening of credit availability could impair the company's ability to obtain additional financing or renew existing credit facilities on acceptable terms. Under the terms of any external financing, the company may incur higher financing expenses and become subject to additional restrictions and covenants. For example, the company's existing debt agreements contain restrictive covenants, including covenants requiring compliance with specified financial ratios, and a failure to comply with these or any other covenants may result in an event of default. An increase in the company's financing costs or loss of access to cost-effective capital resources could have a material adverse effect on the company's business.

The agreements governing some of the company's financing arrangements contain various covenants and restrictions that limit some of management's discretion in operating the business and could prevent the company from engaging in some activities that may be beneficial to its business.

The agreements governing the company's financings contain various covenants and restrictions that, in certain circumstances, could limit its ability to:

- grant liens on assets;
- make investments;
- merge, consolidate, or transfer all or substantially all of its assets;
- incur additional debt; or
- engage in certain transactions with affiliates.

As a result of these covenants and restrictions, the company may be limited in how it conducts its business and may be unable to raise additional debt, compete effectively, or make investments.

The company's lack of long-term sales contracts may have a material adverse effect on its business.

Most of the company's sales are made on an order-by-order basis, rather than through long-term sales contracts. The company generally works with its customers to develop non-binding forecasts for future orders. Based on such non-binding forecasts, the company makes commitments regarding the level of business that it will seek and accept, the inventory that it purchases, and the levels of utilization of personnel and other resources. A variety of conditions, both specific to each customer and generally affecting each customer's industry may cause customers to cancel, reduce, or delay orders that were either previously made or anticipated, file for bankruptcy protection or fail, or default on their payments. Generally, customers cancel, reduce, or delay purchase orders and commitments without penalty. The company seeks to mitigate these risks, in some cases, by entering into noncancelable/nonreturnable sales agreements, but there is no guarantee that such agreements will adequately protect the company. Significant or numerous cancellations, reductions, delays in orders by customers, loss of customers, and/or customer defaults on payments could materially adversely affect the company's business.

The company's revenues originate primarily from the sales of semiconductor, PEMCO (passive, electro-mechanical and connector), IT hardware and software products, the sales of which are traditionally cyclical.

The semiconductor industry historically has experienced fluctuations in product supply and demand, often associated with changes in technology and manufacturing capacity and subject to significant economic market upturns and downturns. Sales of

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semiconductor products and related services represented approximately 45%, 46%, and 42% of the company's consolidated sales in 2018, 2017, and 2016, respectively. The sale of the company's PEMCO products closely tracks the semiconductor market. Accordingly, the company's revenues and profitability, particularly in its global components business segment, tend to closely follow the strength or weakness of the semiconductor market. Further, economic weakness could cause a decline in spending in information technology, which could have a negative impact on the company's ECS business. A cyclical downturn in the technology industry could have a material adverse effect on the company's business and negatively impact its ability to maintain historical profitability levels.

The company's non-U.S. sales represent a significant portion of its revenues, and consequently, the company is exposed to risks associated with operating internationally.

In 2018, 2017, and 2016, approximately 59%, 58%, and 57%, respectively, of the company's sales came from its operations outside the United States. As a result of the company's international sales and locations, its operations are subject to a variety of risks that are specific to international operations, including the following:

- import and export regulations that could erode profit margins or restrict exports;
- the burden and cost of compliance with international laws, treaties, and technical standards and changes in those regulations;
- potential restrictions on transfers of funds;
- import and export duties and value-added taxes;
- transportation delays and interruptions;
- the burden and cost of compliance with complex multi-national tax laws and regulations;
- uncertainties arising from local business practices and cultural considerations;
- enforcement of the Foreign Corrupt Practices Act, or similar laws of other jurisdictions;
- foreign laws that potentially discriminate against companies which are headquartered outside that jurisdiction;
- volatility associated with sovereign debt of certain international economies;
- the uncertainty surrounding the implementation and effects of Brexit;
- potential military conflicts and political risks; and
- currency fluctuations, which the company attempts to minimize through traditional hedging instruments.

Furthermore, products the company sells which are either manufactured in the United States or based on U.S. technology ("U.S. Products") are subject to the Export Administration Regulations ("EAR") when exported and re-exported to and from all international jurisdictions, in addition to the local jurisdiction's export regulations applicable to individual shipments. Licenses or proper license exemptions may be required by local jurisdictions' export regulations, including EAR, for the shipment of certain U.S. Products to certain countries, including China, India, Russia, and other countries in which the company operates. Non-compliance with the EAR or other applicable export regulations can result in a wide range of penalties including the denial of export privileges, fines, criminal penalties, and the seizure of inventories. In the event that any export regulatory body determines that any shipments made by the company violate the applicable export regulations, the company could be fined significant sums and/or its export capabilities could be restricted, which could have a material adverse effect on the company's business.

Also, the company's gross margins in the components business in the Asia/Pacific region tend to be lower than those in the other markets in which the company sells products and services. If sales in this market increase as a percentage of overall sales, consolidated gross margins will be lower. While the company has and will continue to adopt measures to reduce the potential impact of losses resulting from the risks of doing business abroad, it cannot ensure that such measures will be adequate and, therefore, could have a material adverse effect on its business.

Moreover, our effective tax rate may be adversely impacted by, among other things, changes in the mix of our earnings among countries having different statutory tax rates, changes in the valuation of deferred tax assets, and certain international tax policy efforts, including the Organization for Economic Co-operation and Development's ("OECD") Base Erosion and Profit Shifting ("BEPS") Project, the European Commission's state aid investigations, and other initiatives adversely affecting taxation of international businesses. Furthermore, many of the countries where we are subject to taxes are independently evaluating their tax policy and some have already passed tax legislation which affect international businesses. For instance, on December 22, 2017, the U.S. federal government enacted tax legislation ("Tax Act"), which significantly changed the tax laws by favorably reducing the corporate federal tax rate (35% to 21%) and moving to a territorial system, while simultaneously imposing an unfavorable one-time tax on accumulated foreign earnings, limiting deductibility of certain import related costs, including interest expense, and creating a new tax on certain international activities. Additionally, our tax returns are subject to periodic audits by U.S. and foreign tax authorities, and these audits may result in allocations of income and/or deductions that may result in tax assessments different from amounts that we have estimated. We regularly assess the likelihood of adverse outcomes resulting from these audits to determine the adequacy of our provision for taxes. Such tax changes, to the extent they are brought against us, could increase our effective tax rates in many of the countries where we have operations and ultimately have an adverse effect on our overall tax liability, along with increasing the complexity, burden and cost of tax compliance, all of which could impact our operating results, cash flows, and financial condition.

When the company makes acquisitions, it may take on additional liabilities or not be able to successfully integrate such acquisitions.

As part of the company's history and growth strategy, it has acquired other businesses. Acquisitions involve numerous risks, including the following:

- effectively combining the acquired operations, technologies, or products;
- unanticipated costs or assumed liabilities, including those associated with regulatory actions or investigations;
- not realizing the anticipated financial benefit from the acquired companies;
- diversion of management's attention;
- negative effects on existing customer and supplier relationships; and
- potential loss of key employees, especially those of the acquired companies.

Further, the company has made, and may continue to make acquisitions of, or investments in new services, businesses or technologies to expand its current service offerings and product lines. Some of these may involve risks that may differ from those traditionally associated with the company's core distribution business, including undertaking product or service warranty responsibilities that in its traditional core business would generally reside primarily with its suppliers. If the company is not successful in mitigating or insuring against such risks, it could have a material adverse effect on the company's business.

The company's goodwill and identifiable intangible assets could become impaired, which could reduce the value of its assets and reduce its net income in the year in which the write-off occurs.

Goodwill represents the excess of the cost of an acquisition over the fair value of the assets acquired. The company also ascribes value to certain identifiable intangible assets, which consist primarily of customer relationships and trade names, among others, as a result of acquisitions. The company may incur impairment charges on goodwill or identifiable intangible assets if it determines that the fair values of the goodwill or identifiable intangible assets are less than their current carrying values. The company evaluates, on a regular basis, whether events or circumstances have occurred that indicate all, or a portion, of the carrying amount of goodwill or identifiable intangible assets may no longer be recoverable, in which case an impairment charge to earnings would become necessary.

Refer to Notes 1 and 3 of the Notes to the Consolidated Financial Statements and 'Critical Accounting Policies' in Management's Discussion and Analysis of Financial Condition and Results of Operations for further discussion of the impairment testing of goodwill and identifiable intangible assets.

A decline in general economic conditions, a substantial increase in market interest rates, or the company’s inability to meet long term working capital or operating income projections could impact future valuations of the company's reporting units, and the company could be required to record an impairment charge in the future, which could impact the company's consolidated balance sheet, as well as the company's consolidated statement of operations. If the company was required to recognize an impairment charge in the future, the charge would not impact the company's consolidated cash flows, current liquidity, capital resources, and covenants under its existing revolving credit facility, asset securitization program, and other outstanding borrowings.

If the company fails to maintain an effective system of internal controls or discovers material weaknesses in its internal controls over financial reporting, it may not be able to report its financial results accurately or timely or detect fraud, which could have a material adverse effect on its business.

An effective internal control environment is necessary for the company to produce reliable financial reports, safeguard assets, and is an important part of its effort to prevent financial fraud. The company is required to annually evaluate the effectiveness of the design and operation of its internal controls over financial reporting. Based on these evaluations, the company may conclude that enhancements, modifications, or changes to internal controls are necessary or desirable. While management evaluates the effectiveness of the company's internal controls on a regular basis, these controls may not always be effective. There are inherent limitations on the effectiveness of internal controls, including collusion, management override, and failure in human judgment. In addition, control procedures are designed to reduce rather than eliminate financial statement risk. If the company fails to maintain an effective system of internal controls, or if management or the company's independent registered public accounting firm discovers material weaknesses in the company's internal controls, it may be unable to produce reliable financial reports or prevent fraud, which could have a material adverse effect on the company's business. In addition, the company may be subject to sanctions or investigation by regulatory authorities, such as the SEC or the NYSE. Any such actions could result in an adverse reaction in the financial markets due to a loss of confidence in the reliability of the company's financial statements, which could cause the market price of its common stock to decline or limit the company's access to capital.

Cyber security and privacy breaches may hurt the company’s business, damage its reputation, increase its costs, and cause losses.

The company’s information technology systems could be subject to invasion, cyber-attack, or data privacy breaches by employees, others with authorized access, and unauthorized persons. Such attacks could result in disruption to the company’s operations, loss or disclosure of, or damage to, the company’s or any of its customer’s or supplier’s data, confidential information, or reputation. The company’s information technology systems security measures may also be breached due to employee error, malfeasance, or otherwise. Additionally, outside parties may attempt to fraudulently induce employees, customers or suppliers to disclose sensitive information in order to gain access to the company’s data and information technology systems. Any such breach could result in significant legal and financial exposure, damage to the company’s reputation, loss of competitive advantage, and a loss of confidence in the security of the company’s information technology systems that could potentially have an impact on the company’s business. Because the techniques used to obtain unauthorized access, disable or degrade, or sabotage the company’s information technology systems change frequently and often are not recognized until launched, the company may be unable to anticipate these techniques or to implement adequate preventive measures. Further, third parties, such as hosted solution providers, that provide services for the company’s operations, could also be a source of security risk in the event of a failure of their own security systems and infrastructure. In addition, sophisticated hardware and operating system software and applications that the company procures from third parties may contain defects in design or manufacture, including "bugs" and other problems that could unexpectedly interfere with the operation of the company’s information technology systems.

The company makes investments seeking to address risks and vulnerabilities, including ongoing monitoring, updating networks and systems, and personnel awareness training of potential cybersecurity threats to help ensure employees remain diligent in identifying potential risks. In addition, we have deployed monitoring capabilities to support early detection, internal and external escalation, and effective responses to potential anomalies. As part of the company’s regular review of potential risks, the company analyzes emerging cybersecurity threats as well as the company’s plan and strategies to address them and presents them to senior management. Although the company has developed systems and processes that are designed to protect information and prevent data loss and other security breaches, including systems and processes designed to reduce the impact of a security breach, such measures cannot provide absolute security. Such breaches, whether successful or unsuccessful, could result in the company incurring costs related to, for example, rebuilding internal systems, defending against litigation, responding to regulatory inquiries or actions, paying damages, or taking other remedial steps.

Also, global privacy legislation, enforcement, and policy activity are rapidly expanding and creating a complex compliance environment. The company’s failure to comply with federal, state, or international privacy related or data protection laws and regulations could result in proceedings against the company by governmental entities or others. Although the company has insurance coverage for protecting against loss from cyber security risks, it may not be sufficient to cover all possible claims, and the company may suffer losses that could have a material adverse effect on its business.

The company relies heavily on its internal information systems, which, if not properly functioning, could materially adversely affect the company's business.

The company's current global operations reside on multiple technology platforms. The size and complexity of the company's computer systems make them potentially vulnerable to breakdown, malicious intrusion, and random attack.

In 2018, the company completed the process of implementing a global enterprise resource planning ("ERP") system to standardize its global components processes worldwide and adopt best-in-class capabilities. The company committed significant resources to this new ERP system, which replaced multiple legacy systems of the company. This conversion was extremely complex, in part, because of the wide range of processes and the multiple legacy systems that must be integrated globally. To date, the company has not experienced any identifiable significant issues. Failure to properly or adequately address any unaccounted for or unforeseen issues could impact the company's ability to perform necessary business operations, which could materially adversely affect the company's business.

The company may be subject to intellectual property rights claims, which are costly to defend, could require payment of damages or licensing fees and could limit the company's ability to use certain technologies in the future.

Certain of the company's products and services include intellectual property owned primarily by the company's third party suppliers and, to a lesser extent, the company itself. Substantial litigation and threats of litigation regarding intellectual property rights exist in the semiconductor/integrated circuit, software and some service industries. From time to time, third parties (including certain companies in the business of acquiring patents not for the purpose of developing technology but with the intention of aggressively seeking licensing revenue from purported infringers) may assert patent, copyright and/or other intellectual property rights to technologies that are important to the company's business. In some cases, depending on the nature of the claim, the company may be able to seek indemnification from its suppliers for itself and its customers against such claims, but there is no assurance that it will be successful in obtaining such indemnification or that the company is fully protected against such claims. In addition, the company is exposed to potential liability for technology that it develops itself or combines multiple technologies of its suppliers for which it may have limited or no indemnification protections. In any dispute involving products or services that incorporate intellectual property from multiple sources or is developed, licensed by the company, or obtained through acquisition, the company's customers could also become the targets of litigation. The company is obligated in many instances to indemnify and defend its customers if the products or services the company sells are alleged to infringe any third party's intellectual property rights. Any infringement claim brought against the company, regardless of the duration, outcome, or size of damage award, could:

- result in substantial cost to the company;
- divert management's attention and resources;
- be time consuming to defend;
- result in substantial damage awards; or
- cause product shipment delays.

Additionally, if an infringement claim is successful, the company may be required to pay damages or seek royalty or license arrangements, which may not be available on commercially reasonable terms. The payment of any such damages or royalties may significantly increase the company's operating expenses and harm the company's operating results and financial condition. Also, royalty or license arrangements may not be available at all. The company may have to stop selling certain products or using technologies, which could affect the company's ability to compete effectively.

Compliance with government regulations regarding the use of "conflict minerals" may result in increased costs and risks to the company.

As part of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (the "Act"), the SEC has promulgated disclosure requirements regarding the use of certain minerals, which are mined from the Democratic Republic of Congo and adjoining countries, known as conflict minerals. The disclosure rules were effective in May 2014. The company must publicly disclose the process it took to determine whether it manufactures (as defined in the Act) any products that contain conflict minerals. Customers typically rely on the company to provide critical data regarding the parts they purchase, including conflict mineral information. The company's material sourcing is broad-based and multi-tiered, and it is not able to easily verify the origins for conflict minerals used in all of the products it sells. The company has many suppliers and each provides conflict mineral information in a different manner, if at all. Accordingly, because the supply chain is complex, the company may face reputational challenges if it is unable to sufficiently verify the origins of conflict minerals used in its products. Additionally, customers may demand that the products they purchase be free of conflict minerals. This may limit the number of suppliers that can provide products in sufficient quantities to meet customer demand or at competitive prices.

New tariffs may result in increased prices and could adversely affect our business and results of operations.

Recently, the U.S. government imposed tariffs on certain products imported into the U.S. and the Chinese government imposed tariffs on certain products imported into China, which have increased the prices of many of the products that the company purchases from its suppliers. The new tariffs, along with any additional tariffs or trade restrictions that may be implemented by the U.S. or other countries, could result in further increased prices. While the company intends to pass price increases on to our customers, the effect of tariffs on prices may impact sales and results of operations. Retaliatory tariffs imposed by other countries on U.S. goods have not yet had a significant impact, but we cannot predict further developments. The tariffs and the additional operational costs incurred in minimizing the number of products subject to the tariffs could adversely affect the operating profits for certain of our businesses and customer demand for certain products which could have an adverse effect on our business and results of operations.

Item 1B. Unresolved Staff Comments.

None.

Item 2. **Properties.**

The company owns and leases sales offices, distribution and value-added centers, and administrative facilities worldwide. Its executive office is located in Centennial, Colorado and occupies a 129,000 square foot facility under a long-term lease expiring in 2033. The company owns 12 locations throughout the Americas, EMEA, and Asia Pacific regions and occupies approximately 600 additional locations under leases due to expire on various dates through 2033. The company believes its facilities are well maintained and suitable for company operations.

Item 3. Legal Proceedings.

Environmental and Related Matters

In connection with the purchase of Wyle in August 2000, the company acquired certain of the then outstanding obligations of Wyle, including Wyle's indemnification obligations to the purchasers of its Wyle Laboratories division for environmental clean-up costs associated with any then existing contamination or violation of environmental regulations. Under the terms of the company's purchase of Wyle from the sellers, the sellers agreed to indemnify the company for certain costs associated with the Wyle environmental obligations, among other things. In 2012, the company entered into a settlement agreement with the sellers pursuant to which the sellers paid $110.0 million and the company released the sellers from their indemnification obligation. As part of the settlement agreement the company accepted responsibility for any potential subsequent costs incurred related to the Wyle matters. The company is aware of two Wyle Laboratories facilities (in Huntsville, Alabama and Norco, California) at which contaminated groundwater was identified and will require environmental remediation. As further discussed in Note 15 of the Notes to the Consolidated Financial Statements, the Huntsville, Alabama site is subject to a consent decree, entered into in February 2015, between the company and the Alabama Department of Environmental Management ("ADEM"). The Norco, California site is subject to a consent decree, entered in October 2003, between the company, Wyle Laboratories, and the California Department of Toxic Substance Control (the "DTSC"). In addition, the company was named as a defendant in several lawsuits related to the Norco facility and a third site in El Segundo, California which have now been settled to the satisfaction of the parties.

The company expects these environmental liabilities to be resolved over an extended period of time. Costs are recorded for environmental matters when it is probable that a liability has been incurred and the amount of the liability can be reasonably estimated. Accruals for environmental liabilities are adjusted periodically as facts and circumstances change, assessment and remediation efforts progress, or as additional technical or legal information becomes available. Environmental liabilities are difficult to assess and estimate due to various unknown factors such as the timing and extent of remediation, improvements in remediation technologies, and the extent to which environmental laws and regulations may change in the future. Accordingly, the company cannot presently fully estimate the ultimate potential costs related to these sites until such time as a substantial portion of the investigation at the sites is completed and remedial action plans are developed and, in some instances implemented. To the extent that future environmental costs exceed amounts currently accrued by the company, net income would be adversely impacted and such impact could be material.

Accruals for environmental liabilities are included in "Accrued expenses" and "Other liabilities" in the company's consolidated
balance sheets.

As successor-in-interest to Wyle, the company is the beneficiary of various Wyle insurance policies that covered liabilities arising out of operations at Norco and Huntsville. To date, the company has recovered approximately $37.0 million from certain insurance carriers relating to environmental clean-up matters at the Norco site. The company is considering the best way to pursue its potential claims against insurers regarding liabilities arising out of operations at Huntsville. The resolution of these matters will likely take several years. The company has not recorded a receivable for any potential future insurance recoveries related to the Norco and Huntsville environmental matters, as the realization of the claims for recovery are not deemed probable at this time.

The company believes the settlement amount together with potential recoveries from various insurance policies covering environmental remediation and related litigation will be sufficient to cover any potential future costs related to the Wyle acquisition; however, it is possible unexpected costs beyond those anticipated could occur.

Other

From time to time, in the normal course of business, the company may become liable with respect to other pending and threatened litigation, environmental, regulatory, labor, product, and tax matters. While such matters are subject to inherent uncertainties, it is not currently anticipated that any such matters will materially impact the company's consolidated financial position, liquidity, or results of operations.

Item 4. **Mine Safety Disclosures.**

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.

Market Information

The company's common stock is listed on the NYSE (trading symbol: "ARW").

Record Holders

On February 1, 2019, there were approximately 1,466 shareholders of record of the company's common stock.

Dividend History

The company did not pay cash dividends on its common stock during 2018 or 2017. While from time to time the Board of Directors (the "Board") considers the payment of dividends on the common stock, the declaration of future dividends is dependent upon the company's earnings, financial condition, and other relevant factors, including debt covenants.

Equity Compensation Plan Information

The following table summarizes information, as of December 31, 2018, relating to the Omnibus Incentive Plan, which was approved by the company's shareholders and under which cash-based awards, non-qualified stock options, incentive stock options, stock appreciation rights, restricted stock, restricted stock units, performance shares, performance share units, covered employee annual incentive awards, and other stock-based awards may be granted.

Plan Category	Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants and Rights	Weighted-Average Exercise Price of Outstanding Options, Warrants and Rights	Number of Securities Remaining Available for Future Issuance
Equity compensation plans approved by security holders	2,907,744	$ 65.46	3,885,282
Total	2,907,744	$ 65.46	3,885,282

Performance Graph

The following graph compares the performance of the company's common stock for the periods indicated with the performance of the Standard & Poor's MidCap 400 Index ("S&P 400 Stock Index"), the Standard & Poor's 500 Stock Index ("S&P 500 Stock Index") and the average performance of a group consisting of the company's peer companies ("Peer Group") on a line-of-business basis. During 2018, the companies included in the Peer Group are Anixter International Inc., Avnet, Inc., Celestica Inc., Flex Ltd., Jabil, Inc., Tech Data Corporation, and WESCO International, Inc. The graph assumes $100 invested on December 31, 2013 in the company, the S&P 400 Stock Index, the S&P 500 Stock Index and the Peer Group. Total return indicies reflect reinvestment of dividends and are weighted on the basis of market capitalization at the time of each reported data point.

The company changed its benchmark index from the Standard & Poor's 500 Stock Index to the S&P 400 Stock Index because it is more representative of Arrow's market capitalization and peer group. Both indicies are included in the graph below for comparison purposes but the comparison to the S&P 500 Stock Index will not be presented in future 10-K filings.

	2013	**2014**	**2015**	**2016**	**2017**	**2018**
Arrow Electronics	100	107	100	131	148	127
Peer Group	100	115	115	135	157	106
S&P 400 Midcap Stock Index	100	110	107	130	151	134
S&P 500 Stock Index	100	114	115	129	157	150

Issuer Purchases of Equity Securities

The following table shows the company's Board of Directors (the "Board") approved share-repurchase programs as of December 31, 2018:

Month of Board Approval	Dollar Value Approved for Repurchase	Dollar Value of Shares Repurchased	Approximate Dollar Value of Shares that May Yet be Purchased Under the Program
December 2016	400,000	271,388	128,612
December 2018	600,000	—	600,000
Total	$ 1,000,000	$ 271,388	$ 728,612

The following table shows the share-repurchase activity for the quarter ended December 31, 2018 (in thousands except share and per share data):

Month	Total Number of Shares Purchased(a)	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Program(b)	Approximate Dollar Value of Shares that May Yet be Purchased Under the Program
September 30 through October 27, 2018	—	$	——	$ 278,639
October 28 through November 24, 2018	1,526,466	74.11	1,526,466	165,513
November 25 through December 31, 2018	501,401	73.80	499,917	728,612
Total	2,027,867		2,026,383	

(a) Includes share repurchases under the Share-Repurchase Programs and those associated with shares withheld from employees for stock-based awards, as permitted by the Omnibus Incentive Plan, in order to satisfy the required tax withholding obligations.

(b) The difference between the "total number of shares purchased" and the "total number of shares purchased as part of publicly announced program" for the quarter ended December 31, 2018 is 1,484 shares, which relate to shares withheld from employees for stock-based awards, as permitted by the Omnibus Incentive Plan, in order to satisfy the required tax withholding obligations. The purchase of these shares were not made pursuant to any publicly announced repurchase plan.

Item 6. Selected Financial Data.

The following table sets forth certain selected consolidated financial data and must be read in conjunction with the company's consolidated financial statements and related notes appearing elsewhere in this Annual Report on Form 10-K (dollars in thousands except per share data).

For the years ended December 31:	**2018 (a)**	**2017 (b) (Adjusted)**	**2016 (c) (Adjusted)**	**2015 (d) ****	**2014 (e) ****
Sales	$29,676,768	$26,554,563	$23,487,872	$23,282,020	$22,768,674
Gross profit	3,700,912	3,356,968	3,144,322	3,035,250	2,995,895
Operating income	1,147,512	945,736	876,826	824,482	762,257
Net income attributable to shareholders	716,195	402,176	522,815	497,726	498,045
Net income per share:					
Basic	$8.19	$4.54	$5.75	$5.26	$5.05
Diluted	$8.10	$4.48	$5.68	$5.20	$4.98
At December 31:					
Accounts receivable, net and inventories	$12,824,141	$11,428,106	$9,566,080	$8,627,908	$8,379,107
Total assets	17,784,445	16,459,267	14,203,479	13,021,930	12,435,301
Long-term debt	3,239,115	2,933,045	2,696,334	2,380,575	2,067,898
Shareholders' equity	5,324,990	4,949,255	4,411,136	4,142,443	4,153,970

Amounts discussed below are before tax except for amounts related to the effects of the Tax Act.

(a) Operating income and net income attributable to shareholders include identifiable intangible asset amortization of $49.4 million, loss on disposition of businesses, net of $3.6 million, and restructuring, integration, and other charges of $60.4 million. Net income attributable to shareholders also includes a net loss on investment of $14.2 million, impact of Tax Act of $28.3 million, and pension settlement of $1.7 million.

(b) Operating income and net income attributable to shareholders include identifiable intangible asset amortization of $50.1 million, loss on disposition of businesses, net of $21.0 million, and restructuring, integration, and other charges of $74.6 million. Net income attributable to shareholders also includes a net loss on investment of $6.6 million, pension settlement of $16.7 million, loss on extinguishment of debt of $59.5 million, and the impact of the Tax Act of $124.7 million.

(c) Operating income and net income attributable to shareholders include identifiable intangible asset amortization of $54.9 million and restructuring, integration, and other charges of $61.4 million. Net income attributable to shareholders also includes a net gain on investment of $2.9 million, and a pension settlement of $12.2 million.

(d) Operating income and net income attributable to shareholders include identifiable intangible asset amortization of $51.0 million and restructuring, integration, and other charges of $68.8 million. Net income attributable to shareholders also includes a loss on extinguishment of debt of $2.9 million and a loss on investment, net of $1.0 million.

(e) Operating income and net income attributable to shareholders include identifiable intangible asset amortization of $44.1 million, restructuring, integration, and other charges of $39.8 million, and a non-cash impairment charge associated with discontinuing the use of a trade name of $78.0 million. Net income attributable to shareholders also includes a gain on investment of $29.7 million.

** The results presented for years 2014 and 2015 have not been adjusted for the effect of the adoption of Topic 606, ASU No. 2017-07, and other prior period reclassifications, see Notes 1 and 2. This does not materially affect the comparability of the results with years 2016 through 2018.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.

Overview

Arrow Electronics, Inc. (the "company") is a global provider of products, services, and solutions to industrial and commercial users of electronic components and enterprise computing solutions. The company has one of the world's broadest portfolios of product offerings available from leading electronic components and enterprise computing solutions suppliers, coupled with a range of services, solutions and tools that help industrial and commercial customers introduce innovative products, reduce their time to market, and enhance their overall competitiveness. The company has two business segments, the global components business segment and the global enterprise computing solutions ("ECS") business segment. The company distributes electronic components to original equipment manufacturers ("OEMs") and contract manufacturers ("CMs") through its global components business segment and provides enterprise computing solutions to value-added resellers ("VARs") and managed service providers ("MSPs") through its global ECS business segment. For 2018, approximately 70% of the company's sales were from the global components business segment and approximately 30% of the company's sales were from the global ECS business segment.

The company's financial objectives are to grow sales faster than the market, increase the markets served, grow profits faster than sales, and increase return on invested capital. To achieve its objectives, the company seeks to capture significant opportunities to grow across products, markets, and geographies. To supplement its organic growth strategy, the company continually evaluates strategic acquisitions to broaden its product and value-added service offerings, increase its market penetration, and expand its geographic reach.

Executive Summary

Consolidated sales for 2018 increased by 11.8%, compared with the year-earlier period, due to a 13.8% increase in global components business segment sales and a 7.2% increase in global ECS business segment sales. Adjusted for the change in foreign currencies, acquisitions, and dispositions, consolidated sales increased 10.9% compared with the year-earlier period.

Net income attributable to shareholders increased to $716.2 million in 2018 compared with $402.2 million in the year-earlier period. The following items impacted the comparability of the company's results for the years ended December 31, 2018 and 2017, all amounts are before tax except for amounts related to the effects of the Tax Act.

- restructuring, integration, and other charges of $60.4 million in 2018 and $74.6 million in 2017;
- identifiable intangible asset amortization of $49.4 million in 2018 and $50.1 million in 2017;
- net loss on investments of $14.2 million in 2018 and $6.6 million in 2017;
- loss on disposition of businesses, net, of $3.6 million in 2018 and $21.0 million in 2017;
- loss on extinguishment of debt of $59.5 million in 2017;
- pension settlement of $1.7 million in 2018 and $16.7 million in 2017; and
- income tax benefit of $28.3 million in 2018 and expense of $124.7 million in 2017, related to the Tax Act.

Excluding the aforementioned items, net income attributable to shareholders increased to $781.0 million in 2018 compared with $674.5 million in the year-earlier period.

Certain Non-GAAP Financial Information

In addition to disclosing financial results that are determined in accordance with accounting principles generally accepted in the United States ("GAAP"), the company also discloses certain non-GAAP financial information, including:

- Sales, income, or expense items as adjusted for the impact of changes in foreign currencies (referred to as "impact of changes in foreign currencies"), by re-translating prior period results at current period foreign exchange rates, and the impact of acquisitions by adjusting the company's prior periods to include the operating results of businesses acquired, including the amortization expense related to acquired intangible assets, as if the acquisitions had occurred at the beginning of the earliest period presented (referred to as "impact of acquisitions") and the impact of dispositions by adjusting the company's operating results for businesses disposed, as if the dispositions had occurred at the beginning of the earliest period presented (referred to as "impact of dispositions");
- Operating income as adjusted to exclude identifiable intangible asset amortization, restructuring, integration, and other charges, and loss on disposition of businesses, net; and
- Net income attributable to shareholders as adjusted to exclude identifiable intangible asset amortization, restructuring, integration, and other charges, loss on disposition of businesses, net, gain (loss) on investments, net, loss on extinguishment of debt, pension settlements, and impact of the Tax Act.

Management believes that providing this additional information is useful to the reader to better assess and understand the company's operating performance, especially when comparing results with previous periods, primarily because management typically monitors the business adjusted for these items in addition to GAAP results. However, analysis of results on a non-GAAP basis should be used as a complement to, and in conjunction with, data presented in accordance with GAAP.

Sales

Substantially all of the company's sales are made on an order-by-order basis, rather than through long-term sales contracts. As such, the nature of the company's business does not provide for the visibility of material forward-looking information from its customers and suppliers beyond a few months.

Following is an analysis of net sales by business segment for the years ended December 31 (in millions):

	2018	**2017**	**Change**
Consolidated sales, as reported*	$29,677	$26,555	11.8 %
Impact of changes in foreign currencies	—	252	
Impact of acquisitions	—	158	
Impact of dispositions	(27)	(230)	
Consolidated sales, as adjusted*	$29,649	$26,734	10.9 %
Global components sales, as reported*	$20,857	$18,330	13.8 %
Impact of changes in foreign currencies	—	174	
Impact of acquisitions	—	85	
Impact of dispositions	—	—	
Global components sales, as adjusted*	$20,857	$18,589	12.2 %
Global ECS sales, as reported*	$8,820	$8,224	7.2 %
Impact of changes in foreign currencies	—	77	
Impact of acquisitions	—	73	
Impact of dispositions	(27)	(230)	
Global ECS sales, as adjusted*	$8,792	$8,145	8.0 %

* The sum of the components for sales, as adjusted, may not agree to totals, as presented, due to rounding.

Consolidated sales for 2018 increased by $3.1 billion, or 11.8%, compared with the year-earlier period. The increase in 2018 was driven by an increase in global components business segment sales of $2.5 billion, or 13.8%, and an increase in global ECS business segment sales of $595.8 million, or 7.2%, compared with the year-earlier period. Adjusted for the impact of changes in foreign currencies, acquisitions, and dispositions, the company's consolidated sales increased by 10.9% in 2018, compared with the year-earlier period.

In the global components business segment, sales for 2018 increased 13.8% compared with the year-earlier period, with double-digit sales growth in Arrow’s core businesses across all three regions (Americas, EMEA, and Asia), as well as high double digit growth coming from Arrow’s strategic investment in Digital and Sustainable Technology Solutions businesses. The increase for 2018 is attributable to suppliers awarding additional business to the company, and reflects strong growth in the industrial, aerospace and defense verticals year over year. Adjusted for the impact of changes in foreign currencies and acquisitions, the company's global components business segment sales increased by 12.2% in 2018, compared with the year-earlier period.

In the global ECS business segment, sales for 2018 increased 7.2% compared with the year-earlier period. Growth was driven by infrastructure software, security, storage, and industry-standard servers. Adjusted for the impact of changes in foreign currencies, acquisitions, and dispositions, the company's global ECS business segment sales increased by 8.0% in 2018, compared with the year-earlier period.

Following is an analysis of net sales by business segment for the years ended December 31 (in millions):

	2017	2016	Change
Consolidated sales, as reported*	$26,555	$23,488	13.1 %
Impact of changes in foreign currencies	—	142	
Impact of acquisitions	—	48	
Consolidated sales, as adjusted*	$26,555	$23,679	12.1 %
Global components sales, as reported*	$18,330	$15,409	19.0 %
Impact of changes in foreign currencies	—	87	
Impact of acquisitions	—	10	
Global components sales, as adjusted*	$18,330	$15,505	18.2 %
Global ECS sales, as reported*	$8,224	$8,079	1.8 %
Impact of changes in foreign currencies	—	56	
Impact of acquisitions	—	38	
Global ECS sales, as adjusted	$8,224	$8,173	0.6 %

* The sum of the components for sales, as adjusted, may not agree to totals, as presented, due to rounding.

Consolidated sales for 2017 increased by $3.1 billion, or 13.1%, compared with the year-earlier period. The increase in 2017 was driven by an increase in global components business segment sales of $2.9 billion, or 19.0%, and an increase in global ECS business segment sales of $145.1 million, or 1.8%, compared with the year-earlier period. Adjusted for the impact of changes in foreign currencies and acquisitions, the company's consolidated sales increased by 12.1% in 2017, compared with the year-earlier period.

In the global components business segment, sales for 2017 increased 19.0% compared with the year-earlier period, with double-digit sales growth in Arrow's core business across all three regions (Americas, EMEA, and Asia), as well as high double digit growth coming from Arrow's strategic investments in its Digital and Sustainable Technology Solutions businesses. The increase for 2017 is attributable to suppliers awarding additional business to the company, and reflects strong growth in the industrial, transportation, aerospace and defense, consumer, and communications verticals year over year. Adjusted for the impact of changes in foreign currencies and acquisitions, the company's global components business segment sales increased by 18.2% in 2017, compared with the year-earlier period.

In the global ECS business segment, sales growth for 2017 was increased 1.8% compared with the year-earlier period, with declining revenue in the first half of the year offset by growth in the second half of the year. Adjusted for the impact of changes in foreign currencies and acquisitions, the company's global ECS business segment sales increased by 0.6% in 2017, compared with the year-earlier period.

Gross Profit

Following is an analysis of gross profit for the years ended December 31 (in millions):

	2018	2017	Change
Consolidated gross profit, as reported	$3,701	$3,357	10.2%
Impact of changes in foreign currencies	—	31	
Impact of acquisitions	—	49	
Impact of dispositions	(6)	(60)	
Consolidated gross profit, as adjusted	$3,695	$3,377	9.4 %
Consolidated gross profit as a percentage of sales, as reported	12.5 %	12.6 %	(10) bps
Consolidated gross profit as a percentage of sales, as adjusted	12.5 %	12.6 %	(10) bps

The company recorded gross profit of $3.7 billion and $3.4 billion for 2018 and 2017, respectively. The increase in gross profit was primarily due to increased demand and supplier awards in the components business. Gross profit margins for 2018 decreased by approximately 10 basis points, compared with the year-earlier period, primarily due to declining margins in the global ECS business attributable to less favorable business mix. Declines were mostly offset by improving margins in the global components business.

Following is an analysis of gross profit for the years ended December 31 (in millions):

	2017	2016	Change
Consolidated gross profit, as reported	$3,357	$3,144	6.8%
Impact of changes in foreign currencies	—	18	
Impact of acquisitions	—	13	
Consolidated gross profit, as adjusted	$3,357	$3,175	5.7%
Consolidated gross profit as a percentage of sales, as reported	12.6 %	13.4 %	(80) bps
Consolidated gross profit as a percentage of sales, as adjusted	12.6 %	13.4 %	(80) bps

The company recorded gross profit of $3.4 billion and $3.1 billion for 2017 and 2016, respectively. The increase in gross profit was primarily due to increased demand and supplier awards in the components business. Gross profit margins for 2017 decreased by approximately 80 basis points, compared with the year-earlier period, primarily due to an increase in lower margin distribution services in the Americas and EMEA Components businesses. The increase in supplier awards initially drive lower margin fulfillment volume.

Selling, General, and Administrative Expenses and Depreciation and Amortization

Following is an analysis of operating expenses for the years ended December 31 (in millions):

	2018	2017	Change
Selling, general, and administrative expenses, as reported	$2,303	$2,162	6.5 %
Depreciation and amortization, as reported	186	154	21.3%
Operating expenses, as reported	2,489	2,316	7.5 %
Impact of changes in foreign currencies	—	25	
Impact of acquisitions	—	30	
Impact of dispositions	(7)	(56)	
Operating expenses, as adjusted*	$2,483	$2,315	7.3 %
Operating expenses as a percentage of sales, as reported	8.4 %	8.7 %	(30) bps
Operating expenses as a percentage of sales, as adjusted	8.4 %	8.7 %	(30) bps

* The sum of the components for operating expenses, as adjusted, may not agree to totals, as presented, due to rounding.

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Selling, general, and administrative expenses increased by $141.0 million, or 6.5%, in 2018, on a sales increase of 11.8%, compared with the year-earlier period. Selling, general, and administrative expenses, as a percentage of sales, was 7.8% and 8.1% for 2018 and 2017, respectively.

Depreciation and amortization expense as a percentage of operating expenses was 7.5% for 2018 compared with 6.6% in the year-earlier period. During 2018 the company recorded $22.4 million of depreciation related to a global enterprise resource tool ("ERP") placed into service during the first quarter of 2018. Included in depreciation and amortization expense is identifiable intangible asset amortization of $49.4 million for 2018 compared to $50.1 million for 2017.

Adjusted for the impact of changes in foreign currencies, acquisitions, and dispositions, operating expenses for 2018 increased 7.3%, on a sales increase, as adjusted, of 10.9%. Adjusted for the impact of changes in foreign currencies and acquisitions, operating expenses as a percentage of sales for 2018 were 8.4% compared to 8.7% for 2017. The decline in operating expense as a percentage of sales reflects the operational efficiencies the company achieved to align costs to the business mix.

Following is an analysis of operating expenses for the years ended December 31 (in millions):

	2017	**2016**	**Change**
Selling, general, and administrative expenses, as reported	$2,162	$2,047	5.6 %
Depreciation and amortization, as reported	154	159	(3.5)%
Operating expenses, as reported	2,316	2,206	5.0 %
Impact of changes in foreign currencies	—	9	
Impact of acquisitions	—	9	
Operating expenses, as adjusted	$2,316	$2,224	4.1 %
Operating expenses as a percentage of sales, as reported	8.7 %	9.4 %	(70) bps
Operating expenses as a percentage of sales, as adjusted	8.7 %	9.4 %	(70) bps

Selling, general, and administrative expenses increased $115.1 million, or 5.6%, in 2017, on a sales increase of 13.1%, compared with the year-earlier period. Selling, general, and administrative expenses, as a percentage of sales, was 8.1% and 8.7%, for 2017 and 2016, respectively.

Depreciation and amortization expense as a percentage of operating expenses was 6.6% for 2017 compared with 7.2% in the year-earlier period. Included in depreciation and amortization expense is identifiable intangible asset amortization of $50.1 million for 2017 compared to $54.9 million for 2016.

Adjusted for the impact of changes in foreign currencies and acquisitions, operating expenses for 2017 increased 4.1%, on a sales increase, as adjusted, of 12.1%. Adjusted for the impact of changes in foreign currencies and acquisitions, operating expenses as a percentage of sales for 2017 were compared to for 2016. The decline in operating expense as a percentage of sales reflects the operational efficiencies the company achieved to align costs to the business mix.

Restructuring, Integration, and Other Charges

<u>2018 Charges</u>

In 2018, the company recorded restructuring, integration, and other charges of $60.4 million. Included in the restructuring, integration, and other charges for 2018 is a restructuring and integration charge of $23.7 million related to initiatives taken by the company to improve operating efficiencies, which includes personnel costs of $15.3 million, facilities costs of $8.2 million, and other costs of $0.1 million. These restructuring initiatives are due to the company's continued efforts to lower cost and drive operational efficiency. Integration costs are primarily related to the integration of acquired businesses within the company's pre-existing business and the consolidation of certain operations. Also included is a charge of $7.5 million related to restructuring and integration actions taken in prior periods.

Included in restructuring, integration, and other charges for 2018 are other expenses of $29.1 million. In 2018, the company recorded acquisition related charges of $10.2 million related to professional and other fees directly related to recent acquisition activity as well as contingent consideration for acquisitions completed in prior years, and $11.2 million in charges related to relocation and infrastructure upgrades of the company’s data centers, and other centralization efforts to maximize operating efficiencies.

2017 Charges

In 2017, the company recorded restructuring, integration, and other charges of $74.6 million. Included in the restructuring, integration, and other charges for 2017 is a restructuring and integration charge of $46.8 million related to initiatives taken by the company to improve operating efficiencies, which includes personnel costs of $37.6 million, facilities costs of $8.2 million, and other costs of $1.0 million. These restructuring initiatives are due to the company's continued efforts to lower cost and drive operational efficiency. Integration costs are primarily related to the integration of acquired businesses within the company's pre-existing business and the consolidation of certain operations. Also included is a charge of $6.2 million related to restructuring and integration actions taken in prior periods.

Included in restructuring, integration, and other charges for 2017 are other expenses of $21.6 million, which includes the following charges and credits. Additional expenses of $2.1 million to increase its accrual for the Wyle Laboratories ("Wyle") environmental obligation (see Note 15), acquisition related charges of $7.7 million related to contingent consideration for acquisitions completed in prior years, and a net loss on real estate transactions of $3.1 million.

2016 Charges

In 2016, the company recorded restructuring, integration, and other charges of $61.4 million. Included in the restructuring, integration, and other charges for 2016 is a restructuring and integration charge of $32.9 million related to initiatives taken by the company to improve operating efficiencies, which includes personnel costs of $25.8 million, facilities costs of $5.8 million, and other costs of $1.3 million. These restructuring initiatives are due to the company's continued efforts to lower cost and drive operational efficiency. Integration costs are primarily related to the integration of acquired businesses within the company's pre-existing business and the consolidation of certain operations. Also included is a charge of $3.6 million related to restructuring and integration actions taken in prior periods.

Included in restructuring, integration, and other charges for 2016 are other expenses of $24.9 million, which include the following charges and credits. In 2016, the company recorded additional expenses of $11.8 million to increase its accrual for the Wyle environmental obligation (see Note 15), acquisition related charges of $8.7 million related to contingent consideration for acquisitions completed in prior years, and a fraud loss, net of insurance recoveries, of $4.3 million. Also in 2016, the company released a $2.4 million legal reserve.

As of December 31, 2018, the company does not anticipate there will be any material adjustments relating to the aforementioned restructuring plans. Refer to Note 9, "Restructuring, Integration, and Other Charges" of the Notes to the Consolidated Financial Statements for further discussion of the company's restructuring and integration activities.

Operating Income

Following is an analysis of operating income for the years ended December 31 (in millions):

	2018	**2017**	**Change**
Consolidated operating income, as reported	$1,148	$946	21.3%
Identifiable intangible asset amortization	49	50	
Restructuring, integration, and other charges	60	75	
Loss on disposition of businesses, net	4	21	
Consolidated operating income, as adjusted*	$1,261	$1,091	15.5%
Consolidated operating income as a percentage of sales, as reported	3.9 %	3.6 %	30 bps
Consolidated operating income, as adjusted, as a percentage of sales, as reported	4.2 %	4.1 %	10 bps

* The sum of the components for consolidated operating income, as adjusted, may not agree to totals, as presented, due to rounding.

The company recorded operating income of $1.1 billion, or 3.9% of sales, in 2018 compared with operating income of $945.7 million, or 3.6% of sales, in 2017. Included in operating income for 2018 and 2017 were the previously discussed identifiable intangible asset amortization of $49.4 million and $50.1 million, respectively, and restructuring, integration, and other charges of $60.4 million and $74.6 million, respectively. Included in operating income for 2018 and 2017 is a loss on disposition of businesses, net of $3.6 million and $21.0 million, respectively. Excluding these items, operating income, as adjusted, was $1.3 billion, or 4.2% of sales, in 2018 compared with operating income, as adjusted, of $1.1 billion, or 4.1% of sales, in 2017. Operating margins, as adjusted, increased 10 bps compared with the year-earlier period, despite a 10 basis point decrease in gross margins due to the company's ability to efficiently manage operating costs.

Following is an analysis of operating income for the years ended December 31 (in millions):

	2017	2016	Change
Consolidated operating income, as reported	$946	$877	7.9 %
Identifiable intangible asset amortization	50	55	
Restructuring, integration, and other charges	75	61	
Loss on disposition of businesses, net	21	—	
Consolidated operating income, as adjusted*	$1,091	$993	9.9 %
Consolidated operating income as a percentage of sales, as reported	3.6 %	3.7 %	(10) bps
Consolidated operating income, as adjusted, as a percentage of sales, as reported	4.1 %	4.2 %	(10) bps

* The sum of the components for consolidated operating income, as adjusted, may not agree to totals, as presented, due to rounding.

The company recorded operating income of $945.7 million, or 3.6% of sales, in 2017 compared with operating income of $876.8 million, or 3.7% of sales, in 2016. Included in operating income for 2017 and 2016 were the previously discussed identifiable intangible asset amortization of $50.1 million and $54.9 million, respectively, and restructuring, integration, and other charges of $74.6 million and $61.4 million, respectively. Included in operating income for 2017 is a loss on disposition of businesses, net of $21.0 million. Excluding these items, operating income, as adjusted, was $1.1 billion, or 4.1% of sales, in 2017 compared with operating income, as adjusted, of $993.1 million, or 4.2% of sales, in 2016. Operating margins, as adjusted, remained consistent compared with the year-earlier period, despite an 80 basis point decrease in gross margins due to the company's ability to efficiently manage operating costs.

Gain (Loss) on Investments, Net

During 2018 and 2017, the company recorded a net loss of $14.2 million and $6.6 million related to changes in fair value of certain investments, respectively. During 2016, the company recorded a gain of $2.9 million related to changes in fair value of certain investments.

Loss on Disposition of Businesses, Net

During 2018 and 2017 the company recorded a loss on disposition of businesses, net of $3.6 million and $21.0 million, respectively, related to the sale of two non-strategic businesses.

Loss on Extinguishment of Debt

During 2017, the company recorded a loss on extinguishment of debt of $59.5 million related to the redemption of the company's 6.875% senior debenture due 2018 and refinance of a portion of the company's 6.00% notes due April 2020, 5.125% notes due March 2021, and 7.50% notes due January 2027.

Pension Settlements

During 2018 the company recorded settlement expense of $1.7 million upon terminating a defined benefit plan acquired in a prior period acquisition.

On December 31, 2018, the Wyle defined benefit plan was terminated by the company with estimated plan settlement expected to occur in 2019. The company has made other arrangements with the participants in the plan and is terminating the plan to reduce administrative burdens. Prior to the termination of the plan, the company adopted an amendment to the Wyle defined benefit plan that provided eligible plan participants with the option to receive an early distribution of their pension benefits. The settlement loss is expected to be approximately $25,500. Benefit payments of $60,530 are expected to be paid in 2019.

During 2017 and 2016, the Company entered into a settlement for a portion of its Wyle defined benefit plan. The company recorded pension settlement expense of $16.7 million and $12.2 million during 2017 and 2016, respectively.

Interest and Other Financing Expense, Net

Net interest and other financing expense increased 30.0% in 2018 to $214.8 million, compared with $165.3 million in 2017, primarily due to higher average debt outstanding and an increase in variable interest rates.

Net interest and other financing expense increased by 9.2% in 2017 to $165.3 million, compared with $151.3 million in 2016, primarily due to higher average debt outstanding.

Income Taxes

For the year ended December 31, 2018, the company recorded provision for income taxes of $187.8 million, equivalent to an effective tax rate of 20.7%. The company's provision for income taxes and effective tax rates are impacted by such costs as restructuring, integration, and other charges, identifiable intangible asset amortization, loss on disposition of businesses, net, loss on investments, net, pension settlements, and tax law changes. Excluding the impact of the aforementioned items, the company's effective tax rate for 2018 was 24.2%.

For the year ended December 31, 2017, the company recorded provision for income taxes of $286.5 million, equivalent to an effective tax rate of 41.3%. The company's provision for income taxes and effective tax rates are impacted by such costs as restructuring, integration, and other charges, identifiable intangible asset amortization, loss on disposition of businesses, net, loss on extinguishment of debt, loss on investments, net, pension settlements, and tax law changes. Excluding the impact of the aforementioned items, the company's effective tax rate for 2017 was 26.2%.

For the year ended December 31, 2016, the company reported provision for income taxes of $190.7 million, equivalent to an effective tax rate of 26.7%. The company's provision for income taxes and effective tax rates are impacted by such costs as restructuring, integration, and other charges, identifiable intangible asset amortization, loss on investments, net, and pension settlements. Excluding the impact of the aforementioned items, the company's effective tax rate for 2016 would have been 27.3%.
The company's effective tax rate deviates from the statutory U.S. federal income tax rate mainly due to the mix of foreign taxing jurisdictions in which the company operates and where its foreign subsidiaries generate taxable income. In 2017, the effective tax rate increased significantly primarily due to the change in U.S. tax law. Specifically, on December 22, 2017, the U.S. federal government enacted comprehensive tax legislation (the "Tax Act"), which significantly revised the U.S. corporate income tax law by, among other things, lowering the U.S. federal corporate income tax rate from 35% to 21%, implementing a territorial tax system, imposing a one-time transition tax on foreign unremitted earnings, and setting limitations on deductibility of certain costs (e.g., interest expense).
During the fourth quarter of 2017, the company recorded a net charge of $124.7 million in provisional tax due to the Tax Act, in accordance with the U.S. Securities and Exchange Commission's Staff Accounting Bulletin ("SAB 118"). During the fourth quarter of 2018, the company completed its analysis of the impact from the Tax Act and recorded a $28.3 million tax benefit as an adjustment to the Transition tax on non-U.S. subsidiaries' unremitted earnings. The impact of the Tax Act is summarized in the table below and is further described in the accompanying Notes to Consolidated Financial Statements (Note 8).

	2017 Impact	**2018 Adjustment**	**Total Impact of Tax Act**
Transition tax on non-U.S subsidiaries' earnings	$ 196	$ (28)	$ 168
Re-measurement of U.S. deferred tax assets and liabilities	(71)	—	(71)
Total impact of the Tax Act on the provision for income taxes	$ 125	$ (28)	$ 97

As of December 31, 2018, after considering the impact of taxable losses, tax payments, tax credits, and other tax accruals, the company’s remaining long-term cash tax payable for one-time transition tax on foreign unremitted earnings is $38.0 million.

Net Income Attributable to Shareholders

Following is an analysis of net income attributable to shareholders for the years ended December 31 (in millions):

	2018	2017
Net income attributable to shareholders, as reported**	$716	$402
Identifiable intangible asset amortization*	49	49
Restructuring, integration, and other charges	60	75
Loss on disposition of businesses, net	4	21
Loss on investments, net	14	7
Loss on extinguishment of debt	—	60
Pension settlements	2	17
Tax effect of adjustments above	(35)	(80)
Impact of the Tax Act	(28)	125
Net income attributable to shareholders, as adjusted**	$781	$674

* Identifiable intangible asset amortization does not include amortization related to the noncontrolling interest
** The sum of the components for net income attributable to shareholders, as adjusted, may not agree to totals, as presented, due to rounding.

The company recorded net income attributable to shareholders of $716.2 million for 2018, compared with net income attributable to shareholders of $402.2 million in the year-earlier period. Net income attributable to shareholders, as adjusted, was $781.0 million for 2018, compared with $674.5 million in the year-earlier period.

Following is an analysis of net income attributable to shareholders for the years ended December 31 (in millions):

	2017	2016
Net income attributable to shareholders, as reported**	$402	$523
Identifiable intangible asset amortization*	49	53
Restructuring, integration, and other charges	75	61
Loss on disposition of businesses, net	21	—
(Gain) loss on investments, net	7	(3)
Loss on extinguishment of debt	60	—
Pension settlements	17	12
Tax effect of adjustments above	(80)	(38)
Impact of the Tax Act	125	—
Net income attributable to shareholders, as adjusted**	$674	$608

* Identifiable intangible asset amortization does not include amortization related to the noncontrolling interest
** The sum of the components for net income attributable to shareholders, as adjusted, may not agree to totals, as presented, due to rounding.

The company recorded net income attributable to shareholders of $402.2 million for 2017, compared with net income attributable to shareholders of $522.8 million in the year-earlier period. Net income attributable to shareholders, as adjusted, was $674.5 million for 2017, compared with $608.0 million in the year-earlier period.

Liquidity and Capital Resources

At December 31, 2018 and 2017, the company had cash and cash equivalents of $509.3 million and $730.1 million, respectively, of which $394.4 million and $465.4 million, respectively, were held outside the United States. Liquidity is affected by many factors, some of which are based on normal ongoing operations of the company's business and some of which arise from fluctuations related to global economics and markets. Cash balances are generated and held in many locations throughout the world. It is the company's current intent to permanently reinvest these funds outside the United States and its current plans do not demonstrate a need to repatriate cash to fund its United States operations. If these funds were to be needed for the company's operations in the United States, the company would be required to pay withholding and other taxes related to distributions to repatriate these funds. Additionally, local government regulations may restrict the company's ability to move cash balances to meet cash needs under certain circumstances. The company currently does not expect such regulations and restrictions to impact its ability to make acquisitions or to conduct operations throughout the global organization.

During 2018, the net amount of cash provided by the company's operating activities was $272.7 million, the net amount of cash used for investing activities was $463.0 million, and the net amount of cash used for financing activities was $36.8 million. The effect of exchange rate changes on cash was an increase of $6.4 million.

During 2017, the net amount of cash provided by the company's operating activities was $124.6 million, the net amount of cash used for investing activities was $188.8 million, and the net amount of cash provided by financing activities was $256.7 million. The effect of exchange rate changes on cash was an increase of $3.2 million.

During 2016, the net amount of cash provided by the company's operating activities was $359.7 million, the net amount of cash used for investing activities was $241.4 million, and the net amount of cash provided by financing activities was $162.2 million. The effect of exchange rate changes on cash was a decrease of $19.2 million.

Cash Flows from Operating Activities

The company maintains a significant investment in accounts receivable and inventories. As a percentage of total assets, accounts receivable and inventories were approximately 71.8% and 69.4% at December 31, 2018 and 2017, respectively.

The net amount of cash provided by the company's operating activities during 2018 was $272.7 million and was primarily due to earnings from operations, adjusted for non-cash items, offset, in part, by an increase in net working capital to support the increase in sales.

The net amount of cash provided by the company's operating activities during 2017 was $124.6 million and was primarily due to earnings from operations, adjusted for non-cash items, offset, in part, by an increase in net working capital to support the increase in sales.

The net amount of cash provided by the company's operating activities during 2016 was $359.7 million and was primarily due to earnings from operations, adjusted for non-cash items, offset, in part, by an increase in net working capital to support the increase in sales.

Working capital, as a percentage of sales, which the company defines as accounts receivable, net, plus inventory, net, less accounts
payable, divided by annualized sales, was 16.4%, 15.5%, and 14.9% in 2018, 2017, and 2016, respectively.

Cash Flows from Investing Activities

The net amount of cash used for investing activities during 2018 was $463.0 million. The use of cash from investing activities included $331.6 million of cash consideration paid for acquired businesses, net of cash acquired, $135.3 million for capital expenditures, and $20.0 million for the acquisition of a customer relationship intangible asset. The sources of cash from investing activities included $32.0 million of proceeds from the sale of businesses. Capital expenditures for 2018 are related to relocation and infrastructure upgrades of the company's data centers, and continued development of Digital and Cloud capabilities.

The net amount of cash used for investing activities during 2017 was $188.8 million, primarily reflecting $203.9 million for capital expenditures and $24.4 million of proceeds from the sale of property, plant, and equipment. Included in capital expenditures for 2017 is $62.5 million related to the company's global ERP initiative.

The net amount of cash used for investing activities during 2016 was $241.4 million, primarily reflecting $64.8 million of cash consideration paid, net of cash acquired, for the acquisition of three businesses, $164.7 million for capital expenditures, and $12.0 million for the acquisition of an equity method investment. Included in capital expenditures for 2016 is $57.7 million related to the company's global ERP initiative.

Cash Flows from Financing Activities

The net amount of cash used for financing activities during 2018 was $36.8 million. The uses of cash from financing activities included $300.0 million of payments for the redemption of notes and $243.3 million of repurchases of common stock. The sources of cash from financing activities included $306.6 million of net proceeds from long-term bank borrowings, $192.2 million of proceeds from short-term bank borrowings, and $8.8 million of proceeds from the exercise of stock options.

The net amount of cash provided by financing activities during 2017 was $256.7 million. The uses of cash from financing activities included $558.9 million of net repayments on long-term bank borrowings, $174.2 million of repurchases of common stock, $41.3 million of net repayments on short-term bank borrowings, and $23.4 million of payments to acquire additional shares of Data Modul AG. The sources of cash from financing activities included $986.2 million of net proceeds from note offerings, $47.8 million of proceeds from long-term bank borrowings, and $22.2 million of proceeds from the exercise of stock options.

The net amount of cash provided by financing activities during 2016 was $162.2 million. The uses of cash from financing activities included $216.4 million of repurchases of common stock and $2.0 million of other acquisition related payments. The sources of cash from financing activities during 2016 were $48.7 million of increase in short-term and other borrowings, $313.0 million of net proceeds from long-term bank borrowings, and $19.0 million of proceeds from the exercise of stock options and other benefits related to stock-based compensation arrangements.

During March 2018, the company redeemed $300.0 million principal amount of its 3.00% notes due March 2018.

During 2017, the company completed the sale of $500.0 million principal amount of 3.875% notes due 2028. The net proceeds of the offering of $494.6 million were used to redeem the company's 6.875% senior debenture due June 2018 and refinance a portion of the company's 6.00% notes due April 2020, 5.125% notes due March 2021, and 7.50% notes due January 2027. The company recorded a loss on extinguishment of debt of $59.5 million for the year ended December 31, 2017.

During 2017, the company completed the sale of $500.0 million principal amount of 3.25% notes due 2024. The net proceeds of the offering of $493.8 million are expected to be used to redeem the company's debt obligations and for general corporate purposes.

The company has a revolving credit facility that may be used by the company for general corporate purposes including working capital in the ordinary course of business, letters of credit, repayment, prepayment or purchase of long-term indebtedness, acquisitions, and as support for the company's commercial paper program, as applicable. In December 2018, the company amended its revolving credit facility and, among other things, increased its borrowing capacity from $1.8 billion to $2.0 billion and extended its term to mature in December 2023. Interest on borrowings under the revolving credit facility is calculated using a base rate or a Eurocurrency rate plus a spread (1.18% at December 31, 2018), which is based on the company's credit ratings, or an effective interest rate of 2.37% at December 31, 2018. The facility fee, which is based on the company's credit ratings, was .20% of the total borrowing capacity at December 31, 2018. The company had no outstanding borrowings under the revolving credit facility at December 31, 2018 and 2017. During the years ended December 31, 2018 and 2017, the average daily balance outstanding under the revolving credit facility was $55.3 million and $18.9 million, respectively.

The company has a commercial paper program and the maximum aggregate balance of commercial paper may not exceed the borrowing capacity of $1.2 billion. The company had no outstanding borrowings under this program as of December 31, 2018 and 2017. During the years ended December 31, 2018 and 2017, the average daily balance outstanding under the commercial paper program was $807.8 million and $625.7 million, respectively. The commercial paper program had an effective interest rate of 2.93% for the year-ended December 31, 2018.

The company has an asset securitization program collateralized by accounts receivable of certain of its subsidiaries. In June 2018, the company amended its asset securitization program and, among other things, increased its borrowing capacity from $910.0 million to $1.2 billion and extended its term to mature to June 2021. The asset securitization program is conducted through Arrow Electronics Funding Corporation ("AFC"), a wholly-owned, bankruptcy remote subsidiary. The asset securitization program does not qualify for true sale treatment. Accordingly, the accounts receivable and related debt obligation remain on the company's consolidated balance sheets. Interest on borrowings is calculated using a base rate plus a spread (.40% at December 31, 2018), or an effective interest rate of 2.91% at December 31, 2018. The facility fee is .40% of the total borrowing capacity. The company had $810.0 million and $490.0 million in outstanding borrowings under the asset securitization program at December 31, 2018 and 2017, respectively. During the years ended December 31, 2018 and 2017, the average daily balance outstanding under the asset securitization program was $969.0 million and $692.4 million, respectively.

Both the revolving credit facility and asset securitization program include terms and conditions that limit the incurrence of additional borrowings and require that certain financial ratios be maintained at designated levels. The company was in compliance with all covenants as of December 31, 2018 and is currently not aware of any events that would cause non-compliance with any covenants in the future.

The company has $200.0 million in uncommitted lines of credit. There were $180.0 million in outstanding borrowings under the uncommitted lines of credit at December 31, 2018 and no outstanding borrowings at December 31, 2017. These borrowings were provided on a short-term basis and the maturity is agreed upon between the company and the lender. The lines had an effective interest rate of 3.39% at December 31, 2018. During 2018 and 2017, the average daily balance outstanding under the uncommitted lines of credit was $22.7 million and $5.2 million, respectively.

In the normal course of business certain of the company’s subsidiaries have agreements to sell, without recourse, selected trade receivables to financial institutions. The company does not retain financial or legal interests in these receivables, and, accordingly they are accounted for as sales of the related receivables and the receivables are removed from the company’s consolidated balance sheets. Financing costs related to these transactions were not material and are included in "Interest and other financing expense, net" in the company’s consolidated statements of operations.

Management believes that the company's current cash availability, its current borrowing capacity under its revolving credit facility and asset securitization program, and its expected ability to generate future operating cash flows are sufficient to meet its projected cash flow needs for the foreseeable future. The company also may issue debt or equity securities in the future and management believes the company will have adequate access to capital markets, if needed. The company continually evaluates liquidity requirements and would seek to amend its existing borrowing capacity or access the financial markets as deemed necessary.

Contractual Obligations

Payments due under contractual obligations at December 31, 2018 are as follows (in thousands):

	Within 1 Year	**1-3 Years**	**4-5 Years**	**After 5 Years**	**Total**
Debt	$240,732	$1,150,483	$644,910	$1,443,723	$3,479,848
Interest on long-term debt	112,507	193,480	142,494	133,026	581,507
Capital leases	1,054	194	—	—	1,248
Operating leases	85,770	119,984	82,329	147,294	435,377
Purchase obligations (a)	6,030,938	218,417	12,640	446	6,262,441
Other (b)	26,750	8,788	1,778	39,463	76,779
	$6,497,751	$1,691,346	$884,151	$1,763,952	$10,837,200

(a)

Amounts represent an estimate of non-cancelable inventory purchase orders and other contractual obligations related to information technology and facilities as of December 31, 2018. Most of the company's inventory purchases are pursuant to authorized distributor agreements, which are typically cancelable by either party at any time or on short notice, usually within a few months.

(b) Includes estimates of contributions required to meet the requirements of the Wyle defined benefit plan. Amounts are subject to change based upon the performance of plan assets, as well as the discount rate used to determine the obligation. Also included are amounts relating to the Tax Act transition tax payable and personnel, facilities, and certain other costs resulting from restructuring and integration activities.

Under the terms of various joint venture agreements, the company is required to pay its pro-rata share of the third party debt of the joint ventures in the event that the joint ventures are unable to meet their obligations. At December 31, 2018, the company's pro-rata share of this debt was approximately $2.9 million.

At December 31, 2018, the company had a liability for unrecognized tax positions of $35.9 million. The timing of the resolution of these uncertain tax positions is dependent on the tax authorities' income tax examination processes. Material changes are not expected, however, it is possible that the amount of unrecognized tax benefits with respect to uncertain tax positions could increase or decrease during 2019. Currently, the company is unable to make a reasonable estimate of when tax cash settlement would occur and how it would impact the effective tax rate.

Share-Repurchase Programs

The following table shows the company's Board of Directors (the "Board") approved share-repurchase programs as of December 31, 2018:

Month of Board Approval	**Dollar Value Approved for Repurchase**	**Dollar Value of Shares Repurchased**	**Approximate Dollar Value of Shares that May Yet be Purchased Under the Program**
December 2016	400,000	271,388	128,612
December 2018	600,000	—	600,000
Total	$ 1,000,000	$ 271,388	$ 728,612

Off-Balance Sheet Arrangements

The company has no off-balance sheet financing or unconsolidated special purpose entities.

Critical Accounting Policies and Estimates

The company's consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States. The preparation of these financial statements requires the company to make significant estimates and judgments that affect the reported amounts of assets, liabilities, revenues, and expenses and the related disclosure of contingent assets and liabilities. The company evaluates its estimates on an ongoing basis. The company bases its estimates on historical experience and on various other assumptions that are believed reasonable under the circumstances; the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

The company believes the following critical accounting policies involve the more significant judgments and estimates used in the preparation of its consolidated financial statements:

Revenue Recognition

The company recognizes revenue when there is persuasive evidence of an arrangement, delivery has occurred or services are rendered, the sales price is fixed or determinable, and collectability is reasonably assured. Revenue typically is recognized at time of shipment. Sales are recorded net of discounts, rebates, and returns, which historically have not been material. Tariffs are included in sales as the company has enforceable rights to additional consideration to cover the cost of tariffs.

The Company allows its customers to return product for exchange or credit in limited circumstances. A liability is recorded at the time of sale for estimated product returns based upon historical experience. The Company also provides volume rebates and other discounts to certain customers which are considered variable consideration. A provision for customer rebates and other discounts is recorded as a reduction of revenue at the time of sale based on an evaluation of the contract terms and historical experience.

A portion of the company's business involves shipments directly from its suppliers to its customers. In these transactions, the company is responsible for negotiating price both with the supplier and customer, payment to the supplier, establishing payment terms with the customer, product returns, and has risk of loss if the customer does not make payment. As the principal with the customer, the company recognizes the sale and cost of sale of the product upon receiving notification from the supplier that the product was shipped.

The Company has contracts with certain customers where the Company's performance obligation is to arrange for the products or services to be provided by another party. In these arrangements, as the Company assumes an agency relationship in the transaction, revenue is recognized in the amount of the net fee associated with serving as an agent. These arrangements relate to the sale of supplier service contracts to customers where the company has no future obligation to perform under these contracts or the rendering of logistics services for the delivery of inventory for which the company does not assume the risks and rewards of ownership.

Accounts Receivable

The company maintains allowances for doubtful accounts for estimated losses resulting from the inability of its customers to make required payments. The allowances for doubtful accounts are determined using a combination of factors, including the length of time the receivables are outstanding, the current business environment, and historical experience.

Inventories

Inventories are stated at the lower of cost or net realizable value. Write-downs of inventories to market value are based upon contractual provisions governing price protection, stock rotation, and obsolescence, as well as assumptions about future demand and market conditions. If assumptions about future demand change and/or actual market conditions are less favorable than those projected by the company, additional write-downs of inventories may be required. Due to the large number of transactions and the complexity of managing the process around price protections and stock rotations, estimates are made regarding adjustments to the book cost of inventories. Actual amounts could be different from those estimated.

Income Taxes

Income taxes are accounted for under the liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the financial statements. Under this method, deferred tax assets and liabilities are determined on the basis of differences between the tax bases of assets and liabilities and their financial reporting amounts using enacted tax rates in effect for the year in which the differences are expected to reverse. The effect of a change in tax rates on deferred tax assets and liabilities is recognized in income in the period that includes the enactment date.

The carrying value of the company's deferred tax assets is dependent upon the company's ability to generate sufficient future taxable income in certain tax jurisdictions. Should the company determine that it is more likely than not that some portion or all of its deferred tax assets will not be realized, a valuation allowance to reduce the deferred tax assets is established in the period such determination is made. The assessment of the need for a valuation allowance requires considerable judgment on the part of management with respect to the benefits that could be realized from future taxable income, as well as other positive and negative factors.

It is also the company's policy to provide for uncertain tax positions and the related interest and penalties based upon management's assessment of whether a tax benefit is more likely than not to be sustained upon examination by tax authorities. To the extent the company prevails in matters for which a liability for an unrecognized tax benefit is established, or is required to pay amounts in excess of the liability, or when other facts and circumstances change, the company's effective tax rate in a given financial statement period may be materially affected.

In accordance with SAB 118, the SEC's staff accounting bulletin issued to address complexities involved in accounting for the U.S. government's Tax Act enacted on December 22, 2017, the company completed its assessment of the enactment-date Tax Act effects based on U.S. GAAP guidance under ASC 740 and appropriately recorded tax impact in the fourth quarter of 2018 taking into account newly issued tax laws, regulations, and notices from the U.S. Department of Treasury and Internal Revenue Service tax authorities.

Contingencies and Litigation

The company is subject to proceedings, lawsuits, and other claims related to environmental, regulatory, labor, product, tax, and other matters and assesses the likelihood of an adverse judgment or outcome for these matters, as well as the range of potential losses. A determination of the reserves required, if any, is made after careful analysis. The reserves may change in the future due to new developments impacting the probability of a loss, the estimate of such loss, and the probability of recovery of such loss from third parties.

Goodwill

Goodwill represents the excess of the cost of an acquisition over the fair value of the net assets acquired. The company tests goodwill for impairment annually as of the first day of the fourth quarter and/or when an event occurs or circumstances change such that it is more likely than not that an impairment may exist. Examples of such events and circumstances that the company would consider include the following:

- macroeconomic conditions such as deterioration in general economic conditions, limitations on accessing capital, fluctuations in foreign exchange rates, or other developments in equity and credit markets;
- industry and market considerations such as a deterioration in the environment in which the company operates, an increased competitive environment, a decline in market-dependent multiples or metrics (considered in both absolute terms and relative to peers), a change in the market for the company's products or services, or a regulatory or political development;
- cost factors such as increases in raw materials, labor, or other costs that have a negative effect on earnings and cash flows;
- overall financial performance such as negative or declining cash flows or a decline in actual or planned revenue or earnings compared with actual and projected results of relevant prior periods;
- other relevant entity-specific events such as changes in management, key personnel, strategy, or customers; contemplation of bankruptcy; or litigation;
- events affecting a reporting unit such as a change in the composition or carrying amount of its net assets, a more-likely-than-not expectation of selling or disposing all, or a portion, of a reporting unit, the testing for recoverability of a significant asset group within a reporting unit, or recognition of a goodwill impairment loss in the financial statements of a subsidiary that is a component of a reporting unit; and
- a sustained decrease in share price (considered in both absolute terms and relative to peers).

Goodwill is tested at a level of reporting referred to as "the reporting unit." The company's reporting units are defined as each of the three regional businesses within the global components business segment, which are the Americas, EMEA, and Asia/Pacific, each of the two regional businesses within the global ECS business segment, which are North America and EMEA, and eInfochips which was acquired in 2018.

An entity has the option to first assess qualitative factors to determine whether the existence of events or circumstances leads to a determination that it is more likely than not (that is, a likelihood of more than 50%) that the fair value of a reporting unit is less than its carrying amount. If, after assessing the totality of events or circumstances, an entity determines it is not more likely than not that the fair value of a reporting unit is less than its carrying amount, then the quantitative goodwill impairment test is unnecessary. The company has elected not to perform the qualitative assessment and performed the quantitative goodwill impairment test. The quantitative goodwill impairment test, used to identify both the existence of impairment and the amount of impairment loss, compares the fair value of a reporting unit with its carrying amount, including goodwill. If the carrying amount of the reporting unit is less than its fair value, no impairment exists. If the carrying amount of a reporting unit exceeds its fair value, an impairment loss shall be recognized in an amount equal to that excess, limited to the total amount of goodwill allocated to that reporting unit.

The company estimates the fair value of a reporting unit using the income approach. For the purposes of the income approach, fair value is determined based on the present value of estimated future cash flows, discounted at an appropriate risk-adjusted rate. The assumptions included in the income approach include forecasted revenues, gross profit margins, operating income margins, working capital cash flow, forecasted capital expenditures, perpetual growth rates, and long-term discount rates, among others, all of which require significant judgments by management. Actual results may differ from those assumed in the company's forecasts. The company also reconciles its discounted cash flow analysis to its current market capitalization allowing for a reasonable control premium. As of the first day of the fourth quarters of 2018, 2017, and 2016, the company's annual impairment testing did not indicate impairment at any of the company's reporting units.

A decline in general economic conditions or global equity valuations could impact the judgments and assumptions about the fair value of the company's businesses, and the company could be required to record an impairment charge in the future, which could impact the company's consolidated balance sheet, as well as the company's consolidated statement of operations. If the company was required to recognize an impairment charge in the future, the charge would not impact the company's consolidated cash flows, current liquidity, capital resources, and covenants under its existing revolving credit facility, asset securitization program, and other outstanding borrowings.

As of December 31, 2018, the company has $2.6 billion of goodwill, of which approximately $1.1 billion, $84.1 million and $61.2 million was allocated to the Americas, EMEA, and Asia/Pacific reporting units within the global components business segment, respectively, $788.1 million and $399.1 million was allocated to the North America and EMEA reporting units within the global ECS business segment, respectively, and $181.0 million was allocated to the eInfochips reporting unit. As of the date of the company's latest impairment test, the fair value of the Americas, EMEA, and Asia/Pacific reporting units within the global components business segment, the fair value of the North America and EMEA reporting units within the global ECS business segment, and the fair value of the eInfochips reporting unit exceeded their carrying values by approximately 14%, 152%, 13%, 435%, 140%, and 3%, respectively.

Impact of Recently Issued Accounting Standards

In August 2018, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update No. 2018-15, *Intangibles—Goodwill and Other— Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract (a consensus of the FASB Emerging Issues Task Force)* ("ASU No. 2018-15"). ASU No. 2018-15 aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop internal-use software. ASU No. 2018-15 is effective for the company in the first quarter of 2020, with early adoption permitted, and is to be applied either retrospectively or prospectively. The company is currently evaluating the potential effects of adopting the provisions of ASU No. 2018-15. The adoption is not expected to be material to the financial statements.

In February 2018, the FASB issued Accounting Standards Update No. 2018-02, *Income Statement - Reporting Comprehensive Income (Topic 220)* ("ASU No. 2018-02"). ASU No. 2018-02 provides financial statement preparers with an option to reclassify stranded tax effects within accumulated other comprehensive income to retained earnings in each period that is impacted by U.S. federal government tax legislation enacted in 2017. Effective January 1, 2018, the company adopted the provisions of ASU No. 2018-02 on a prospective basis as an adjustment to retained earnings of $4,116.

In August 2017, the FASB issued Accounting Standards Update No. 2017-12, *Derivatives and Hedging (Topic 815)* ("ASU No. 2017-12"). ASU No. 2017-12 simplifies certain aspects of hedge accounting and results in a more accurate portrayal of the economics of an entity's risk management activities in its financial statements. ASU No. 2017-12 is effective for the company in the first quarter of 2019, with early adoption permitted, and is to be applied on a modified retrospective basis. The company is currently evaluating the potential effects of adopting the provisions of ASU No. 2017-12. The adoption is not expected to be material to the financial statements.

In March 2017, the FASB issued Accounting Standards Update No. 2017-07, *Compensation - Retirement Benefits (Topic 715)* ("ASU No. 2017-07"). ASU No. 2017-07 requires that the service cost component of pension expense be included in the same line item as other compensation costs arising from services rendered by employees, with the other components of pension expense being classified outside of a subtotal of income from operations. Effective January 1, 2018, the company adopted the provisions of ASU No. 2017-07 on a retrospective basis for the presentation requirements.

In June 2016, the FASB issued Accounting Standards Update No. 2016-13, Financial Instruments - Credit Losses (Topic 326) ("ASU No. 2016-13"). ASU No. 2016-13 revises the methodology for measuring credit losses on financial instruments and the timing of when such losses are recorded. In November 2018 the FASB issued ASU No. 2018-19, Codification Improvements to Topic 326, Financial Instruments-Credit Losses, which provides supplemental guidance and clarification to ASU No. 2016-13 and must be adopted concurrently with the adoption of ASU No. 2016-13, cumulatively referred to as "Topic 326." Topic 326 is effective for the company in the first quarter of 2020, with early adoption permitted, and is to be applied using a modified retrospective approach. The company is currently evaluating the potential effects of adopting the provisions of ASU No. 2016-13.

In February 2016, the FASB issued Accounting Standards Update No. 2016-02, *Leases (Topic 842)* ("ASU No. 2016-02"). ASU No. 2016-02 requires the entity to recognize the assets and liabilities for the rights and obligations created by leased assets. Leases will be classified as either finance or operating, with classification affecting expense recognition in the income statement. In July 2018 the FASB issued ASU No. 2018-10, *Codification Improvements to Topic 842, Leases*, and ASU No. 2018-11, *Leases (Topic 842) Targeted Improvements*, which provide supplemental adoption guidance and clarification to ASU No. 2016-02, and must be adopted concurrently with the adoption of ASU No. 2016-02, cumulatively referred to as “Topic 842”. Topic 842 is effective for the company in the first quarter of 2019, with early adoption permitted, and is to be applied using either a modified retrospective approach, or an optional transition method which allows an entity to apply the new standard at the adoption date with a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption.

The company expects to adopt Topic 842 in the first quarter of 2019 under the optional transition method described above. In addition, the company will elect the short-term lease exception outlined in ASC 842. While the company continues to evaluate the effects of adopting the provisions of Topic 842, the company expects most existing operating lease commitments will be recognized as operating lease liabilities and right-of-use assets upon adoption. The adoption is not expected to be material to the financial statements, and based on our ongoing assessment, will increase total assets by less than 3%.

In January 2016, the FASB issued Accounting Standards Update No. 2016-01, Financial Instruments - Recognition and Measurement of Financial Assets and Financial Liabilities (Topic 825) ("ASU No. 2016-01"). ASU No. 2016-01 revises the classification and measurement of investments in certain equity investments and the presentation of certain fair value changes for certain financial liabilities measured at fair value. ASU No. 2016-01 requires the change in fair value of many equity investments to be recognized in net income. Effective January 1, 2018, the company adopted the provisions of ASU No. 2016-01 on a prospective basis as an adjustment to retained earnings of $18,238.

In May 2014, the FASB issued Accounting Standards Update No. 2014-09, Revenue from Contracts with Customers (Topic 606) ("ASU No. 2014-09"). ASU No. 2014-09 supersedes all existing revenue recognition guidance. Under ASU No. 2014-09, an entity should recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. In March, April, May, and December 2016, the FASB issued ASU No. 2016-08, Revenue from Contracts with Customers: Principal versus Agent Considerations (Reporting Revenue Gross versus Net) ("ASU No. 2016-08"); ASU No. 2016-10, Revenue from Contracts with Customers: Identifying Performance Obligations and Licensing ("ASU No. 2016-10"); ASU No. 2016-12, Revenue from Contracts with Customers: Narrow-Scope Improvements and Practical Expedients ("ASU No. 2016-12"); and ASU No. 2016-19, Technical Corrections and Improvements ("ASU No. 2016-19"), respectively. ASU No. 2016-08, ASU No. 2016-10, ASU No. 2016-12, and ASU No. 2016-19 provide supplemental adoption guidance and clarification to ASU No. 2014-09, and must be adopted concurrently with the adoption of ASU No. 2014-09, cumulatively referred to as "Topic 606".

On January 1, 2018, the company adopted Topic 606 applying the full retrospective method. The primary impact of adoption relates to the application of principal versus agent indicators and the determination of whether goods and services are distinct. In addition, the company is deferring certain revenue due to the determination of when transfer of control occurs. The deferrals are expected to be recognized within a year of the transaction date.

Information Relating to Forward-Looking Statements

This report includes forward-looking statements that are subject to numerous assumptions, risks, and uncertainties, which could cause actual results or facts to differ materially from such statements for a variety of reasons, including, but not limited to: industry conditions, the company's implementation of its new enterprise resource planning system, changes in product supply, pricing and customer demand, competition, other vagaries in the global components and global ECS markets, changes in relationships with key suppliers, increased profit margin pressure, the effects of additional actions taken to become more efficient or lower costs, risks related to the integration of acquired businesses, changes in legal and regulatory matters, and the company’s ability to generate additional cash flow. Forward-looking statements are those statements which are not statements of historical fact. These forward-looking statements can be identified by forward-looking words such as "expects," "anticipates," "intends," "plans," "may," "will," "believes," "seeks," "estimates," and similar expressions. Shareholders and other readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date on which they are made. The company undertakes no obligation to update publicly or revise any of the forward-looking statements.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk.

The company is exposed to market risk from changes in foreign currency exchange rates and interest rates.

Foreign Currency Exchange Rate Risk

The company, as a large global organization, faces exposure to adverse movements in foreign currency exchange rates. These exposures may change over time as business practices evolve and could materially impact the company's financial results in the future. The company's primary exposure relates to transactions in which the currency collected from customers is different from the currency utilized to purchase the product sold in Europe, the Asia Pacific region, Canada, and Latin America. The company's policy is to hedge substantially all such currency exposures for which natural hedges do not exist. Natural hedges exist when purchases and sales within a specific country are both denominated in the same currency and, therefore, no exposure exists to hedge with foreign exchange forward, option, or swap contracts (collectively, the "foreign exchange contracts"). In many regions in Asia, for example, sales and purchases are primarily denominated in U.S. dollars, resulting in a "natural hedge." Natural hedges exist in most countries in which the company operates, although the percentage of natural offsets, as compared with offsets that need to be hedged by foreign exchange contracts, will vary from country to country. The company does not enter into foreign exchange contracts for trading purposes. The risk of loss on a foreign exchange contract is the risk of nonperformance by the counterparties, which the company minimizes by limiting its counterparties to major financial institutions. The fair values of the foreign exchange contracts, which are nominal, are estimated using market quotes. The notional amount of the foreign exchange contracts at December 31, 2018 and 2017 was $607.7 million and $504.1 million, respectively.

The translation of the financial statements of the non-United States operations is impacted by fluctuations in foreign currency exchange rates. The change in consolidated sales and operating income was impacted by the translation of the company's international financial statements into U.S. dollars. This resulted in increased sales and operating income of $253.2 million and $4.6 million, respectively, for 2018, compared with the year-earlier period, based on 2017 sales and operating income at the average rate for 2018. Sales and operating income would decrease by approximately $756.8 million and $37.8 million, respectively, if average foreign exchange rates had declined by 10% against the U.S. dollar in 2018. These amounts were determined by considering the impact of a hypothetical foreign exchange rate on the sales and operating income of the company's international operations.

Interest Rate Risk

The company's interest expense, in part, is sensitive to the general level of interest rates in North America, Europe, and the Asia Pacific region. The company historically has managed its exposure to interest rate risk through the proportion of fixed-rate and floating-rate debt in its total debt portfolio. Additionally, the company utilizes interest rate swaps in order to manage its targeted mix of fixed- and floating-rate debt.

At December 31, 2018, approximately 68% of the company's debt was subject to fixed rates and 32% of its debt was subject to floating rates. A one percentage point change in average interest rates would cause net interest and other financing expense in 2018 to increase by $18.6 million. This was determined by considering the impact of a hypothetical interest rate on the company's average floating rate on investments and average outstanding variable debt. This analysis does not consider the effect of the level of overall economic activity that could exist. In the event of a change in the level of economic activity, which may adversely impact interest rates, the company could likely take actions to further mitigate any potential negative exposure to the change. However, due to the uncertainty of the specific actions that might be taken and their possible effects, the sensitivity analysis assumes no changes in the company's financial structure.

In July 2017, the Financial Conduct Authority (the authority that regulates LIBOR) announced it intends to stop compelling banks to submit rates for the calculation of LIBOR after 2021. The Alternative Reference Rates Committee ("ARRC") has proposed that the Secured Overnight Financing Rate ("SOFR") is the rate that represents best practice as the alternative to USD-LIBOR for use in derivatives and other financial contracts that are currently indexed to USD-LIBOR. ARRC has proposed a paced market transition plan to SOFR from USD-LIBOR and organizations are currently working on industry wide and company specific transition plans as it relates to derivatives and cash markets exposed to USD-LIBOR. The company has an asset securitization program, revolving credit facility, certain lines of credit, and interest rate swaps that are indexed to USD-LIBOR and is monitoring this activity and evaluating the related risks.

Item 8. Financial Statements and Supplementary Data.

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of Arrow Electronics, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Arrow Electronics, Inc. (the Company) as of December 31, 2018 and 2017, the related consolidated statements of operations, comprehensive income, equity and cash flows for each of the three years in the period ended December 31, 2018, and the related notes and financial statement schedule listed in the Index at Item 15(a) (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated February 7, 2019 expressed an unqualified opinion thereon.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 1975.
Denver, Colorado
February 7, 2019

ARROW ELECTRONICS, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands except per share data)

	Years Ended December 31,		
	2018	**2017**	**2016**
		(Adjusted)	(Adjusted)
Sales	$29,676,768	$26,554,563	$23,487,872
Cost of sales	25,975,856	23,197,595	20,343,550
Gross profit	3,700,912	3,356,968	3,144,322
Operating expenses:			
Selling, general, and administrative expenses	2,303,051	2,162,045	2,046,910
Depreciation and amortization	186,384	153,599	159,195
Loss on disposition of businesses, net	3,604	21,000	—
Restructuring, integration, and other charges	60,361	74,588	61,391
	2,553,400	2,411,232	2,267,496
Operating income	1,147,512	945,736	876,826
Equity in earnings (losses) of affiliated companies	(2,332)	3,424	7,573
Gain (loss) on investments, net	(14,166)	(6,577)	2,896
Loss on extinguishment of debt	—	59,545	—
Employee benefit plan expense	6,870	23,869	20,464
Interest and other financing expense, net	214,771	165,252	151,312
Income before income taxes	909,373	693,917	715,519
Provision for income taxes	187,799	286,541	190,731
Consolidated net income	721,574	407,376	524,788
Noncontrolling interests	5,379	5,200	1,973
Net income attributable to shareholders	$716,195	$402,176	$522,815
Net income per share:			
Basic	$8.19	$4.54	$5.75
Diluted	$8.10	$4.48	$5.68
Weighted-average shares outstanding:			
Basic	87,476	88,681	90,960
Diluted	88,444	89,766	92,033

See accompanying notes.

ARROW ELECTRONICS, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(In thousands)

	Years Ended December 31,		
	2018	**2017**	**2016**
		(Adjusted)	(Adjusted)
Consolidated net income	$721,574	$407,376	$524,788
Other comprehensive income:			
Foreign currency translation adjustment and other	(163,927)	248,317	(108,872)
Unrealized gain (loss) on investment securities, net of taxes	—	8,852	(2,439)
Unrealized gain (loss) on interest rate swaps designated as cash flow hedges, net of taxes	931	(2,359)	373
Employee benefit plan items, net of taxes	8,253	8,853	10,148
Other comprehensive income (loss)	(154,743)	263,663	(100,790)
Comprehensive income	566,831	671,039	423,998
Less: Comprehensive income attributable to noncontrolling interests	2,848	10,207	16
Comprehensive income attributable to shareholders	$563,983	$660,832	$423,982

See accompanying notes.

ARROW ELECTRONICS, INC.
CONSOLIDATED BALANCE SHEETS
(In thousands except par value)

	December 31, 2018	2017 (Adjusted)
ASSETS		
Current assets:		
Cash and cash equivalents	$509,327	$730,083
Accounts receivable, net	8,945,463	8,125,588
Inventories	3,878,678	3,302,518
Other current assets	274,832	256,028
Total current assets	13,608,300	12,414,217
Property, plant, and equipment, at cost:		
Land	7,882	12,866
Buildings and improvements	158,712	160,664
Machinery and equipment	1,425,933	1,330,730
	1,592,527	1,504,260
Less: Accumulated depreciation and amortization	(767,827)	(665,785)
Property, plant, and equipment, net	824,700	838,475
Investments in affiliated companies	83,693	88,347
Intangible assets, net	372,644	286,215
Goodwill	2,624,690	2,470,047
Other assets	270,418	361,966
Total assets	$17,784,445	$16,459,267
LIABILITIES AND EQUITY		
Current liabilities:		
Accounts payable	$7,631,879	$6,756,830
Accrued expenses	912,292	841,675
Short-term borrowings, including current portion of long-term debt	246,257	356,806
Total current liabilities	8,790,428	7,955,311
Long-term debt	3,239,115	2,933,045
Other liabilities	378,536	572,971
Commitments and contingencies (Notes 14 and 15)		
Equity:		
Shareholders' equity:		
Common stock, par value $1:		
Authorized - 160,000 shares in both 2018 and 2017		
Issued - 125,424 shares in both 2018 and 2017	125,424	125,424
Capital in excess of par value	1,135,934	1,114,167
Treasury stock (40,233 and 37,733 shares in 2018 and 2017, respectively), at cost	(1,972,254)	(1,762,239)
Retained earnings	6,335,335	5,596,786
Accumulated other comprehensive loss	(299,449)	(124,883)
Total shareholders' equity	5,324,990	4,949,255
Noncontrolling interests	51,376	48,685
Total equity	5,376,366	4,997,940
Total liabilities and equity	$17,784,445	$16,459,267

See accompanying notes.

ARROW ELECTRONICS, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Years Ended December 31,		
	2018	**2017**	**2016**
		(Adjusted)	(Adjusted)
Cash flows from operating activities:			
Consolidated net income	$721,574	$407,376	$524,788
Adjustments to reconcile consolidated net income to net cash provided by operations:			
Depreciation and amortization	186,384	153,599	159,195
Amortization of stock-based compensation	46,238	39,122	39,825
Equity in (earnings) losses of affiliated companies	2,332	(3,424)	(7,573)
Loss on extinguishment of debt	—	59,545	—
Deferred income taxes	1,236	38,412	28,740
(Gain) loss on investments, net	14,166	8,020	(2,300)
Loss on disposition of businesses, net	3,604	21,000	—
Impairment of property, plant, and equipment	—	4,761	—
Other	9,198	5,705	5,972
Change in assets and liabilities, net of effects of acquired and disposed businesses:			
Accounts receivable	(1,007,308)	(1,079,094)	(600,925)
Inventories	(618,875)	(379,835)	(403,980)
Accounts payable	936,423	816,602	582,165
Accrued expenses	112,123	(5,013)	46,439
Other assets and liabilities	(134,405)	37,781	(12,674)
Net cash provided by operating activities	272,690	124,557	359,672
Cash flows from investing activities:			
Cash consideration paid for acquired businesses, net of cash acquired	(331,563)	(3,628)	(64,751)
Proceeds from disposition of businesses	32,013	—	—
Acquisition of property, plant, and equipment	(135,336)	(203,949)	(164,695)
Proceeds from sale of property, plant, and equipment	5,421	24,433	—
Cash paid for customer relationship intangible asset	(20,000)	—	—
Other	(13,500)	(5,614)	(12,000)
Net cash used for investing activities	(462,965)	(188,758)	(241,446)
Cash flows from financing activities:			
Change in short-term and other borrowings	192,192	(41,316)	48,684
Proceeds from long-term bank borrowings, net	306,635	47,760	313,000
Proceeds from note offering, net	—	986,203	—
Redemption of notes	(300,000)	(558,887)	—
Proceeds from exercise of stock options	8,819	22,195	18,967
Repurchases of common stock	(243,305)	(174,239)	(216,446)
Purchase of shares from noncontrolling interest	—	(23,350)	—
Other	(1,174)	(1,620)	(2,007)
Net cash provided by (used for) financing activities	(36,833)	256,746	162,198
Effect of exchange rate changes on cash	6,352	3,218	(19,194)
Net increase (decrease) in cash and cash equivalents	(220,756)	195,763	261,230
Cash and cash equivalents at beginning of year	730,083	534,320	273,090
Cash and cash equivalents at end of year	$509,327	$730,083	$534,320

See accompanying notes.

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ARROW ELECTRONICS, INC.
CONSOLIDATED STATEMENTS OF EQUITY
(In thousands)

	Common Stock at Par Value	Capital in Excess of Par Value	Treasury Stock	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Noncontrolling Interests	Total
Balance at December 31, 2015	$125,424	$1,107,314	$(1,480,069)	$4,674,480	$ (284,706)	$ 52,368	$4,194,811
Effect of new accounting principles	—	—	—	(2,685)	—	—	(2,685)
Consolidated net income (Adjusted)	—	—	—	522,815	—	1,973	524,788
Other comprehensive loss (Adjusted)	—	—	—	—	(98,833)	(1,957)	(100,790)
Amortization of stock-based compensation	—	39,825	—	—	—	—	39,825
Shares issued for stock-based compensation awards	—	(40,072)	59,039	—	—	—	18,967
Tax benefits related to stock-based compensation awards	—	5,047	—	—	—	—	5,047
Repurchases of common stock	—	—	(216,446)	—	—	—	(216,446)
Distributions	—	—	—	—	—	(202)	(202)
Balance at December 31, 2016 (Adjusted)	125,424	1,112,114	(1,637,476)	5,194,610	(383,539)	52,182	4,463,315
Consolidated net income (Adjusted)	—	—	—	402,176	—	5,200	407,376
Other comprehensive income (Adjusted)	—	—	—	—	258,656	5,007	263,663
Amortization of stock-based compensation	—	39,122	—	—	—	—	39,122
Shares issued for stock-based compensation awards	—	(27,281)	49,476	—	—	—	22,195
Purchase of subsidiary shares from non-controlling interest	—	(9,788)	—	—	—	(13,562)	(23,350)
Repurchases of common stock	—	—	(174,239)	—	—	—	(174,239)
Distributions	—	—	—	—	—	(142)	(142)
Balance at December 31, 2017 (Adjusted)	125,424	1,114,167	(1,762,239)	5,596,786	(124,883)	48,685	4,997,940
Effect of new accounting principles	—	—	—	22,354	(22,354)	—	—
Consolidated net income	—	—	—	716,195	—	5,379	721,574
Other comprehensive loss	—	—	—	—	(152,212)	(2,531)	(154,743)
Amortization of stock-based compensation	—	46,238	—	—	—	—	46,238
Shares issued for stock-based compensation awards	—	(24,471)	33,290	—	—	—	8,819
Repurchases of common stock	—	—	(243,305)	—	—	—	(243,305)
Distributions	—	—	—	—	—	(157)	(157)
Balance at December 31, 2018	$125,424	$1,135,934	$(1,972,254)	$6,335,335	$ (299,449)	$ 51,376	$5,376,366

See accompanying notes.

ARROW ELECTRONICS, INC.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
(Dollars in thousands except per share data)

1.Summary of Significant Accounting Policies

Principles of Consolidation

The consolidated financial statements include the accounts of the company and its majority-owned subsidiaries. All significant intercompany transactions are eliminated.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires the company to make significant estimates and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes. Actual results could differ from those estimates.

Cash and Cash Equivalents

Cash equivalents consist of highly liquid investments, which are readily convertible into cash, with original maturities of three months or less.

Inventories

Inventories are stated at the lower of cost or net realizable value. Cost is determined on a moving average cost basis, which approximates the first-in, first-out method. Substantially all inventories represent finished goods held for sale.

Property, Plant, and Equipment

Property, plant, and equipment are stated at cost. Depreciation is computed on the straight-line method over the estimated useful lives of the assets. The estimated useful lives for depreciation of buildings is generally 20 to 30 years, and the estimated useful lives of machinery and equipment is generally three to ten years. Leasehold improvements are amortized over the shorter of the term of the related lease or the life of the improvement. Long-lived assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amounts may not be recoverable. If the carrying value of the asset can not be recovered from estimated future cash flows, undiscounted and without interest, the fair value of the asset is calculated using the present value of estimated net future cash flows. If the fair value is less than the carrying amount of the asset, a loss is recognized for the difference.

Software Development Costs

The company capitalizes certain internal and external costs incurred to acquire or create internal-use software. Capitalized software costs are amortized on a straight-line basis over the estimated useful life of the software, which is generally three to twelve years. At December 31, 2018 and 2017, the company had unamortized software development costs of $539,398 and $535,203, respectively, which are included in "Machinery and equipment" in the company's consolidated balance sheets. During 2016, the company changed the useful life on its global ERP software from ten to twelve years. The impact of the change was not material.

Identifiable Intangible Assets

Amortization of definite-lived intangible assets is computed on the straight-line method over the estimated useful lives of the assets, while indefinite-lived intangible assets are not amortized. Identifiable intangible assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amounts may not be recoverable. The company also tests indefinite-lived intangible assets, consisting of acquired trade names, for impairment at least annually as of the first day of the fourth quarter. If the fair value is less than the carrying amount of the asset, a loss is recognized for the difference.

Investments

Investments are accounted for using the equity method if the investment provides the company the ability to exercise significant influence, but not control, over an investee. Significant influence is generally deemed to exist if the company has an ownership interest in the voting stock of the investee between 20% and 50%, although other factors, such as representation on the investee's

ARROW ELECTRONICS, INC.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
(Dollars in thousands except per share data)

Board of Directors, are considered in determining whether the equity method is appropriate. The company records its investments in equity method investees meeting these characteristics as "Investments in affiliated companies" in the company's consolidated balance sheets.

All other equity investments, which consist of investments for which the company does not possess the ability to exercise significant influence, are measured at fair value, using quoted market prices, and are included in "Other assets" in the company's consolidated balance sheets. Changes in fair value are recorded in "Gain (Loss) on investments, net" in the company's consolidated statements of operations. During the year-ended December 31, 2018, the company recorded a net loss on investments of $14.2 million.

The company records equity investments that do not have readily determinable fair values at cost minus impairment, if any, plus or minus changes resulting from observable price changes. The company does not currently hold any equity investments without readily determinable fair values.

Goodwill

Goodwill represents the excess of the cost of an acquisition over the fair value of the net assets acquired. The company tests goodwill for impairment annually as of the first day of the fourth quarter and/or when an event occurs or circumstances change such that it is more likely than not that an impairment may exist. Examples of such events and circumstances that the company would consider include the following:

- macroeconomic conditions such as deterioration in general economic conditions, limitations on accessing capital, fluctuations in foreign exchange rates, or other developments in equity and credit markets;
- industry and market considerations such as a deterioration in the environment in which the company operates, an increased competitive environment, a decline in market-dependent multiples or metrics (considered in both absolute terms and relative to peers), a change in the market for the company's products or services, or a regulatory or political development;
- cost factors such as increases in raw materials, labor, or other costs that have a negative effect on earnings and cash flows;
- overall financial performance such as negative or declining cash flows or a decline in actual or planned revenue or earnings compared with actual and projected results of relevant prior periods;
- other relevant entity-specific events such as changes in management, key personnel, strategy, or customers; contemplation of bankruptcy; or litigation;
- events affecting a reporting unit such as a change in the composition or carrying amount of its net assets, a more-likely-than-not expectation of selling or disposing all, or a portion, of a reporting unit, the testing for recoverability of a significant asset group within a reporting unit, or recognition of a goodwill impairment loss in the financial statements of a subsidiary that is a component of a reporting unit; and
- a sustained decrease in share price (considered in both absolute terms and relative to peers).

Goodwill is tested at a level of reporting referred to as "the reporting unit." The company's reporting units are defined as each of the three regional businesses within the global components business segment, which are the Americas; Europe, the Middle East, and Africa ("EMEA"); and Asia/Pacific, each of the two regional businesses within the global ECS business segment, which are North America and EMEA, and eInfochips which was acquired in 2018.

An entity has the option to first assess qualitative factors to determine whether the existence of events or circumstances leads to a determination that it is more likely than not (that is, a likelihood of more than 50%) that the fair value of a reporting unit is less than its carrying amount. If, after assessing the totality of events or circumstances, an entity determines it is not more likely than not that the fair value of a reporting unit is less than its carrying amount, then the quantitative goodwill impairment test is unnecessary. The company has elected not to perform the qualitative assessment and performed the quantitative goodwill impairment test. The quantitative goodwill impairment test, used to identify both the existence of impairment and the amount of impairment loss, compares the fair value of a reporting unit with its carrying amount, including goodwill. If the carrying amount of the reporting unit is less than its fair value, no impairment exists. If the carrying amount of a reporting unit exceeds its fair value, an impairment loss shall be recognized in an amount equal to that excess, limited to the total amount of goodwill allocated to that reporting unit.

The company estimates the fair value of a reporting unit using the income approach. For the purposes of the income approach, fair value is determined based on the present value of estimated future cash flows, discounted at an appropriate risk-adjusted rate. The assumptions included in the income approach include forecasted revenues, gross profit margins, operating income margins, working capital cash flow, forecasted capital expenditures, perpetual growth rates, and long-term discount rates, among others,

ARROW ELECTRONICS, INC.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
(Dollars in thousands except per share data)

all of which require significant judgments by management. Actual results may differ from those assumed in the company's forecasts. The company also reconciles its discounted cash flow analysis to its current market capitalization allowing for a reasonable control premium. As of the first day of the fourth quarters of 2018, 2017, and 2016, the company's annual impairment testing did not indicate impairment at any of the company's reporting units.

A decline in general economic conditions or global equity valuations could impact the judgments and assumptions about the fair value of the company's businesses, and the company could be required to record an impairment charge in the future, which could impact the company's consolidated balance sheet, as well as the company's consolidated statement of operations. If the company was required to recognize an impairment charge in the future, the charge would not impact the company's consolidated cash flows, current liquidity, capital resources, and covenants under its existing revolving credit facility, asset securitization program, and other outstanding borrowings.

As of December 31, 2018, the company has $2.6 billion of goodwill, of which approximately $1.1 billion, $84.1 million and $61.2 million was allocated to the Americas, EMEA, and Asia/Pacific reporting units within the global components business segment, respectively, $788.1 million and $399.1 million was allocated to the North America and EMEA reporting units within the global ECS business segment, respectively, and $181.0 million was allocated to the eInfochips reporting unit. As of the date of the company's latest impairment test, the fair value of the Americas, EMEA, and Asia/Pacific reporting units within the global components business segment, the fair value of the North America and EMEA reporting units within the global ECS business segment, and the fair value of the eInfochips reporting unit exceeded their carrying values by approximately 14%, 152%, 13%, 435%, 140%, and 3% respectively.

Foreign Currency Translation and Remeasurement

The assets and liabilities of international operations are translated at the exchange rates in effect at the balance sheet date. Revenue and expense accounts are translated at the monthly average exchange rates. Adjustments arising from the translation of the foreign currency financial statements of the company's international operations are reported as a component of "Accumulated other comprehensive loss" in the company's consolidated balance sheets.

For foreign currency remeasurement from each local currency into the appropriate functional currency, monetary assets and liabilities are remeasured to functional currencies using current exchange rates in effect at the balance sheet date. Gains or losses from these remeasurements were not significant and have been included in the company’s consolidated statements of operations. Non-monetary assets and liabilities are recorded at historical exchange rates.

Income Taxes

Income taxes are accounted for under the liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the financial statements. Under this method, deferred tax assets and liabilities are determined on the basis of differences between the tax bases of assets and liabilities and their financial reporting amounts using enacted tax rates in effect for the year in which the differences are expected to reverse. The effect of a change in tax rates on deferred tax assets and liabilities is recognized in income in the period that includes the enactment date.

The carrying value of the company's deferred tax assets is dependent upon the company's ability to generate sufficient future taxable income in certain tax jurisdictions. Should the company determine that it is more likely than not that some portion or all of its deferred tax assets will not be realized, a valuation allowance to reduce the deferred tax assets is established in the period such determination is made. The assessment of the need for a valuation allowance requires considerable judgment on the part of management with respect to the benefits that could be realized from future taxable income, as well as other positive and negative factors.

It is also the company's policy to provide for uncertain tax positions and the related interest and penalties based upon management's assessment of whether a tax benefit is more likely than not to be sustained upon examination by tax authorities. To the extent the company prevails in matters for which a liability for an unrecognized tax benefit is established, or is required to pay amounts in excess of the liability, or when other facts and circumstances change, the company's effective tax rate in a given financial statement period may be materially affected.

ARROW ELECTRONICS, INC.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
(Dollars in thousands except per share data)

Net Income Per Share

Basic net income per share is computed by dividing net income attributable to shareholders by the weighted-average number of common shares outstanding for the period. Diluted net income per share reflects the potential dilution that would occur if securities or other contracts to issue common stock were exercised or converted into common stock.

Comprehensive Income

Comprehensive income consists of consolidated net income, foreign currency translation adjustment, unrealized gains or losses on post-retirement benefit plans, and unrealized gains or losses on investment securities and interest rate swaps designated as cash flow hedges. Unrealized gains or losses on investment securities and interest rate swaps are net of any reclassification adjustments for realized gains or losses included in consolidated net income. Foreign currency translation adjustments included in comprehensive income were not tax effected as investments in international affiliates are deemed to be permanent. All other comprehensive income items are net of related income taxes.

Stock-Based Compensation

The company records share-based payment awards exchanged for employee services at fair value on the date of grant and expenses the awards in the consolidated statements of operations over the requisite employee service period. Stock-based compensation expense includes an estimate for forfeitures. Stock-based compensation expense related to awards with a market or performance condition which cliff vest, are recognized over the vesting period on a straight line basis. Stock-based compensation awards with service conditions only are also recognized on a straight-line basis.

Segment Reporting

Operating segments are defined as components of an enterprise for which separate financial information is available that is evaluated regularly by the chief operating decision maker in deciding how to allocate resources and in assessing performance. The company's operations are classified into two reportable business segments: global components and global ECS.

Revenue Recognition

The company recognizes revenue when there is persuasive evidence of an arrangement, delivery has occurred or services are rendered, the sales price is fixed or determinable, and collectability is reasonably assured. Revenue typically is recognized at time of shipment. Sales are recorded net of discounts, rebates, and returns, which historically have not been material. Tariffs are included in sales as the company has enforceable rights to additional consideration to cover the cost of tariffs.

The Company allows its customers to return product for exchange or credit in limited circumstances. A liability is recorded at the time of sale for estimated product returns based upon historical experience. The Company also provides volume rebates and other discounts to certain customers which are considered variable consideration. A provision for customer rebates and other discounts is recorded as a reduction of revenue at the time of sale based on an evaluation of the contract terms and historical experience.

A portion of the company's business involves shipments directly from its suppliers to its customers. In these transactions, the company is responsible for negotiating price both with the supplier and customer, payment to the supplier, establishing payment terms with the customer, product returns, and has risk of loss if the customer does not make payment. As the principal with the customer, the company recognizes the sale and cost of sale of the product upon receiving notification from the supplier that the product was shipped.

The Company has contracts with certain customers where the Company’s performance obligation is to arrange for the products or services to be provided by another party. In these arrangements, as the Company assumes an agency relationship in the transaction, revenue is recognized in the amount of the net fee associated with serving as an agent. These arrangements relate to the sale of supplier service contracts to customers where the company has no future obligation to perform under these contracts or the rendering of logistics services for the delivery of inventory for which the company does not assume the risks and rewards of ownership.

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Shipping and Handling Costs

The company reports shipping and handling costs, primarily related to outbound freight, in the consolidated statements of operations as a component of selling, general, and administrative expenses. Shipping and handling costs included in selling, general, and administrative expenses totaled $103,533, $90,709, and $79,257 in 2018, 2017, and 2016, respectively.

Impact of Recently Issued Accounting Standards

In August 2018, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update No. 2018-15, *Intangibles—Goodwill and Other— Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract (a consensus of the FASB Emerging Issues Task Force)* ("ASU No. 2018-15"). ASU No. 2018-15 aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop internal-use software. ASU No. 2018-15 is effective for the company in the first quarter of 2020, with early adoption permitted, and is to be applied either retrospectively or prospectively. The company is currently evaluating the potential effects of adopting the provisions of ASU No. 2018-15. The adoption is not expected to be material to the financial statements.

In February 2018, the FASB issued Accounting Standards Update No. 2018-02, *Income Statement - Reporting Comprehensive Income (Topic 220)* ("ASU No. 2018-02"). ASU No. 2018-02 provides financial statement preparers with an option to reclassify stranded tax effects within accumulated other comprehensive income to retained earnings in each period that is impacted by U.S. federal government tax legislation enacted in 2017. Effective January 1, 2018, the company adopted the provisions of ASU No. 2018-02 on a prospective basis as an adjustment to increase retained earnings of $4,116.

In August 2017, the FASB issued Accounting Standards Update No. 2017-12, *Derivatives and Hedging (Topic 815)* ("ASU No. 2017-12"). ASU No. 2017-12 simplifies certain aspects of hedge accounting and results in a more accurate portrayal of the economics of an entity's risk management activities in its financial statements. ASU No. 2017-12 is effective for the company in the first quarter of 2019, with early adoption permitted, and is to be applied on a modified retrospective basis. The company is currently evaluating the potential effects of adopting the provisions of ASU No. 2017-12. The adoption is not expected to be material to the financial statements.

In March 2017, the FASB issued Accounting Standards Update No. 2017-07, *Compensation - Retirement Benefits (Topic 715)* ("ASU No. 2017-07"). ASU No. 2017-07 requires that the service cost component of pension expense be included in the same line item as other compensation costs arising from services rendered by employees, with the other components of pension expense being classified outside of a subtotal of income from operations. Effective January 1, 2018, the company adopted the provisions of ASU No. 2017-07 on a retrospective basis for the presentation requirements.

In June 2016, the FASB issued Accounting Standards Update No. 2016-13, Financial Instruments - Credit Losses (Topic 326) ("ASU No. 2016-13"). ASU No. 2016-13 revises the methodology for measuring credit losses on financial instruments and the timing of when such losses are recorded. In November 2018 the FASB issued ASU No. 2018-19, Codification Improvements to Topic 326, Financial Instruments-Credit Losses, which provides supplemental guidance and clarification to ASU No. 2016-13 and must be adopted concurrently with the adoption of ASU No. 2016-13, cumulatively referred to as "Topic 326." Topic 326 is effective for the company in the first quarter of 2020, with early adoption permitted, and is to be applied using a modified retrospective approach. The company is currently evaluating the potential effects of adopting the provisions of ASU No. 2016-13.

In February 2016, the FASB issued Accounting Standards Update No. 2016-02, *Leases (Topic 842)* ("ASU No. 2016-02"). ASU No. 2016-02 requires the entity to recognize the assets and liabilities for the rights and obligations created by leased assets. Leases will be classified as either finance or operating, with classification affecting expense recognition in the income statement. In July 2018 the FASB issued ASU No. 2018-10, *Codification Improvements to Topic 842, Leases*, and ASU No. 2018-11, *Leases (Topic 842) Targeted Improvements*, which provide supplemental adoption guidance and clarification to ASU No. 2016-02, and must be adopted concurrently with the adoption of ASU No. 2016-02, cumulatively referred to as "Topic 842." Topic 842 is effective for the company in the first quarter of 2019, with early adoption permitted, and is to be applied using either a modified retrospective approach, or an optional transition method which allows an entity to apply the new standard at the adoption date with a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption.

The company expects to adopt Topic 842 in the first quarter of 2019 under the optional transition method described above. In addition, the company will elect the short-term lease exception outlined in ASC 842. While the company continues to evaluate

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the effects of adopting the provisions of Topic 842, the company expects most existing operating lease commitments will be recognized as operating lease liabilities and right-of-use assets upon adoption. The adoption is not expected to be material to the financial statements, and based on our ongoing assessment, will increase total assets by less than 3%.

In January 2016, the FASB issued Accounting Standards Update No. 2016-01, Financial Instruments - Recognition and Measurement of Financial Assets and Financial Liabilities (Topic 825) ("ASU No. 2016-01"). ASU No. 2016-01 revises the classification and measurement of investments in certain equity investments and the presentation of certain fair value changes for certain financial liabilities measured at fair value. ASU No. 2016-01 requires the change in fair value of many equity investments to be recognized in net income. Effective January 1, 2018, the company adopted the provisions of ASU No. 2016-01 on a prospective basis as an adjustment to increase retained earnings of $18,238.

In May 2014, the FASB issued Accounting Standards Update No. 2014-09, Revenue from Contracts with Customers (Topic 606) ("ASU No. 2014-09"). ASU No. 2014-09 supersedes all existing revenue recognition guidance. Under ASU No. 2014-09, an entity should recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. In March, April, May, and December 2016, the FASB issued ASU No. 2016-08, Revenue from Contracts with Customers: Principal versus Agent Considerations (Reporting Revenue Gross versus Net) ("ASU No. 2016-08"); ASU No. 2016-10, Revenue from Contracts with Customers: Identifying Performance Obligations and Licensing ("ASU No. 2016-10"); ASU No. 2016-12, Revenue from Contracts with Customers: Narrow-Scope Improvements and Practical Expedients ("ASU No. 2016-12"); and ASU No. 2016-19, Technical Corrections and Improvements ("ASU No. 2016-19"), respectively. ASU No. 2016-08, ASU No. 2016-10, ASU No. 2016-12, and ASU No. 2016-19 provide supplemental adoption guidance and clarification to ASU No. 2014-09, and must be adopted concurrently with the adoption of ASU No. 2014-09, cumulatively referred to as "Topic 606."

On January 1, 2018, the company adopted Topic 606 applying the full retrospective method, including an adjustment to retained earnings of $2,685. The primary impact of adoption relates to the application of principal versus agent indicators and the determination of whether goods and services are distinct. In addition, the company is deferring certain revenue due to the determination of when transfer of control occurs. The deferrals are expected to be recognized within a year of the transaction date.

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The following table presents the effect of the adoption of Topic 606, ASU No. 2017-07, and other prior period reclassifications. The effect of these changes for each quarter of 2017 is presented in Note 17.

	Year Ended December 31, 2017			**Year Ended December 31, 2016**		
	As Previously Reported	**Adjustments****	**Adjusted for New Standards**	**As Previously Reported**	**Adjustments****	**Adjusted for New Standards**
Sales	$26,812,508	$(257,945)	$26,554,563	$23,825,261	$(337,389)	$23,487,872
Cost of sales	23,455,169	(257,574)	23,197,595	20,681,062	(337,512)	20,343,550
Gross profit	3,357,339	(371)	3,356,968	3,144,199	123	3,144,322
Operating expenses:						
Selling, general, and administrative expenses	2,162,996	(951)	2,162,045	2,052,863	(5,953)	2,046,910
Depreciation and amortization	153,599	—	153,599	159,195	—	159,195
Loss on disposition of businesses, net	21,000	—	21,000	—	—	—
Restructuring, integration, and other charges	91,294	(16,706)	74,588	73,602	(12,211)	61,391
	2,428,889	(17,657)	2,411,232	2,285,660	(18,164)	2,267,496
Operating income	928,450	17,286	945,736	858,539	18,287	876,826
Equity in earnings of affiliated companies	3,424	—	3,424	7,573	—	7,573
Gain (loss) on investments, net	(14,231)	7,654	(6,577)	—	2,896	2,896
Loss on extinguishment of debt	59,545	—	59,545	—	—	—
Employee benefit plan expense	—	23,869	23,869	—	20,464	20,464
Interest and other financing expense, net	163,810	1,442	165,252	150,715	597	151,312
Income before income taxes	694,288	(371)	693,917	715,397	122	715,519
Provision for income taxes	287,126	(585)	286,541	190,674	57	190,731
Consolidated net income	407,162	214	407,376	524,723	65	524,788
Noncontrolling interests	5,200	—	5,200	1,973	—	1,973
Net income attributable to shareholders	$401,962	$ 214	$402,176	$522,750	$ 65	$522,815
Net income per share:						
Basic*	$4.53	$ 0.01	$4.54	$5.75	$ —	$5.75
Diluted*	$4.48	$ —	$4.48	$5.68	$ —	$5.68

* The sum of the as previously reported and as adjusted may not agree to totals, as presented, due to rounding.
** Topic 606 impacted sales and cost of sales. ASU No. 2017-07 and other reclassifications impacted operating and non-operating expenses.

2. Acquisitions

The company accounts for acquisitions using the acquisition method of accounting. The results of operations of acquisitions are included in the company's consolidated results from their respective dates of acquisition. The company allocates the purchase price of each acquisition to the tangible assets, liabilities, and identifiable intangible assets acquired based on their estimated fair values. In certain circumstances, a portion of purchase price may be contingent upon the achievement of certain operating results. The fair values assigned to identifiable intangible assets acquired and contingent consideration were determined primarily by using an income approach which was based on assumptions and estimates made by management. Significant assumptions utilized in

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the income approach were based on company specific information and projections, which are not observable in the market and are thus considered Level 3 measurements by authoritative guidance (see Note 7). The excess of the purchase price over the fair value of the identified assets and liabilities has been recorded as goodwill.

2018 Acquisitions

On January 8, 2018, the company acquired eInfochips for a purchase price of $327,628, which included $14,769 of cash acquired. eInfochips services customers at every phase of technology deployment, including custom hardware and software, and new Internet of Things based business models. eInfochips is recorded in the company's global components business segment.

Since the date of the acquisition, eInfochips sales of $89,139 were included in the company's consolidated results of operations.

The following table summarizes the allocation of the net consideration paid to the fair value of the assets acquired and liabilities assumed for the eInfochips acquisition:

Accounts receivable, net	$13,670
Inventories	1,512
Property, plant, and equipment	3,485
Other assets	46,488
Identifiable intangible assets	128,000
Goodwill	197,126
Accounts payable	(520)
Accrued expenses	(33,836)
Deferred tax liability	(41,474)
Other liabilities	(1,592)
Cash consideration paid, net of cash acquired	$312,859

In connection with the eInfochips acquisition, the company allocated $109,000 and $19,000 to customer relationships and trade name with a life of 15 years and 10 years, respectively.

Assets and liabilities acquired are initially recognized based on preliminary estimates. During the fourth quarter of 2018, the company finalized the valuation of identifiable intangible assets and the related deferred taxes. Final estimates were recorded which resulted in an increase of $22,755 in other assets, $56,290 in identifiable intangible assets, $25,241 in accrued expenses, and $19,505 in deferred tax liability.

The goodwill related to the eInfochips acquisition represents the expected synergies from combining operations and was recorded in the company's global components business segment and is not tax deductible.

During 2018, the company completed one additional acquisition with a purchase price of approximately $18,704, net of cash acquired. The impact of this acquisition was not material to the company's consolidated financial position or results of operations.

The following table summarizes the company's consolidated results of operations for 2017, as well as the unaudited pro forma consolidated results of operations of the company, as though the 2018 acquisitions occurred on January 1, 2017:

	For the Year Ended December 31, 2017	
	As Reported	**Pro Forma**
Sales	$26,554,563	$26,712,335
Net income attributable to shareholders	402,176	405,966
Net income per share:		
Basic	$4.54	$4.58
Diluted	$4.48	$4.52

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2017 Acquisitions

During 2017, the company acquired an additional 11.9% of the noncontrolling interest common shares of Data Modul AG for $23,350, increasing the company's ownership interest in Data Modul to 69.2%. The impact of this acquisition was not material to the company's consolidated financial position or results of operations.

During 2017, the company completed two acquisitions for $3,628, net of cash acquired. The impact of these acquisitions was not material to the company's consolidated financial position or results of operations. The pro forma impact of the 2017 acquisitions on the consolidated results of operations of the company for 2017, as though the acquisitions occurred on January 1, 2017, was also not material.

2016 Acquisitions

During 2016, the company completed three acquisitions for $63,869, net of cash acquired. The impact of these acquisitions was not material to the company's consolidated financial position or results of operations. The pro forma impact of the 2016 acquisitions on the consolidated results of operations of the company for 2016, as though the acquisitions occurred on January 1, 2016, was also not material.

3. Goodwill and Intangible Assets

Goodwill represents the excess of the cost of an acquisition over the fair value of the net assets acquired. The company tests goodwill and other indefinite-lived intangible assets for impairment annually as of the first day of the fourth quarter, or more frequently if indicators of potential impairment exist.

As of the first day of the fourth quarters of 2018, 2017, and 2016, the company's annual impairment testing did not result in any indicators of impairment of goodwill of companies acquired.

Goodwill of companies acquired, allocated to the company's business segments, is as follows:

	Global Components	**Global ECS**	**Total**
Balance as of December 31, 2016 (a)	$ 1,239,741	$ 1,152,479	$ 2,392,220
Acquisitions	6,149	—	6,149
Loss on disposition of businesses, net	—	(7,922)	(7,922)
Foreign currency translation adjustment	18,979	60,621	79,600
Balance as of December 31, 2017 (b)	$ 1,264,869	$ 1,205,178	$ 2,470,047
Acquisitions	197,126	14,175	211,301
Loss on disposition of businesses, net	—	—	—
Foreign currency translation adjustment	(24,494)	(32,164)	(56,658)
Balance as of December 31, 2018 (b)	$ 1,437,501	$ 1,187,189	$ 2,624,690

(a) The total carrying value of goodwill of companies acquired as of December 31, 2016 in the table above is reflected net of $1,018,780 of accumulated impairment charges, of which $716,925 was recorded in the global components business segment and $301,855 was recorded in the global ECS business segment.
(b) The total carrying value of goodwill of companies acquired as of December 31, 2018 and December 31, 2017, in the table above is reflected net of $1,026,702 of accumulated impairment charges, of which $716,925 was recorded

in the global components business segment and $309,777 was recorded in the global ECS business segment.

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Intangible assets, net, are comprised of the following as of December 31, 2018:

	Weighted-Average Life	Gross Carrying Amount	Accumulated Amortization	Net
Non-amortizable trade names	indefinite	$ 101,000	$ —	$ 101,000
Customer relationships	11 years	475,050	(221,822)	253,228
Developed technology	5 years	6,340	(4,311)	2,029
Amortizable trade name	9 years	19,940	(3,553)	16,387
		$ 602,330	$ (229,686)	$ 372,644

Intangible assets, net, are comprised of the following as of December 31, 2017:

	Weighted-Average Life	Gross Carrying Amount	Accumulated Amortization	Net
Non-amortizable trade names	indefinite	$ 101,000	$ —	$ 101,000
Customer relationships	10 years	440,167	(259,337)	180,830
Developed technology	5 years	6,340	(3,043)	3,297
Amortizable trade name	5 years	2,409	(1,321)	1,088
		$ 549,916	$ (263,701)	$ 286,215

In December 2018, the company completed an asset acquisition of a $20,000 customer relationship intangible asset with an assigned useful life of 10 years. The intangible asset is included in the company’s global components segment.

Amortization expense related to identifiable intangible assets was $49,356, $50,071, and $54,886 for the years ended December 31, 2018, 2017, and 2016, respectively. Amortization expense for each of the years 2019 through 2023 is estimated to be approximately $44,336, $38,434, $32,462, $30,180, and $24,271, respectively.

4. Investments in Affiliated Companies

The company owns a 50% interest in several joint ventures with Marubun Corporation (collectively "Marubun/Arrow") and several interests ranging from 43% to 50% in other joint ventures and equity method investments. These investments are accounted for using the equity method.

The following table presents the company's investment in the following joint ventures at December 31:

	2018	2017
Marubun/Arrow	$73,253	$70,167
Other	10,440	18,180
	$83,693	$88,347

The equity in earnings of affiliated companies for the years ended December 31 consists of the following:

	2018	2017	2016

Marubun/Arrow	$5,543	$6,842	$7,629
Other	(7,875)	(3,418)	(56)
	$(2,332)	$3,424	$7,573

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Under the terms of various joint venture agreements, the company is required to pay its pro-rata share of the third party debt of the joint ventures in the event that the joint ventures are unable to meet their obligations. At December 31, 2018, the company's pro-rata share of this debt was approximately $2,860. There were no outstanding borrowings under the third party debt agreements of the joint ventures as of December 31, 2017. The company believes there is sufficient equity in each of the joint ventures to meet the obligations.

5. Accounts Receivable

Accounts receivable, net, consists of the following at December 31:

	2018	2017
Accounts receivable	$9,021,051	$8,181,879
Allowances for doubtful accounts	(75,588)	(56,291)
Accounts receivable, net	$8,945,463	$8,125,588

The company maintains allowances for doubtful accounts for estimated losses resulting from the inability of its customers to make required payments. The allowances for doubtful accounts are determined using a combination of factors, including the length of time the receivables are outstanding, the current business environment, and historical experience. The company also has notes receivables with certain customers, which are included in "Accounts Receivable, net" in the company's consolidated balance sheets. One such customer, with a combined note and accounts receivable balance of approximately $24,252 and $24,600, as of December 31, 2018 and 2017, respectively, became delinquent on its repayment of the note during the fourth quarter of 2016. The company believes that it has adequately reserved for potential losses; however, it is possible that it could incur a loss in excess of the reserve.

6. Debt

Short-term borrowings, including current portion of long-term debt, consists of the following at December 31:

	2018	2017
3.00% note, due 2018	$—	$299,857
Borrowings on lines of credit	180,000	—
Other short-term borrowings	66,257	56,949
	$246,257	$356,806

Other short-term borrowings are primarily utilized to support working capital requirements. The weighted-average interest rate on these borrowings was 2.49% and 2.60% at December 31, 2018 and 2017, respectively.

The company has $200,000 in uncommitted lines of credit. There were $180,000 of outstanding borrowings under the uncommitted lines of credit at December 31, 2018 and no outstanding borrowings at December 31, 2017. These borrowings were provided on a short-term basis and the maturity is agreed upon between the company and the lender. The lines had an effective interest rate of 3.39% at December 31, 2018.

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

	2018	2017
Asset securitization program	$810,000	$490,000
6.00% notes, due 2020	209,147	208,971
5.125% notes, due 2021	130,546	130,400
3.50% notes, due 2022	347,288	346,518
4.50% notes, due 2023	297,622	297,122
3.25% notes, due 2024	494,091	493,161
4.00% notes, due 2025	345,762	345,182
7.50% senior debentures, due 2027	109,776	109,694
3.875% notes, due 2028	494,095	493,563
Other obligations with various interest rates and due dates	788	18,434
	$3,239,115	$2,933,045

The 7.50% senior debentures are not redeemable prior to their maturity. All other notes may be called at the option of the company subject to "make whole" clauses.

The estimated fair market value of long-term debt at December 31, using quoted market prices, is as follows:

	2018	2017
3.00% notes, due 2018	$ —	$300,500
6.00% notes, due 2020	214,500	224,000
5.125% notes, due 2021	134,500	139,000
3.50% notes, due 2022	345,000	355,000
4.50% notes, due 2023	303,500	315,500
3.25% notes, due 2024	467,000	491,000
4.00% notes, due 2025	340,500	356,500
7.50% senior debentures, due 2027	128,000	138,500
3.875% notes, due 2028	458,500	501,000

The carrying amount of the company's short-term borrowings in various countries, borrowings on lines of credit, revolving credit facility, asset securitization program, and other obligations approximate their fair value.

The company has a revolving credit facility that may be used by the company for general corporate purposes including working capital in the ordinary course of business, letters of credit, repayment, prepayment or purchase of long-term indebtedness, acquisitions, and as support for the company's commercial paper program, as applicable. In December 2018, the company amended its revolving credit facility and, among other things, increased its borrowing capacity from $1,800,000 to $2,000,000 and extended its term to mature in December 2023. Interest on borrowings under the revolving credit facility is calculated using a base rate or a Eurocurrency rate plus a spread (1.18% at December 31, 2018), which is based on the company's credit ratings, or an effective interest rate of 2.37% at December 31, 2018. The facility fee, which is based on the company's credit ratings, was .20% of the total borrowing capacity at December 31, 2018. There were no outstanding borrowings under the revolving credit facility at December 31, 2018 and 2017.

The company has a commercial paper program and the maximum aggregate balance of commercial paper notes outstanding may not exceed the borrowing capacity of $1,200,000. The company had no outstanding borrowings under this program as of December 31, 2018 and 2017. The commercial paper program had an effective interest rate of 2.93% for the year-ended December 31, 2018.

The company has an asset securitization program collateralized by accounts receivable of certain of its subsidiaries. In June 2018, the company amended its asset securitization program and, among other things, increased its borrowing capacity from $910,000

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to $1,200,000 and extended its term to mature to June 2021. The asset securitization program is conducted through Arrow Electronics Funding Corporation ("AFC"), a wholly-owned, bankruptcy remote subsidiary. The asset securitization program does not qualify for true sale treatment. Accordingly, the accounts receivable and related debt obligation remain on the company's consolidated balance sheets. Interest on borrowings is calculated using a base rate plus a spread (.40% at December 31, 2018), or an effective interest rate of 2.91% at December 31, 2018. The facility fee is .40% of the total borrowing capacity.

At December 31, 2018 and 2017, the company had $810,000 and $490,000, respectively, in outstanding borrowings under the asset securitization program, which was included in "Long-term debt" in the company's consolidated balance sheets. Total collateralized accounts receivable of approximately $2,754,400 and $2,270,500, respectively, were held by AFC and were included in "Accounts receivable, net" in the company's consolidated balance sheets. Any accounts receivable held by AFC would likely not be available to other creditors of the company in the event of bankruptcy or insolvency proceedings before repayment of any outstanding borrowings under the asset securitization program.

Both the revolving credit facility and asset securitization program include terms and conditions that limit the incurrence of additional borrowings and require that certain financial ratios be maintained at designated levels. The company was in compliance with all covenants as of December 31, 2018 and is currently not aware of any events that would cause non-compliance with any covenants in the future.

During March 2018, the company redeemed $300,000 principal amount of its 3.00% notes due March 2018.

During 2017, the company completed the sale of $500,000 principal amount of 3.875% notes due in 2028. The net proceeds of the offering of $494,625 were used to redeem the company's 6.875% senior debenture due June 2018 and refinance a portion of the company's 6.00% notes due April 2020, 5.125% notes due March 2021, and 7.50% notes due January 2027. The company recorded a loss on extinguishment of debt of $59,545 for 2017.

During 2017, the company completed the sale of $500,000 principal amount of 3.25% notes due in 2024. The net proceeds of the offering of $493,810 are expected to be used to redeem the company's debt obligations and for general corporate purposes.

In the normal course of business certain of the company’s subsidiaries have agreements to sell, without recourse, selected trade receivables to financial institutions. The company does not retain financial or legal interests in these receivables, and, accordingly they are accounted for as sales of the related receivables and the receivables are removed from the company’s consolidated balance sheets. Financing costs related to these transactions were not material and are included in "Interest and other financing expense, net" in the company’s consolidated statements of operations.

Annual payments of borrowings during each of the years 2019 through 2023 are $245,203, $1,019,711, $130,578, $347,288, and $297,622, respectively, and $1,443,722 for all years thereafter.

Interest and other financing expense, net, includes interest and dividend income of $47,860, $31,156, and $18,084 in 2018, 2017, and 2016, respectively. Interest paid, net of interest and dividend income, amounted to $213,913, $156,974, and $141,816 in 2018, 2017, and 2016, respectively.

7. Financial Instruments Measured at Fair Value

Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. The company utilizes a fair value hierarchy, which maximizes the use of observable inputs and minimizes the use of unobservable inputs when measuring fair value. The fair value hierarchy has three levels of inputs that may be used to measure fair value:

Level 1	Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities.
Level 2	Quoted prices in markets that are not active; or other inputs that are observable, either directly or indirectly, for substantially the full term of the asset or liability.
Level 3	Prices or valuation techniques that require inputs that are both significant to the fair value measurement and unobservable.

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The following table presents assets (liabilities) measured at fair value on a recurring basis at December 31, 2018:

	Balance Sheet Location	Level 1	Level 2	Level 3	Total
Cash equivalents (a)	Cash and cash equivalents / other assets	$22,883	$—	$ —	$22,883
Equity investments (b)	Other assets	38,045	—	—	38,045
Interest rate swaps	Other liabilities	—	(589)	—	(589)
Foreign exchange contracts	Other current assets	—	4,163	—	4,163
Foreign exchange contracts	Accrued expenses	—	(2,384)	—	(2,384)
		$60,928	$1,190	$ —	$62,118

The following table presents assets (liabilities) measured at fair value on a recurring basis at December 31, 2017:

	Balance Sheet Location	Level 1	Level 2	Level 3	Total
Cash equivalents (c)	Cash and cash equivalents / other assets	$3,267	$286,671	$—	$289,938
Equity investments (b)	Other assets	52,683	—	—	52,683
Interest rate swaps	Other liabilities	—	(149)	—	(149)
Foreign exchange contracts	Other current assets	—	5,499	—	5,499
Foreign exchange contracts	Accrued expenses	—	(8,581)	—	(8,581)
Contingent consideration	Accrued expenses	—	—	(3,176)	(3,176)
		$55,950	$283,440	$(3,176)	$336,214

(a) Cash equivalents include highly liquid investments with an original maturity of less than three months.

(b) The company has an 8.4% equity ownership interest in Marubun Corporation and a portfolio of mutual funds with quoted market prices. During 2018, 2017, and 2016 the company recorded unrealized gains (losses) of $(13,693), $14,651, and $(4,064), respectively, on equity securities held at the end of each year.

(c) Cash equivalents at December 31, 2017 included $286,671 invested in certificates of deposit, with an original maturity of less than three months, held in anticipation of our acquisition of eInfochips, which closed in January 2018 (see Note 2).

Assets and liabilities that are measured at fair value on a nonrecurring basis relate primarily to goodwill and identifiable intangible assets (see Notes 2 and 3). The company tests these assets for impairment if indicators of potential impairment exist or at least annually if indefinite lived.

Derivative Instruments

The company uses various financial instruments, including derivative instruments, for purposes other than trading. Certain derivative instruments are designated at inception as hedges and measured for effectiveness both at inception and on an ongoing basis. Derivative instruments not designated as hedges are marked-to-market each reporting period with any unrealized gains or losses recognized in earnings.

Interest Rate Swaps

The company occasionally enters into interest rate swap transactions that convert certain fixed-rate debt to variable-rate debt or variable-rate debt to fixed-rate debt in order to manage its targeted mix of fixed- and floating-rate debt. The company uses the hypothetical derivative method to assess the effectiveness of its interest rate swaps designated as fair value hedges on a quarterly basis. The effective portion of the change in the fair value of interest rate swaps designated as fair value hedges is recorded as a change to the carrying value of the related hedged debt, and the effective portion of the change in fair value of interest rate swaps designated as cash flow hedges is recorded in the shareholders' equity section in the company's consolidated balance sheets in "Accumulated other comprehensive income." The ineffective portion of the interest rate swaps, if any, is recorded in "Interest and

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other financing expense, net" in the company's consolidated statements of operations. As of December 31, 2018, all outstanding interest rate swaps were designated as fair value hedges.

The terms of outstanding interest rate swap contracts at December 31, 2018 are as follows:

Maturity Date	Notional Amount	Interest rate due from counterparty	Interest rate due to counterparty
April 2020	50,000	6.000%	6 mo. USD LIBOR + 3.896

Foreign Exchange Contracts

The company’s foreign currency exposure relates primarily to international transactions where the currency collected from customers can be different from the currency used to purchase the product. The company’s transactions in its foreign operations are denominated primarily in the following currencies: Euro, Indian Rupee, Canadian Dollar, British Pound, Australian Dollar, and Chinese Renminbi. The company enters into foreign exchange forward, option, or swap contracts (collectively, the "foreign exchange contracts") to mitigate the impact of changes in foreign currency exchange rates. These contracts are executed to facilitate the hedging of foreign currency exposures resulting from inventory purchases and sales and generally have terms of no more than six months. Gains or losses on these contracts are deferred and recognized when the underlying future purchase or sale is recognized or when the corresponding asset or liability is revalued. The company does not enter into foreign exchange contracts for trading purposes. The risk of loss on a foreign exchange contract is the risk of nonperformance by the counterparties, which the company minimizes by limiting its counterparties to major financial institutions. The fair value of the foreign exchange contracts are estimated using market quotes. The notional amount of the foreign exchange contracts at December 31, 2018 and 2017 was $607,747 and $504,084, respectively.

Gains and losses related to non-designated foreign currency exchange contracts are recorded in "Cost of sales" in the company's consolidated statements of operations. Gains and losses related to designated foreign currency exchange contracts, are recorded in "Cost of sales," "Selling, general, and administrative expenses," and "Interest and other financing expense, net" based upon the nature of the underlying hedged transaction, in the company's consolidated statements of operations and were not material for 2018, 2017, and 2016.

The effects of derivative instruments on the company's consolidated statements of operations and other comprehensive income are as follows for the years ended December 31:

	2018	2017	2016
Gain (Loss) Recognized in Income			
Foreign exchange contracts	$6,940	$(20,877)	$1,535
Interest rate swaps	(1,236)	(831)	(608)
Total	$5,704	$(21,708)	$927
Loss Recognized in Other Comprehensive Income before reclassifications			
Foreign exchange contracts	$(409)	$(2,022)	$(153)
Interest rate swaps	—	(4,672)	—
Total	$(409)	$(6,694)	$(153)

Other

The carrying amount of cash and cash equivalents, accounts receivable, net, and accounts payable approximate their fair value due to the short maturities of these financial instruments.

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8. Income Taxes

The provision for income taxes for the years ended December 31 consists of the following:

	2018	2017	2016
Current:			
Federal	$(12,345)	$119,298	$45,371
State	20,141	(6,156)	7,022
International	178,767	134,987	109,598
	$186,563	$248,129	$161,991
Deferred:			
Federal	$19,207	$31,167	$29,973
State	312	13,535	7,161
International	(18,283)	(6,290)	(8,394)
	1,236	38,412	28,740
	$187,799	$286,541	$190,731

The principal causes of the difference between the U.S. federal statutory tax rate of 21% and effective income tax rates for the years ended December 31 are as follows:

	2018	2017	2016
United States	$186,677	$115,664	$235,317
International	722,696	578,253	480,202
Income before income taxes	$909,373	$693,917	$715,519
Provision at statutory tax rate	$190,968	$242,415	$250,446
State taxes, net of federal benefit	18,888	5,184	9,219
International effective tax rate differential	7,480	(88,444)	(64,002)
Capital loss	60,757	—	—
Change in valuation allowance	(66,557)	1,408	7,174
Other non-deductible expenses	14,128	12,700	3,516
Changes in tax accruals	(3,968)	(7,973)	(3,679)
Tax credits	(7,884)	(8,170)	(14,510)
Tax Act's transition tax (a)	(28,323)	196,010	—
Tax Act's impact on deferred taxes (b)	—	(71,261)	—
Other	2,310	4,672	2,567
Provision for income taxes	$187,799	$286,541	$190,731

(a) For the year ended December 31, 2017, the company accrued a provisional estimate of $196,010 of tax expense for the Tax Act’s one-time transition tax on the foreign subsidiaries’ accumulated, unremitted earnings in accordance with U.S. Securities and Exchange Commission’s Staff Accounting Bulletin (“SAB 118”). Additionally, during the fourth quarter of 2018 the company recorded a $28,323 benefit upon finalizing its analysis of the impact from the Tax Act.

(b) For the year ended December 31, 2017, the company accrued $71,261 in provisional tax benefit related to the net change in deferred tax liabilities stemming from the Tax Act’s reduction of the U.S. federal tax rate from 35% to 21%, and disallowance of certain incentive based compensation tax deductibility under Internal Revenue Code Section 162(m).

With the effective date of January 1, 2018, the Tax Act also introduced a provision to tax global intangible low-taxed income ("GILTI") of foreign subsidiaries and a measure to tax certain intercompany payments under base erosion anti-abuse tax ("BEAT")

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regime. For the period ended December 31, 2018, the company did not generate intercompany transactions that met BEAT threshold, but did generate GILTI tax, which was not material to the company's consolidated financial position or results of operations. The company elected to account for GILTI tax as a current period cost.

During the fourth quarter of 2018, the company completed its analysis of the impact from the Tax Act and recorded a favorable adjustment in the amount of $28,323, recorded within "Provision for income taxes" in the company's consolidated statements of operations, which is entirely related to the previously recorded provisional estimate for the Transition tax on non-U.S. subsidiaries' unremitted earnings of $196,010.

After considering the impact of taxable losses, tax payments, tax credits, and other tax accruals, as of December 31, 2018, the company's remaining cash tax payable for the transition tax on foreign unremitted earnings is $38,000, which is reported as a long-term tax payable due to the company's intent to pay this federal transition tax over a period of eight years as permitted by the Tax Act.

The company evaluates and establishes liabilities for uncertain tax positions that may be challenged by local tax authorities and that may not be fully sustained, despite the belief that the underlying tax positions are fully supportable. Uncertain tax positions are reviewed on an ongoing basis and are adjusted in light of changing facts and circumstances, including progress of tax audits, developments in case law and closing of statutes of limitations. Such adjustments are reflected in the tax provision as appropriate.

At December 31, 2018, the company had a liability for unrecognized tax position of $35,879. The timing of the resolution of these uncertain tax positions is dependent on the tax authorities' income tax examination processes. Material changes are not expected, however, it is possible that the amount of unrecognized tax benefits with respect to uncertain tax positions could increase or decrease during 2019. Currently, the company is unable to make a reasonable estimate of when tax cash settlement would occur and how it would impact the effective tax rate.

A reconciliation of the beginning and ending amount of unrecognized tax benefits for the years ended December 31 is as follows:

	2018	**2017**	**2016**
Balance at beginning of year	$24,361	$31,534	$36,935
Additions based on tax positions taken during a prior period	583	2,342	2,356
Reductions based on tax positions taken during a prior period	(1,248)	(1,242)	(6,305)
Additions related to positions taken upon finalization of Tax Act during the current period	16,506	—	—
Additions based on tax positions taken during the current period	3,133	6,543	3,935
Reductions based on tax positions taken during the current period	(233)	—	—
Reductions related to settlement of tax matters	(136)	(2,921)	(2,795)
Reductions related to a lapse of applicable statute of limitations	(7,087)	(11,895)	(2,592)
Balance at end of year	$35,879	$24,361	$31,534

Interest costs related to unrecognized tax benefits are classified as a component of "Interest and other financing expense, net" in the company's consolidated statements of operations. In 2018, 2017, and 2016, the company recognized $945, $(2,792), and $(1,946), respectively, of interest benefit (expense) related to unrecognized tax benefits. At December 31, 2018 and 2017, the company had accrued a liability of $4,189 and $3,301, respectively, for the payment of interest related to unrecognized tax benefits.

In many cases the company's uncertain tax positions are related to tax years that remain subject to examination by tax authorities. The following describes the open tax years, by major tax jurisdiction, as of December 31, 2018:

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United States - Federal	2015 - present
United States - States	2012 - present
Germany (c)	2010 - present
Hong Kong	2012 - present
Italy (c)	2013 - present
Sweden	2013 - present
United Kingdom	2015 - present

(c) Includes federal as well as local jurisdictions.

Deferred income taxes are provided for the effects of temporary differences between the tax basis of an asset or liability and its reported amount in the consolidated balance sheets. These temporary differences result in taxable or deductible amounts in future years.

The deferred tax assets and liabilities consist of the following at December 31:

	2018	**2017**
Deferred tax assets:		
Net operating loss carryforwards	$129,641	$113,327
Capital loss carryforwards	60,606	—
Inventory adjustments	52,094	42,376
Allowance for doubtful accounts	17,016	12,368
Accrued expenses	27,088	28,229
Interest carryforward	5,008	15,964
Stock-based compensation awards	12,824	12,982
Integration and restructuring	2,547	6,726
Other	—	17,015
	306,824	248,987
Valuation allowance	(80,471)	(13,915)
Total deferred tax assets	$226,353	$235,072
Deferred tax liabilities:		
Goodwill	$(121,346)	$(109,994)
Depreciation	(131,848)	(116,725)
Intangible assets	(18,754)	(18,760)
Other comprehensive income items	(8,301)	(5,542)
Other	(6,634)	—
Total deferred tax liabilities	$(286,883)	$(251,021)
Total net deferred tax assets (liabilities)	$(60,530)	$(15,949)

At December 31, 2018, the company had international tax loss carryforwards of approximately $391,598, of which $26,663 have expiration dates ranging from 2019 to 2038, and the remaining $364,935 have no expiration date. Deferred tax assets related to these international tax loss carryforwards were $120,148 with a corresponding valuation allowance of $7,533.

At December 31, 2018, the company also had deferred tax assets of $1,496 related to U.S. Federal net operating loss carryforwards from acquired subsidiaries. These U.S. Federal net operating losses expire in various years beginning after 2027. Additionally, as of December 31, 2018, the company had U.S. state net operating loss carryforwards related deferred tax assets of approximately $7,997 with a corresponding valuation allowance for the same amount. Valuation allowances are needed when deferred tax assets

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may not be realized due to the uncertainty of the timing and the ability of the company to generate sufficient future taxable income in certain tax jurisdictions.

The company historically considered the undistributed earnings of its foreign subsidiaries to be indefinitely reinvested and as a result has not provided for taxes on such earnings. The company has not changed previous indefinite reinvestment assertion following the enactment of the Tax Act, which required a one-time transition tax for deemed repatriation of accumulated undistributed earnings of certain foreign subsidiaries. At December 31, 2018, cumulative undistributed earnings of foreign subsidiaries were approximately $4,800,000, which partially have been already subjected to U.S. transition tax as part of the Tax Act. If the company determines that all or a portion of its foreign earnings are no longer indefinitely reinvested, then the company may be subject to additional foreign withholding taxes and U.S. state income taxes, beyond the Tax Act’s one-time transition tax.

Income taxes paid, net of income taxes refunded, amounted to $226,422, $231,183, and $190,109 in 2018, 2017, and 2016, respectively.

9. Restructuring, Integration, and Other Charges

Restructuring initiatives are due to the company's continued efforts to lower cost and drive operational efficiency. Integration costs are primarily related to the integration of acquired businesses within the company's pre-existing business and the consolidation of certain operations. The following table presents the components of the restructuring, integration, and other charges for the years ended December 31:

	2018	**2017**	**2016**
Restructuring and integration charges - current period actions	$23,698	$46,816	$32,894
Restructuring and integration charges - actions taken in prior periods	7,517	6,191	3,611
Other charges	29,146	21,581	24,886
	$60,361	$74,588	$61,391

<u>2018 Restructuring and Integration Charge</u>

The following table presents the components of the 2018 restructuring and integration charge of $23,698 and activity in the related restructuring and integration accrual for 2018:

	Personnel Costs	**Facilities Costs**	**Other**	**Total**
Restructuring and integration charge	$ 15,323	$ 8,240	$ 135	$ 23,698
Payments	(12,099)	(3,547)	(35)	(15,681)
Foreign currency translation	(478)	(177)	(1)	(656)
Balance as of December 31, 2018	$ 2,746	$ 4,516	$ 99	$ 7,361

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2017 Restructuring and Integration Charge

The following table presents the components of the 2017 restructuring and integration charge of $46,816 and activity in the related restructuring and integration accrual for 2017 and 2018:

	Personnel Costs	Facilities Costs	Other	Total
Restructuring and integration charge	$ 37,615	$ 8,192	$ 1,009	$ 46,816
Payments	(23,384)	(3,494)	(926)	(27,804)
Foreign currency translation	1,045	176	17	1,238
Balance as of December 31, 2017	15,276	4,874	100	20,250
Restructuring and integration charge	2,456	2,870	61	5,387
Payments	(11,450)	(2,696)	(58)	(14,204)
Foreign currency translation	(1,550)	(284)	(9)	(1,843)
Balance as of December 31, 2018	$ 4,732	$ 4,764	$ 94	$ 9,590

Restructuring and Integration Accruals Related to Actions Taken Prior to 2017

Included in restructuring, integration, and other charges for 2018 are restructuring and integration charges of $2,130 related to restructuring and integration actions taken prior to 2017. The restructuring and integration charge includes adjustments to personnel costs of $1,131 and facilities costs of $999. The restructuring and integration accruals related to actions taken prior to 2017 of $8,878, include accruals for personnel costs of $8,060, accruals for facilities costs of $688, and accrual for other costs of $130.

Restructuring and Integration Accrual Summary

In summary, the restructuring and integration accruals aggregate $25,829 at December 31, 2018, all of which are expected to be spent in cash, and are expected to be utilized as follows:

- The accruals for personnel costs totaling $15,538 relate to the termination of personnel that have scheduled payouts of $14,299 in 2019 and $1,239 in 2020.
- The accruals for facilities totaling $9,968 relate to vacated leased properties that have scheduled payments of $4,074 in 2019, $1,954 in 2020, $1,134 in 2021, $781 in 2022, $765 in 2023, and $1,260 thereafter.
- The accruals for other totaling $323 have scheduled payments of $21 in 2019 and $302 in 2020.

Other Charges

Included in restructuring, integration, and other charges for 2018 are other expenses of $29,146. The following items represent other charges and credits recorded to restructuring, integration, and other charges for the year ended December 31, 2018:

- acquisition related charges for 2018 of $10,236 related to professional and other fees directly related to recent acquisition activity as well as contingent consideration for acquisitions completed in prior years; and
- $11,188 in charges related to relocation and infrastructure upgrades of the company's data centers, and other centralization efforts to maximize operating efficiencies.

Included in restructuring, integration, and other charges for 2017 are other expenses of $21,581. The following items represent other charges and credits recorded to restructuring, integration, and other charges for the year ended December 31, 2017:

- an additional expense of $2,071 to increase its accrual for the Wyle environmental obligation (see Note 15);
- acquisition related charges for 2017 of $7,658 related to contingent consideration for acquisitions completed in prior years, which were conditional upon the financial performance of the acquired companies and the continued employment of the selling shareholders, as well as professional and other fees directly related to recent acquisition activity; and
- a net loss on real estate transaction of $3,144.

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Included in restructuring, integration, and other charges for 2016 are other expenses of $24,886. The following items represent other charges and credits recorded to restructuring, integration, and other charges for the year ended December 31, 2016:

- an additional expense of $11,771 to increase its accrual for the Wyle environmental obligation (see Note 15);
- acquisition related charges for 2016 of $8,705 related to contingent consideration for acquisitions completed in prior years, which were conditional upon the financial performance of the acquired companies and the continued employment of the selling shareholders, as well as professional and other fees directly related to recent acquisition activity;
- a fraud loss, net of insurance recoveries and incremental expenses, of $4,329; and
- a credit related to the release of a $2,376 legal reserve.

In January 2016, the company determined that it was the target of criminal fraud by persons impersonating a company executive, which resulted in unauthorized transfers of cash from a company account in Europe to outside bank accounts in Asia. Legal actions by the company and law enforcement are ongoing. The information gathered by the company indicates that this was an isolated event not associated with a security breach or loss of data. Additionally, no officers or employees of the company were involved in the fraud.

10. Shareholders' Equity

Accumulated Other Comprehensive Income (Loss)

The following table presents the changes in Accumulated other comprehensive income (loss), excluding noncontrolling interests:

	Foreign Currency Translation Adjustment and Other	**Unrealized Gain (loss) on Investment Securities, Net**	**Unrealized Gain (Loss) on Interest Rate Swaps Designated as Cash Flow Hedges, Net**	**Employee Benefit Plan Items, Net**	**Total**
Balance as of December 31, 2016	$ (348,241)	$ 6,094	$ (2,947)	$ (38,445)	$ (383,539)
Other comprehensive income (loss) before reclassifications (a)	253,066	8,852	(2,870)	(3,812)	255,236
Amounts reclassified into income (loss)	(9,756)	—	511	12,665	3,420
Net change in accumulated other comprehensive income (loss) for the year ended December 31, 2017	243,310	8,852	(2,359)	8,853	258,656
Balance as of December 31, 2017	(104,931)	14,946	(5,306)	(29,592)	(124,883)
Reclassification to Retained Earnings (b)	—	(14,946)	(1,185)	(6,223)	(22,354)
Other comprehensive income (loss) before reclassifications (a)	(161,359)	—	—	4,939	(156,420)
Amounts reclassified into income (loss)	(37)	—	931	3,314	4,208

Net change in accumulated other comprehensive income (loss) for the year ended December 31, 2018	(161,396)	(14,946)	(254)	2,030	(174,566)
Balance as of December 31, 2018	$ (266,327)	$ —	$ (5,560)	$ (27,562)	$ (299,449)

(a) Foreign currency translation adjustment includes intra-entity foreign currency transactions that are of a long-term investment nature of $11,712 and $(64,610) for 2018 and 2017, respectively.

(b) Amount relates to unrealized gains and losses on investments and stranded tax effects reclassified from "Accumulated other comprehensive income" to "Retained earnings" in accordance with ASU No. 2018-02 and ASU No. 2016-01 (Note 1).

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Common Stock Outstanding Activity

The following table sets forth the activity in the number of shares outstanding (in thousands):

	Common Stock Issued	Treasury Stock	Common Stock Outstanding
Common stock outstanding at December 31, 2015	125,424	34,501	90,923
Shares issued for stock-based compensation awards	—	(1,372)	1,372
Repurchases of common stock	—	3,382	(3,382)
Common stock outstanding at December 31, 2016	125,424	36,511	88,913
Shares issued for stock-based compensation awards	—	(1,097)	1,097
Repurchases of common stock	—	2,319	(2,319)
Common stock outstanding at December 31, 2017	125,424	37,733	87,691
Shares issued for stock-based compensation awards	—	(709)	709
Repurchases of common stock	—	3,209	(3,209)
Common stock outstanding at December 31, 2018	125,424	40,233	85,191

The company has 2,000,000 authorized shares of serial preferred stock with a par value of one dollar. There were no shares of serial preferred stock outstanding at December 31, 2018 and 2017.

Share-Repurchase Programs

The following table shows the company's Board of Directors (the "Board") approved share-repurchase programs as of December 31, 2018:

Month of Board Approval	Dollar Value Approved for Repurchase	Dollar Value of Shares Repurchased	Approximate Dollar Value of Shares that May Yet be Purchased Under the Program
December 2016	$ 400,000	$ 271,388	$ 128,612
December 2018	600,000	—	600,000
Total	$ 1,000,000	$ 271,388	$ 728,612

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11. Net Income Per Share

The following table presents the computation of net income per share on a basic and diluted basis for the years ended December 31 (shares in thousands):

	2018	**2017**	**2016**
Net income attributable to shareholders	$716,195	$402,176	$522,815
Weighted-average shares outstanding - basic	87,476	88,681	90,960
Net effect of various dilutive stock-based compensation awards	968	1,085	1,073
Weighted-average shares outstanding - diluted	88,444	89,766	92,033
Net income per share:			
Basic	$8.19	$4.54	$5.75
Diluted (a)	$8.10	$4.48	$5.68

(a) Stock-based compensation awards for the issuance of 651 shares, 380 shares, and 766 shares for the years ended December 31, 2018, 2017, and 2016, respectively, were excluded from the computation of net income per share on a diluted basis as their effect was anti-dilutive.

12. Employee Stock Plans

Omnibus Plan

The company maintains the Arrow Electronics, Inc. 2004 Omnibus Incentive Plan (the "Omnibus Plan"), which provides an array of equity alternatives available to the company when designing compensation incentives. The Omnibus Plan permits the grant of cash-based awards, non-qualified stock options, incentive stock options ("ISOs"), stock appreciation rights, restricted stock, restricted stock units, performance shares, performance units, covered employee annual incentive awards, and other stock-based awards. The Compensation Committee of the company's Board of Directors (the "Compensation Committee") determines the vesting requirements, termination provision, and the terms of the award for any awards under the Omnibus Plan when such awards are issued.

Under the terms of the Omnibus Plan, a maximum of 19,100,000 shares of common stock may be awarded. There were 3,885,282 and 4,896,220 shares available for grant under the Omnibus Plan as of December 31, 2018 and 2017, respectively. Generally, shares are counted against the authorization only to the extent that they are issued. Restricted stock, restricted stock units, performance shares, and performance units count against the authorization at a rate of 1.69 to 1.

The company recorded, as a component of "Selling, general, and administrative expenses," amortization of stock-based compensation of $46,238, $39,122, and $39,825 in 2018, 2017, and 2016, respectively. The actual tax benefit realized from share-based payment awards during 2018, 2017, and 2016 was $7,517, $18,846, and $19,745, respectively.

Stock Options

Under the Omnibus Plan, the company may grant both ISOs and non-qualified stock options. ISOs may only be granted to employees of the company, its subsidiaries, and its affiliates. The exercise price for options cannot be less than the fair market value of Arrow's common stock on the date of grant. Options generally vest in equal installments over a four-year period. Options currently outstanding have contractual terms of ten years.

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The following information relates to the stock option activity for the year ended December 31, 2018:

	Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Life	Aggregate Intrinsic Value
Outstanding at December 31, 2017	1,540,369	$ 58.34		
Granted	332,928	81.88		
Exercised	(176,783)	49.86		
Forfeited	(64,537)	67.79		
Outstanding at December 31, 2018	1,631,977	63.69	81 months	$ 14,401
Exercisable at December 31, 2018	787,871	$ 54.75	65 months	$ 11,579

The aggregate intrinsic value in the table above represents the total pre-tax intrinsic value (the difference between the company's closing stock price on the last trading day of 2018 and the exercise price, multiplied by the number of in-the-money options) received by the option holders had all option holders exercised their options on December 31, 2018. This amount changes based on the market value of the company's stock.

The total intrinsic value of options exercised during 2018, 2017, and 2016 was $5,368, $15,320, and $10,511, respectively.

Cash received from option exercises during 2018, 2017, and 2016 was $8,819, $22,195, and $18,967, respectively, and is included within the financing activities section in the company's consolidated statements of cash flows.

The fair value of stock options was estimated using the Black-Scholes valuation model with the following weighted-average assumptions for the years ended December 31:

	2018	2017	2016
Volatility (percent) (a)	24	26	31
Expected term (in years) (b)	5.5	5.1	5.2
Risk-free interest rate (percent) (c)	2.7	1.9	1.3

(a) Volatility is measured using historical daily price changes of the company's common stock over the expected term of the option.
(b) The expected term represents the weighted-average period the option is expected to be outstanding and is based primarily on the historical exercise behavior of employees.
(c) The risk-free interest rate is based on the U.S. Treasury zero-coupon yield with a maturity that approximates the expected term of the option.

There is no expected dividend yield.

The weighted-average fair value per option granted was $23.12, $20.01, and $16.93 during 2018, 2017, and 2016, respectively.

Performance Awards

The Compensation Committee, subject to the terms and conditions of the Omnibus Plan, may grant performance share and/or performance unit awards (collectively "performance awards"). The fair value of a performance award is the fair market value of the company's common stock on the date of grant. Such awards will be earned only if performance goals over performance periods established by or under the direction of the Compensation Committee are met. The performance goals and periods may vary from participant-to-participant, group-to-group, and time-to-time. The performance awards will be delivered in common stock at the end of the service period based on the company's actual performance compared to the target metric and may be from 0% to 185%

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of the initial award. Compensation expense is recognized using the graded vesting method over the three-year service period and is adjusted each period based on the current estimate of performance compared to the target metric.

Restricted Stock

Subject to the terms and conditions of the Omnibus Plan, the Compensation Committee may grant shares of restricted stock and/or restricted stock units. Restricted stock units are similar to restricted stock except that no shares are actually awarded to the participant on the date of grant. Shares of restricted stock and/or restricted stock units awarded under the Omnibus Plan may not be sold, transferred, pledged, assigned, or otherwise alienated or hypothecated until the end of the applicable period of restriction established by the Compensation Committee and specified in the award agreement (and in the case of restricted stock units until the date of delivery or other payment). Compensation expense is recognized on a straight-line basis as shares become free of forfeiture restrictions (i.e. vest) generally over a four-year period.

Non-Employee Director Awards

The company's Board shall set the amounts and types of equity awards that shall be granted to all non-employee directors on a periodic, nondiscriminatory basis pursuant to the Omnibus Plan, as well as any additional amounts, if any, to be awarded, also on a periodic, nondiscriminatory basis, based on each of the following: the number of committees of the Board on which a non-employee director serves, service of a non-employee director as the chair of a Committee of the Board, service of a non-employee director as Chairman of the Board or Lead Director, or the first selection or appointment of an individual to the Board as a non-employee director. Non-employee directors currently receive annual awards of fully-vested restricted stock units valued at $150. All restricted stock units are settled in common stock following the director's separation from the Board.

Unless a non-employee director gives notice setting forth a different percentage, 50% of each director's annual retainer fee is deferred and converted into units based on the fair market value of the company's stock as of the date it was payable. A non-employee director can choose between one-year cliff vesting or keep the deferral until separation from the Board. After separation from the board, the deferral will be converted into a share of company stock and distributed to the non-employee director as soon as practicable following such date.

Summary of Non-Vested Shares

The following information summarizes the changes in non-vested performance shares, performance units, restricted stock, and restricted stock units for 2018:

	Shares	**Weighted-Average Grant Date Fair Value**
Non-vested shares at December 31, 2017	1,176,965	$ 62.60
Granted	538,712	77.97
Vested	(523,477)	62.49
Forfeited	(99,335)	66.50
Non-vested shares at December 31, 2018	1,092,865	$ 69.87

The total fair value of shares vested during 2018, 2017, and 2016 was $42,381, $42,470, and $52,026, respectively.

As of December 31, 2018, there was $39,954 of total unrecognized compensation cost related to non-vested shares and stock options which is expected to be recognized over a weighted-average period of 2.41 years.

13. Employee Benefit Plans

The company maintains an unfunded Arrow supplemental executive retirement plan ("SERP") under which the company will pay supplemental pension benefits to certain employees upon retirement. As of December 31, 2018, there were 10 current and 22 former corporate officers participating in this plan. The Board determines those employees who are eligible to participate in the Arrow SERP.

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The Arrow SERP, as amended, provides for the pension benefits to be based on a percentage of average final compensation, based on years of participation in the Arrow SERP. The Arrow SERP permits early retirement, with payments at a reduced rate, based on age and years of service subject to a minimum retirement age of 55. Participants whose accrued rights under the Arrow SERP, prior to the 2002 amendment, which were adversely affected by the amendment, will continue to be entitled to such greater rights.

Additionally, as part of the company's acquisition of Wyle in 2000, Wyle provided retirement benefits for certain employees under a defined benefit plan. Benefits under this plan were frozen as of December 31, 2000.

On December 31, 2018, the Wyle defined benefit plan was terminated by the company with estimated plan settlement expected to occur in 2019. The company has made other arrangements with the participants in the plan and is terminating the plan to reduce administrative burdens. Prior to the termination of the plan, the company adopted an amendment to the Wyle defined benefit plan that provided eligible plan participants with the option to receive an early distribution of their pension benefits. The settlement loss is expected to be approximately $25,500. Benefit payments of $60,530 are expected to be paid in 2019.

In 2017, the company entered into a settlement for a portion of its Wyle defined benefit plan. Participants will receive benefits through an insurance annuity contract. The settlement of $42,985 was completed during October 2017 and the company incurred a settlement expense of $16,706, which is recorded in the "Employee benefit plan expense" line item in the company's consolidated statements of operations.

In 2016, the company adopted an amendment to its Wyle defined benefit plan that provided eligible plan participants with the option to receive an early distribution of their pension benefits. Lump sum payments of $26,063 were made during June 2016 and the company incurred a settlement expense of $12,211, which is recorded in the "Employee benefit plan expense" line item in the company's consolidated statements of operations.

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The company uses a December 31 measurement date for the Arrow SERP and the Wyle defined benefit plan. Pension information for the years ended December 31 is as follows:

	Arrow SERP		**Wyle Defined Benefit Plan**	
	2018	**2017**	**2018**	**2017**
Accumulated benefit obligation	$82,951	$90,368	$59,399	$60,374
Changes in projected benefit obligation:				
Projected benefit obligation at beginning of year	97,607	91,038	60,374	97,984
Service cost	3,103	2,310	—	—
Interest cost	3,338	3,552	2,114	3,860
Actuarial loss (gain)	(8,874)	4,929	(322)	7,595
Benefits paid	(4,596)	(4,222)	(2,767)	(6,080)
Settlement	—	—	—	(42,985)
Projected benefit obligation at end of year	90,578	97,607	59,399	60,374
Changes in plan assets:				
Fair value of plan assets at beginning of year	—	—	46,663	71,470
Actual return on plan assets	—	—	29	10,258
Company contributions	—	—	11,000	14,000
Benefits paid	—	—	(2,767)	(6,080)
Settlement	—	—	—	(42,985)
Fair value of plan assets at end of year	—	—	54,925	46,663
Funded status	$(90,578)	$(97,607)	$(4,474)	$(13,711)
Amounts recognized in the company's consolidated balance sheets:				
Current liabilities	$(4,532)	$(4,535)	$(4,474)	$—
Noncurrent liabilities	(86,046)	(93,072)	—	(13,711)
Net liabilities at end of year	(90,578)	(97,607)	(4,474)	(13,711)
Components of net periodic pension cost:				
Service cost	3,103	2,310	—	—
Interest cost	3,338	3,552	2,114	3,860
Expected return on plan assets	—	—	(2,648)	(3,449)
Amortization of net loss	1,531	1,216	702	1,666
Settlement charge	—	—	—	16,706
Net periodic pension cost	$7,972	$7,078	$168	$18,783
Weighted-average assumptions used to determine benefit obligation:				
Discount rate	4.20 %	3.50 %	2.60 %	3.60 %
Rate of compensation increase	5.00 %	5.00 %	N/A	N/A
Expected return on plan assets	N/A	N/A	2.25 %	5.25 %
Weighted-average assumptions used to determine net periodic pension cost:				
Discount rate	3.50 %	4.00 %	3.60 %	4.00 %
Rate of compensation increase	5.00 %	5.00 %	N/A	N/A
Expected return on plan assets	N/A	N/A	5.25 %	4.75 %

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The amounts reported for net periodic pension cost and the respective benefit obligation amounts are dependent upon the actuarial assumptions used. The company reviews historical trends, future expectations, current market conditions, and external data to determine the assumptions. The discount rate represents the market rate for a high-quality corporate bond. The rate of compensation increase is determined by the company, based upon its long-term plans for such increases. The expected return on plan assets is based on current and expected asset allocations, historical trends, and projected returns on those assets. The actuarial assumptions used to determine the net periodic pension cost are based upon the prior year's assumptions used to determine the benefit obligation.

Benefit payments are expected to be paid as follows:

	Arrow SERP
2019	$4,532
2020	4,481
2021	5,825
2022	6,058
2023	6,405
2024-2026	33,724

The company makes contributions to the Wyle defined benefit plan so that minimum contribution requirements, as determined by government regulations, are met. The company made contributions of $11,000 and $14,000 in 2018 and 2017, respectively. The company is planning on contributing $4,700 to the plan in 2019, however, there is no requirement to make any contributions in 2019. The company has funded $81,962 of the Arrow SERP obligation for the former corporate officers in a rabbi trust comprised primarily of life insurance policies and mutual fund assets.

The fair values of the company's pension plan assets for the Wyle defined benefit plan at December 31, 2018, utilizing the fair value hierarchy discussed in Note 7, are as follows:

	Level 1	**Level 2**	**Level 3**	**Total**
Fixed Income:				
Mutual funds	$54,925	$ —	$ —	$54,925
Total	$54,925	$ —	$ —	$54,925

The fair values of the company's pension plan assets for the Wyle defined benefit plan at December 31, 2017, utilizing the fair value hierarchy discussed in Note 7, are as follows:

	Level 1	**Level 2**	**Level 3**	**Total**
Equities:				
U.S. common stocks	$17,039	$ —	$ —	$17,039
International mutual funds	6,975	—	—	6,975
Index mutual funds	2,942	—	—	2,942
Fixed Income:				
Mutual funds	19,707	—	—	19,707
Total	$46,663	$ —	$ —	$46,663

As of December 31, 2018, 100% of plan assets are invested in fixed income to facilitate the settlement of the Wyle defined benefit plan termination in 2019.

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Comprehensive Income Items

In 2018, 2017, and 2016, actuarial (gains) losses of $(6,339), $3,795, and $740, respectively, were recognized in comprehensive income, net of related taxes, related to the company's defined benefit plans. In 2018, 2017, and 2016, a reclassification adjustment of comprehensive income was recognized, net of related taxes, as a result of being recognized in net periodic pension cost for an actuarial loss of $1,758, $12,070, and $10,625, respectively.

Accumulated other comprehensive income (loss) at December 31, 2018 and 2017 includes unrecognized actuarial losses, primarily related to the Wyle defined benefit plan, net of related taxes, of $26,939 and $28,569, respectively, that have not yet been recognized in net periodic pension cost.

The actuarial loss included in accumulated other comprehensive income (loss), net of related taxes, which is expected to be recognized in net periodic pension cost is $536 as of December 31, 2019.

Defined Contribution Plan

The company has defined contribution plans for eligible employees, which qualify under Section 401(k) of the Internal Revenue Code. The company's contribution to the plans, which are based on a specified percentage of employee contributions, amounted to $20,523, $13,627, and $13,432 in 2018, 2017, and 2016, respectively. The company made discretionary contributions to the company's defined contribution 401(k) plan, which amounted to $7,503, $7,574, and $7,572 in 2018, 2017, and 2016, respectively. Certain international subsidiaries maintain separate defined contribution plans for their employees and made contributions thereunder, which amounted to $18,996, $18,815, and $12,882 in 2018, 2017, and 2016, respectively.

14. Lease Commitments

The company leases certain office, distribution, and other property under non-cancelable operating leases expiring at various dates through 2033. Rental expense under non-cancelable operating leases, net of sublease income, amounted to $88,988, $83,636, and $78,521 in 2018, 2017, and 2016, respectively.

Aggregate minimum rental commitments under all non-cancelable operating leases, exclusive of real estate taxes, insurance, and leases related to facilities closed as a result of the integration of acquired businesses and the restructuring of the company, are as follows:

2019	$85,770
2020	67,158
2021	52,826
2022	44,801
2023	37,528
Thereafter	147,294

15. Contingencies

Environmental Matters

In connection with the purchase of Wyle in August 2000, the company acquired certain of the then outstanding obligations of Wyle, including Wyle's indemnification obligations to the purchasers of its Wyle Laboratories division for environmental clean-up costs associated with any then existing contamination or violation of environmental regulations. Under the terms of the company's purchase of Wyle from the sellers, the sellers agreed to indemnify the company for certain costs associated with the Wyle environmental obligations, among other things. In 2012, the company entered into a settlement agreement with the sellers pursuant to which the sellers paid $110,000 and the company released the sellers from their indemnification obligation. As part of the settlement agreement the company accepted responsibility for any potential subsequent costs incurred related to the Wyle matters. The company is aware of two Wyle Laboratories facilities (in Huntsville, Alabama and Norco, California) at which contaminated groundwater was identified and will require environmental remediation. In addition, the company was named as a defendant in several lawsuits related to the Norco facility and a third site in El Segundo, California which have now been settled to the satisfaction of the parties.

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The company expects these environmental liabilities to be resolved over an extended period of time. Costs are recorded for environmental matters when it is probable that a liability has been incurred and the amount of the liability can be reasonably estimated. Accruals for environmental liabilities are adjusted periodically as facts and circumstances change, assessment and remediation efforts progress, or as additional technical or legal information becomes available. Environmental liabilities are difficult to assess and estimate due to various unknown factors such as the timing and extent of remediation, improvements in remediation technologies, and the extent to which environmental laws and regulations may change in the future. Accordingly, the company cannot presently fully estimate the ultimate potential costs related to these sites until such time as a substantial portion of the investigation at the sites is completed and remedial action plans are developed and, in some instances, implemented. To the extent that future environmental costs exceed amounts currently accrued by the company, net income would be adversely impacted and such impact could be material.

Accruals for environmental liabilities are included in "Accrued expenses" and "Other liabilities" in the company's consolidated balance sheets. The company has determined that there is no amount within the environmental liability range that is a better estimate than any other amount, and therefore has recorded the accruals at the minimum amount of the ranges.

As successor-in-interest to Wyle, the company is the beneficiary of various Wyle insurance policies that covered liabilities arising out of operations at Norco and Huntsville. To date, the company has recovered approximately $37,000 from certain insurance carriers relating to environmental clean-up matters at the Norco site. The company is considering the best way to pursue its potential claims against insurers regarding liabilities arising out of operations at Huntsville. The resolution of these matters will likely take several years. The company has not recorded a receivable for any potential future insurance recoveries related to the Norco and Huntsville environmental matters, as the realization of the claims for recovery are not deemed probable at this time.

The company believes the settlement amount together with potential recoveries from various insurance policies covering environmental remediation and related litigation will be sufficient to cover any potential future costs related to the Wyle acquisition; however, it is possible unexpected costs beyond those anticipated could occur.

Environmental Matters - Huntsville

In February 2015, the company and the Alabama Department of Environmental Management ("ADEM") finalized and executed
a consent decree in connection with the Huntsville, Alabama site. Characterization of the extent of contaminated soil and groundwater is complete and has been approved by ADEM. Approximately $6,200 was spent to date and the company currently anticipates no additional investigative and related expenditures. The nature and scope of subsequent remediation at the site has not yet been determined, but assuming the outcome includes source control and certain other measures, the cost is estimated to be between $4,200 and $10,000.

Despite the amount of work undertaken and planned to date, the company is unable to estimate any potential costs in addition to those discussed above because the complete scope of the work is not yet known, and, accordingly, the associated costs have yet to be determined.

Environmental Matters - Norco

In October 2003, the company entered into a consent decree with Wyle Laboratories and the California Department of Toxic Substance Control (the "DTSC") in connection with the Norco site. In April 2005, a Remedial Investigation Work Plan was approved by DTSC that provided for site-wide characterization of known and potential environmental issues. Investigations performed in connection with this work plan and a series of subsequent technical memoranda continued until the filing of a final Remedial Investigation Report early in 2008. Work is under way pertaining to the remediation of contaminated groundwater at certain areas on the Norco site and of soil gas in a limited area immediately adjacent to the site. In 2008, a hydraulic containment system ("HCS") was installed to capture and treat groundwater before it moves into the adjacent offsite area. In September 2013, the DTSC approved the final Remedial Action Plan ("RAP") and work is currently progressing under the RAP. The approved RAP included the potential for additional remedial action after the five year review of the HCS if the review found that contaminants were not sufficiently reduced in the offsite area. The HCS five year review submitted to DTSC in December 2016 identified significant reductions in contaminants offsite except in a key area identified in the RAP. This exception triggered the need for additional offsite remediation that began in 2018.

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Approximately $69,300 was spent to date on remediation, project management, regulatory oversight, and investigative and feasibility study activities. The company currently estimates that these activities will give rise to an additional $12,500 to $23,200. Project management and regulatory oversight include costs incurred by project consultants for project management and costs billed by DTSC to provide regulatory oversight.

Despite the amount of work undertaken and planned to date, the company is unable to estimate any potential costs in addition to those discussed above because the complete scope of the work under the RAP is not yet known, and, accordingly, the associated costs have yet to be determined.

Other

From time to time, in the normal course of business, the company may become liable with respect to other pending and threatened litigation, environmental, regulatory, labor, product, and tax matters. While such matters are subject to inherent uncertainties, it is not currently anticipated that any such matters will materially impact the company's consolidated financial position, liquidity, or results of operations.

16. Segment and Geographic Information

The company is a global provider of products, services, and solutions to industrial and commercial users of electronic components and enterprise computing solutions. The company distributes electronic components to original equipment manufacturers and contract manufacturers through its global components business segment and provides enterprise computing solutions to value-added resellers and managed service providers through its global ECS business segment. As a result of the company's philosophy of maximizing operating efficiencies through the centralization of certain functions, selected fixed assets and related depreciation, as well as borrowings, are not directly attributable to the individual operating segments and are included in the corporate business segment.

Sales, by segment by geographic area, are as follows:

	2018	**2017**	**2016**
Components:			
Americas	$7,816,533	$7,010,385	$5,921,803
EMEA (a)	5,733,222	4,868,862	4,086,607
Asia/Pacific	7,307,096	6,451,209	5,400,429
Global components	$20,856,851	$18,330,456	$15,408,839
ECS:			
Americas	$5,742,526	$5,388,888	$5,352,106
EMEA (a)	3,077,391	2,835,219	2,726,927
Global ECS	$8,819,917	$8,224,107	$8,079,033
Consolidated (b)	$29,676,768	$26,554,563	$23,487,872

(a) Defined as Europe, the Middle East, and Africa.

(b) Includes sales related to the United States of $12,157,306, $11,038,930, and $10,137,041 for 2018, 2017, and 2016, respectively.

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Operating income (loss), by segment, are as follows:

	2018	**2017**	**2016**
Operating income (loss):			
Global components	$1,007,638	$801,027	$686,466
Global ECS	427,605	444,710	441,926
Corporate (c)	(287,731)	(300,001)	(251,566)
Consolidated	$1,147,512	$945,736	$876,826

(c) Includes restructuring, integration, and other charges of $60,361, $74,588, and $61,391 in 2018, 2017, and 2016, respectively. Also included in 2018 and 2017 was a net loss on the disposition of businesses of $3,604 and $21,000, respectively.

Total assets, by segment, at December 31 are as follows:

	2018	**2017**
Global components	$11,425,579	$10,229,168
Global ECS	5,632,102	5,426,675
Corporate	726,764	803,424
Consolidated	$17,784,445	$16,459,267

Net property, plant, and equipment, by geographic area, is as follows:

	2018	**2017**
Americas (d)	$673,228	$688,637
EMEA	110,996	108,232
Asia/Pacific	40,476	41,606
Consolidated	$824,700	$838,475

(d) Includes net property, plant, and equipment related to the United States of $670,201 and $683,988 at December 31, 2018 and 2017, respectively.

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17. Quarterly Financial Data (Unaudited)

The company operates on a quarterly calendar that closes on the Saturday closest to the end of the calendar quarter.

A summary of the company's consolidated quarterly results of operations is as follows:

	First Quarter	**Second Quarter (b)**	**Third Quarter**	**Fourth Quarter (c)**
2018				
Sales	$6,875,613	$7,392,528	$7,490,445	$7,918,182
Gross profit	868,944	932,820	923,778	975,370
Operating income	235,995	286,827	290,310	334,380
Net income attributable to shareholders	139,094	169,915	176,533	230,653
Net income per share (a):				
Basic	$1.58	$1.94	$2.02	$2.66
Diluted	$1.56	$1.92	$1.99	$2.63
2017 (Adjusted)				
Sales	$5,736,780	$6,422,226	$6,856,108	$7,539,449
Gross profit	761,197	824,024	842,567	929,180
Operating income	193,025	230,446	235,441	286,824
Net income attributable to shareholders	114,737	99,722	134,064	53,653
Net income per share (a):				
Basic	$1.29	$1.12	$1.52	$0.61
Diluted	$1.27	$1.11	$1.50	$0.60

(a) Quarterly net income per share is calculated using the weighted-average shares outstanding during each quarterly period, while net income per share for the full year is calculated using the weighted-average shares outstanding during the year. Therefore, the sum of the net income per share for each of the four quarters may not equal the net income per share for the full year.

(b) Net income attributable to shareholders includes a loss on extinguishment of debt of $58.8 million during the second quarter of 2017.

(c) Net income attributable to shareholders includes a U.S. Tax Act benefit of $28.3 million and expense of $124.7 million during the fourth quarter of 2018 and 2017, respectively.

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The following table presents the effect of the adoption of Topic 606, ASU No. 2017-07, and other prior period reclassifications for each quarter of 2017 (see Note 1).

	First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
	As Previously Reported	Adjusted for New Standards	As Previously Reported	Adjusted for New Standards	As Previously Reported	Adjusted for New Standards	As Previously Reported	Adjusted for New Standards
2017								
Sales	$5,759,552	$5,736,780	$6,465,346	$6,422,226	$6,953,740	$6,856,108	$7,633,870	$7,539,449
Cost of sales	4,999,665	4,975,583	5,641,380	5,598,202	6,110,382	6,013,541	6,703,742	6,610,269
Operating income	191,722	193,025	229,822	230,446	235,992	235,441	270,914	286,824
Net income attributable to shareholders	$113,768	$114,737	$99,679	$99,722	$134,630	$134,064	$53,885	$53,653

Operating income for the fourth quarter of 2017 was impacted by a reclassification of pension settlement expense of $16,706 due to the implementation of ASU No. 2017-07. The settlement expense was reclassified to "Employee benefit plan expense" (see Note 13).

18. Subsequent Events

During the first quarter of 2019, the company entered into a series of foreign exchange forward contracts ("forward contracts") to sell Euro and buy United States Dollars, with various maturity dates as noted in the table below.

Maturity Date	**Notional Amount**
March 2023	EUR 50,000
September 2024	EUR 50,000
April 2025	EUR 100,000
January 2028	EUR 100,000
Total	EUR 300,000

The forward contracts have been designated as a net investment hedge which is in place to hedge a portion of the company's net investment in subsidiaries with euro-denominated net assets. The change in the fair value of derivatives designated as, and effective as, net investment hedges will be recorded in "Accumulated other comprehensive loss" in the company's Consolidated Balance Sheets. Amounts excluded from the assessment of hedge effectiveness will be included in "Interest and other financing expense, net" in the company's Consolidated Statements of Operations.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure.

None.

Item 9A. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

The company's management, under the supervision and with the participation of the company's Chief Executive Officer and Chief Financial Officer, carried out an evaluation of the effectiveness of the design and operation of the company's disclosure controls and procedures as of December 31, 2018 (the "Evaluation"). Based upon the Evaluation, the company's Chief Executive Officer and Chief Financial Officer concluded that the company's disclosure controls and procedures (as defined in Rule 13a-15(e) of the Securities Exchange Act of 1934) are effective.

Management's Report on Internal Control Over Financial Reporting

The company's management is responsible for establishing and maintaining adequate "internal control over financial reporting" (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)). Management evaluates the effectiveness of the company's internal control over financial reporting using the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework). Management, under the supervision and with the participation of the company's Chief Executive Officer and Chief Financial Officer, assessed the effectiveness of the company's internal control over financial reporting as of December 31, 2018, and concluded that it is effective.

The company acquired two separate entities during the year ended December 31, 2018, which are included in the company's 2018 consolidated financial statements and constitute 2.1% and 5.1% of total and net assets, respectively, as of December 31, 2018 and less than 1.0% and 2.0% of sales and net income attributable to shareholders, respectively, for the year ended December 31, 2018. The company has excluded these two entities from its annual assessment of and conclusion on the effectiveness of the company's internal control over financial reporting.

The company's independent registered public accounting firm, Ernst & Young LLP, has audited the effectiveness of the company's internal control over financial reporting as of December 31, 2018, as stated in their report, which is included herein.

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of Arrow Electronics, Inc.

Opinion on Internal Control Over Financial Reporting

We have audited Arrow Electronics, Inc.'s internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, Arrow Electronics, Inc. (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on the COSO criteria.

As indicated in the accompanying Management's Report on Internal Control Over Financial Reporting, management's assessment of and conclusion on the effectiveness of internal control over financial reporting did not include the internal controls of two separate entities acquired during the year ended December 31, 2018, which are included in the 2018 consolidated financial statements of the Company and constituted 2.1% and 5.1% of total and net assets, respectively, as of December 31, 2018 and less than 1.0% and 2.0% of sales and net income attributable to shareholders, respectively, for the year then ended. Our audit of internal control over financial reporting of the Company also did not include an evaluation of the internal control over financial reporting of these two entities.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2018 and 2017, the related consolidated statements of operations, comprehensive income, equity and cash flows for each of the three years in the period ended December 31, 2018, and the related notes and schedule and our report dated February 7, 2019 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) 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.

/s/ Ernst & Young LLP
Denver, Colorado
February 7, 2019

Item 9B. Other Information.

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

See "Executive Officers" in Part I of this Annual Report on Form 10-K. In addition, the information set forth under the headings "Election of Directors" and "Section 16(a) Beneficial Ownership Reporting Compliance" in the company's Proxy Statement, filed in connection with the Annual Meeting of Shareholders scheduled to be held on May 9, 2019, are incorporated herein by reference.

Information about the company's audit committee financial experts set forth under the heading "The Board and its Committees" in the company's Proxy Statement, filed in connection with the Annual Meeting of Shareholders scheduled to be held on May 9, 2019, is incorporated herein by reference.

Information about the company's code of ethics governing the Chief Executive Officer, Chief Financial Officer, and Corporate Controller, known as the "Finance Code of Ethics," as well as a code of ethics governing all employees, known as the "Worldwide Code of Business Conduct and Ethics," is available free of charge on the company's website at https://investor.arrow.com in the Leadership and Governance section and is available in print to any shareholder upon request.

Information about the company's "Corporate Governance Guidelines" and written committee charters for the company's Audit Committee, Compensation Committee, and Corporate Governance Committee is available free of charge on the company's website at https://investor.arrow.com in the Leadership and Governance section and is available in print to any shareholder upon request.

Item 11. Executive Compensation.

The information required by Item 11 is included in the company's Proxy Statement filed in connection with the Annual Meeting of Shareholders scheduled to be held on May 9, 2019, and is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

The information required by Item 12 is included in the company's Proxy Statement filed in connection with the Annual Meeting of Shareholders scheduled to be held on May 9, 2019, and is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence.

The information required by Item 13 is included in the company's Proxy Statement filed in connection with the Annual Meeting of Shareholders scheduled to be held on May 9, 2019, and is incorporated herein by reference.

Item 14. Principal Accounting Fees and Services.

The information required by Item 14 is included in the company's Proxy Statement filed in connection with the Annual Meeting of Shareholders scheduled to be held on May 9, 2019, and is incorporated herein by reference.

PART IV

Item 15. Exhibits and Financial Statement Schedules.

(a) The following documents are filed as part of this report:

All other schedules are omitted since the required information is not present, or is not present in amounts sufficient to require submission of the schedule, or because the information required is included in the consolidated financial statements, including the notes thereto.

3 Exhibits.

See Index of Exhibits included on pages 83 - 88

INDEX OF EXHIBITS

Exhibit Number	Exhibit
3(a)(i)	Certificate of Amendment of the Restated Certificate of Incorporation of the company, dated as of October 12, 2000 (incorporated by reference to Exhibit 3(a)(iii) to the company's Annual Report on Form 10-K for the year ended December 31, 2000, Commission File No. 1-4482).
3(b)	Amended Corporate By-Laws, dated July 29, 2004 (incorporated by reference to Exhibit 3(ii) to the company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2004, Commission File No. 1-4482).
4(a)(i)	Indenture, dated as of January 15, 1997, between the company and The Bank of New York Mellon (formerly, the Bank of Montreal Trust Company), as Trustee (incorporated by reference to Exhibit 4(b)(i) to the company's Annual Report on Form 10-K for the year ended December 31, 1996, Commission File No. 1-4482).
4(a)(ii)	Officers' Certificate, as defined by the Indenture in 4(a)(i) above, dated as of January 22, 1997, with respect to the company's $200,000,000 7% Senior Notes due 2007 and $200,000,000 7 1/2% Senior Debentures due 2027 (incorporated by reference to Exhibit 4(b)(ii) to the company's Annual Report on Form 10-K for the year ended December 31, 1996, Commission File No. 1-4482).
4(a)(iii)	Supplemental Indenture, dated as of September 30, 2009, between the company and The Bank of New York Mellon (as successor to the Bank of Montreal Trust Company), as trustee (incorporated by reference to Exhibit 4.1 to the company's Current Report on Form 8-K dated September 29, 2009, Commission File No. 1-4482).
4(a)(iv)	Supplemental Indenture, dated as of November 3, 2010, between the company and The Bank of New York Mellon (as successor to the Bank of Montreal Trust Company), as trustee (incorporated by reference to Exhibit 4.1 to the company's Current Report on Form 8-K dated November 2, 2010, Commission File No. 1-4482).
4(a)(v)	Supplemental Indenture, dated as of February 20, 2013, between the company and The Bank of New York Mellon (as successor to the Bank of Montreal Trust Company), as trustee (incorporated by reference to Exhibit 4.1 to the company's Current Report on Form 8-K dated February 14, 2013, Commission File No. 1-4482).
4(a)(vi)	Supplemental Indenture, dated as of March 2, 2015, between the company and The Bank of New York Mellon (as successor to the Bank of Montreal Trust Company), as trustee (incorporated by reference to Exhibit 4(a)(x) to the company's Annual Report on Form 10-K for the year ended December 31, 2015, Commission File No. 1-4882).
4(a)(vii)	Supplemental Indenture, dated as of June 12, 2017, between the company and US Bank National Association, as trustee (incorporated by reference to Exhibit 4.1 to the company’s Current Report on Form 8-K dated June 12, 2017, Commission File No. 1-4482).
4(a)(viii)	

	Supplemental Indenture, dated as of September 8, 2017, between the company and US Bank National Association, as trustee (incorporated by reference to Exhibit 4.1 to the company's Current Report on Form 8-K dated September 8, 2017, Commission File No. 1-4482).
10(a)	Arrow Electronics Savings Plan, as amended and restated effective January 1, 2018 (incorporated by reference to Exhibit 10(a) to the company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2018, Commission File No. 1-4482).

10(b)	Wyle Electronics Retirement Plan, as amended and restated on September 9, 2009 (incorporated by reference to Exhibit 10(b) to the company's Quarterly Report on Form 10-Q for the quarter ended October 3, 2009, Commission File No. 1-4482).
10(b)(i)	Amendment No. 4 to the Wyle Electronics Retirement Plan, as amended on December 31, 2018, to the Wyle Electronics Retirement Plan in 10(b) above.
10(c)	Management Insurance Program Agreement, dated as of September 16, 2015 (incorporated by reference to Exhibit 10(m) to the company's Annual Report on Form 10-K for the year ended December 31, 2015, Commission File No. 1-4482).
10(d)(i)	Arrow Electronics, Inc. 2004 Omnibus Incentive Plan (as amended through February 17, 2015) (incorporated by reference to Exhibit 10(a) to the company's Quarterly Report on Form 10-Q for the quarter ended June 27, 2015, Commission File No. 1-4482).
10(d)(ii)	Form of Non-Qualified Stock Option Award Agreement under 10(d)(i) above (as amended through February 17, 2015) (incorporated by reference to Exhibit 10(a) to the company's Quarterly Report on Form 10-Q for the quarter ended April 1, 2017, Commission File No. 1-4482).
10(d)(iii)	Form of Performance Stock Unit Award Agreement under 10(d)(i) above (as amended through February 17, 2015) (incorporated by reference to Exhibit 10(b) to the company's Quarterly Report on Form 10-Q for the quarter ended April 1, 2017, Commission File No. 1-4482).
10(d)(iv)	Form of Restricted Stock Unit Award Agreement under 10(d)(i) above (as amended through February 17, 2015) (incorporated by reference to Exhibit 10(c) to the company's Quarterly Report on Form 10-Q for the quarter ended April 1, 2017, Commission File No. 1-4482).
10(e)	Non-Employee Directors Deferred Compensation Plan, as amended and restated effective January 1, 2018.
10(f)	Arrow Electronics, Inc. Supplemental Executive Retirement Plan, as amended effective January 1, 2009 (incorporated by reference to Exhibit 10(i) to the company's Annual Report on Form 10-K for the year ended December 31, 2009, Commission File No. 1-4482).
10(g)	Arrow Electronics, Inc. Executive Deferred Compensation Plan amended and restated effective July 1, 2018 (incorporated by reference to Exhibit 10(a) to the company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2018, Commission File No. 1-4482).
10(h)(i)	Arrow Electronics, Inc. Executive Severance Policy (incorporated by reference to Exhibit 10.1 to the company's Current Report on Form 8-K dated February 19, 2013, Commission File No. 1-4482).
10(h)(ii)	Form of the Arrow Electronics, Inc. Executive Severance Policy Participation Agreement (incorporated by reference to Exhibit 10.2 to the company's Current Report on Form 8-K dated February 19, 2013, Commission File No. 1-4482).
10(h)(iii)	Form of Executive Change in Control Retention Agreement (incorporated by reference to Exhibit 10.3 to the company's Current Report on Form 8-K dated February 19, 2013, Commission File No. 1-4482).
10(h)(iv)	Grantor Trust Agreement, as amended and restated on November 11, 2003, by and between Arrow Electronics, Inc. and Wachovia Bank, N.A. (incorporated by reference to Exhibit 10(i)(xvii) to the company's Annual Report on Form 10-K for the year ended December 31, 2003, Commission File No.

1-4482).

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10(h)(v)	First Amendment, dated September 17, 2004, to the amended and restated Grantor Trust Agreement in 10(h)(iv) above by and between Arrow Electronics, Inc. and Wachovia Bank, N.A. (incorporated by reference to Exhibit 10(a) to the company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2004, Commission File No. 1-4482).
10(h)(vi)	Paying Agency Agreement, dated November 11, 2003, by and between Arrow Electronics, Inc. and Wachovia Bank, N.A. (incorporated by reference to Exhibit 10(d)(iii) to the company's Annual Report on Form 10-K for the year ended December 31, 2003, Commission File No. 1-4482).
10(i)	Third Amended and Restated Credit Agreement, dated as of December 14, 2018, among Arrow Electronics, Inc. and certain of its subsidiaries, as borrowers, the lenders from time to time parties thereto, JPMorgan Chase Bank, N.A., as administrative agent and BNP Paribas, Bank of America, N.A., The Bank of Nova Scotia, MUFG Bank, Ltd, ING Bank N.V., Dublin Branch, Mizuho Bank, Ltd, and Sumitomo Mitsui Banking Corporation as syndication agents.
10(j)(i)	Transfer and Administration Agreement, dated as of March 21, 2001, by and among Arrow Electronics Funding Corporation, Arrow Electronics, Inc., individually and as Master Servicer, the several Conduit Investors, Alternate Investors and Funding Agents and Bank of America, National Association, as administrative agent (incorporated by reference to Exhibit 10(m)(i) to the company's Annual Report on Form 10-K for the year ended December 31, 2001, Commission File No. 1-4482).
10(j)(ii)	Amendment No. 1 to the Transfer and Administration Agreement, dated as of November 30, 2001, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10(m)(ii) to the company's Annual Report on Form 10-K for the year ended December 31, 2001, Commission File No. 1-4482).
10(j)(iii)	Amendment No. 2 to the Transfer and Administration Agreement, dated as of December 14, 2001, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10(m)(iii) to the company's Annual Report on Form 10-K for the year ended December 31, 2001, Commission File No. 1-4482).
10(j)(iv)	Amendment No. 3 to the Transfer and Administration Agreement, dated as of March 20, 2002, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10(m)(iv) to the company's Annual Report on Form 10-K for the year ended December 31, 2001, Commission File No. 1-4482).
10(j)(v)	Amendment No. 4 to the Transfer and Administration Agreement, dated as of March 29, 2002, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10(n)(v) to the company's Annual Report on Form 10-K for the year ended December 31, 2002, Commission File No. 1-4482).
10(j)(vi)	Amendment No. 5 to the Transfer and Administration Agreement, dated as of May 22, 2002, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10(n)(vi) to the company's Annual Report on Form 10-K for the year ended December 31, 2002, Commission File No. 1-4482).
10(j)(vii)	Amendment No. 6 to the Transfer and Administration Agreement, dated as of September 27, 2002, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10(n)(vii) to the company's Annual Report on Form 10-K for the year ended December 31, 2002, Commission File No. 1-4482).

10(j)(viii)	Amendment No. 7 to the Transfer and Administration Agreement, dated as of February 19, 2003, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 99.1 to the company's Current Report on Form 8-K dated February 6, 2003, Commission File No. 1-4482).
10(j)(ix)	Amendment No. 8 to the Transfer and Administration Agreement, dated as of April 14, 2003, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10(n)(ix) to the company's Annual Report on Form 10-K for the year ended December 31, 2003, Commission File No. 1-4482).

10(j)(x)	Amendment No. 9 to the Transfer and Administration Agreement, dated as of August 13, 2003, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10(n)(x) to the company's Annual Report on Form 10-K for the year ended December 31, 2003, Commission File No. 1-4482).
10(j)(xi)	Amendment No. 10 to the Transfer and Administration Agreement, dated as of February 18, 2004, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10(n)(xi) to the company's Annual Report on Form 10-K for the year ended December 31, 2003, Commission File No. 1-4482).
10(j)(xii)	Amendment No. 11 to the Transfer and Administration Agreement, dated as of August 13, 2004, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10(b) to the company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2004, Commission File No. 1-4482).
10(j)(xiii)	Amendment No. 12 to the Transfer and Administration Agreement, dated as of February 14, 2005, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10(o)(xiii) to the company's Annual Report on Form 10-K for the year ended December 31, 2004, Commission File No. 1-4482).
10(j)(xiv)	Amendment No. 13 to the Transfer and Administration Agreement, dated as of February 13, 2006, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10(o)(xiv) to the company's Annual Report on Form 10-K for the year ended December 31, 2005, Commission File No. 1-4482).
10(j)(xv)	Amendment No. 14 to the Transfer and Administration Agreement, dated as of October 31, 2006, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10(o)(xv) to the company's Annual Report on Form 10-K for the year ended December 31, 2006, Commission File No. 1-4482).
10(j)(xvi)	Amendment No. 15 to the Transfer and Administration Agreement, dated as of February 12, 2007, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10(o)(xvi) to the company's Annual Report on Form 10-K for the year ended December 31, 2006, Commission File No. 1-4482).
10(j)(xvii)	Amendment No. 16 to the Transfer and Administration Agreement, dated as of March 27, 2007, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10(b) to the company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2007, Commission File No. 1-4482).
10(j)(xviii)	Amendment No. 17 to the Transfer and Administration Agreement, dated as of March 26, 2010, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10(n) to the company's Current Report on Forms 8-K and 8-K/A dated March 31, 2010, Commission File No. 1-4482).
10(j)(xix)	Amendment No. 18 to the Transfer and Administration Agreement, dated as of December 15, 2010, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10(n) to the company's Current Report on Form 8-K/A dated January 13, 2011, Commission File No.1-4482).

10(j)(xx)	Amendment No. 19 to the Transfer and Administration Agreement, dated as of February 14, 2011, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10(m)(xx) to the company's Annual Report on Form 10-K for the year ended December 31, 2011, Commission File No. 1-4482).
10(j)(xxi)	Amendment No. 20 to the Transfer and Administration Agreement, dated as of December 7, 2011, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10.1 to the company's Current Report on Form 8-K dated December 12, 2011, Commission File No.1-4482).

10(j)(xxii)	Amendment No. 21 to the Transfer and Administration Agreement, dated as of March 30, 2012, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10(m)(xxii) to the company's Annual Report on Form 10-K for the year ended December 31, 2012, Commission File No. 1-4482).
10(j)(xxiii)	Amendment No. 22 to the Transfer and Administration Agreement, dated as of August 29, 2012, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10(m)(xxiii) to the company's Annual Report on Form 10-K for the year ended December 31, 2012, Commission File No. 1-4482).
10(j)(xxiv)	Amendment No. 23 to the Transfer and Administration Agreement, dated as of July 29, 2013, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10(k)(xxiv) to the company's Annual Report on Form 10-K for the year ended December 31, 2013, Commission File No. 1-4482).
10(j)(xxv)	Amendment No. 24 to the Transfer and Administration Agreement, dated as of March 24, 2014, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10.1 to the company's Current Report on Form 8-K dated March 27, 2014, Commission File No. 1-4482).
10(j)(xxvi)	Amendment No. 25 to the Transfer and Administration Agreement, dated as of March 9, 2015, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10(a) to the company's Quarterly Report on Form 10-Q for the quarter ended March 28, 2015, Commission File No. 1-4482).
10(j)(xxvii)	Partial Release of Receivables related to the Transfer and Administration Agreement, dated as of March 11, 2016, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10(a) to the company's Quarterly Report on Form 10-Q for the quarter ended April 2, 2016, Commission File No. 1-4482).
10(j)(xxviii)	Amendment No. 26 to the Transfer and Administration Agreement, dated as of September 19, 2016, to the Transfer and Administration Agreement in 10(j)(i) above (incorporated by reference to Exhibit 10(a) to the company's Quarterly Report on Form 10-Q for the quarter ended October 1, 2016, Commission File No. 1-4482).
10(j)(xxix)	Amendment No. 30 to the Transfer and Administration Agreement, dated as of June 20, 2018, to the Transfer and Administration Agreement in 10(j)(i)above (incorporated by reference to the company's Current Report on Form 8-K dated June 20, 2018, Commission File No. 1-4482).
10(k)(i)	Commercial Paper Private Placement Agreement, dated as of November 9, 1999, among Arrow Electronics, Inc., as issuer, and Chase Securities Inc., Bank of America Securities LLC, Goldman, Sachs & Co., and Morgan Stanley & Co. Incorporated as placement agents (incorporated by reference to Exhibit 10(g) to the company's Annual Report on Form 10-K for the year ended December 31, 1999, Commission File No. 1-4482).
10(k)(ii)	Amendment No. 1, dated as of October 11, 2011, to Dealer Agreement dated as of November 9, 1999, between Arrow Electronics, Inc. and J.P. Morgan Securities LLC (f.k.a. Chase Securities Inc.), Merrill Lynch, Pierce, Fenner & Smith Incorporated (f.k.a. Bank of America Securities LLC), Goldman, Sachs & Co. and Morgan Stanley & Co. LLC (f.k.a. Morgan Stanley & Co. Incorporated) (incorporated by reference to Exhibit 10(n)(ii) to the company's Annual Report on Form 10-K for the year ended

December 31, 2011, Commission File No. 1-4482).

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10(k)(iii)	Amendment No. 2, dated as of October 20, 2014, to Dealer Agreement dated as of November 9, 1999, between Goldman, Sachs & Co., J.P. Morgan Securities LLC (f.k.a. Chase Securities Inc.), Morgan Stanley & Co. LLC (f.k.a. Morgan Stanley & Co. Incorporated), Merrill Lynch, Pierce, Fenner & Smith Incorporated (f.k.a. Bank of America Securities LLC) and Arrow Electronics, Inc., as amended by Amendment No. 1 (incorporated by reference to Exhibit 10(a) to the company's Quarterly Report on Form 10-Q for the quarter ended September 27, 2014, Commission File No. 1-4482).
10(k)(iv)	Issuing and Paying Agency Agreement, dated as of October 20, 2014, by and between Arrow Electronics, Inc. and BNP Paribas (incorporated by reference to Exhibit 10(b) to the company's Quarterly Report on Form 10-Q for the quarter ended September 27, 2014, Commission File No. 1-4482).
10(k)(v)	Amendment No. 3, dated as of January 6, 2016, to Dealer Agreement dated as of November 9, 1999, between Goldman, Sachs & Co., J.P. Morgan Securities LLC (f.k.a. Chase Securities Inc.), Morgan Stanley & Co. LLC (f.k.a. Morgan Stanley & Co. Incorporated), Merrill Lynch, Pierce, Fenner & Smith Incorporated (f.k.a. Bank of America Securities LLC) and Arrow Electronics, Inc., as amended by Amendment No. 1 and Amendment No. 2. (incorporated by reference to Exhibit 10(b) to the company's Quarterly Report on Form 10-Q for the quarter ended April 2, 2016, Commission File No. 1-4482).
10(l)	Form of Indemnification Agreement between the company and each director (incorporated by reference to Exhibit 10(g) to the company's Annual Report on Form 10-K for the year ended December 31, 1986, Commission File No. 1-4482).
21	Subsidiary Listing.
23	Consent of Independent Registered Public Accounting Firm.
31(i)	Certification of Chief Executive Officer pursuant to Rule 13A-14(a)/15d-14(a) of the Securities and Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31(ii)	Certification of Chief Financial Officer pursuant to Rule 13A-14(a)/15d-14(a) of the Securities and Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32(i)	Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32(ii)	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.SCH	XBRL Taxonomy Extension Schema Document.
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document.
101.LAB	XBRL Taxonomy Extension Label Linkbase Document.
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Documents.
101.DEF	XBRL Taxonomy Definition Linkbase Document.

ARROW ELECTRONICS, INC.
SCHEDULE II - VALUATION AND QUALIFYING ACCOUNTS
(In thousands)

	Balance at beginning of year	Charged to income	Other (a)	Write-down	Balance at end of year
Allowance for doubtful accounts:					
Year ended December 31, 2018	$ 56,291	$ 34,936	$ (1,958)	$ 13,681	$ 75,588
Year ended December 31, 2017	$ 52,256	$ 12,887	$ 2,831	$ 11,683	$ 56,291
Year ended December 31, 2016	$ 49,659	$ 8,336	$ (392)	$ 5,347	$ 52,256

(a) "Other" primarily includes the effect of fluctuations in foreign currencies and the allowance for doubtful accounts of the businesses acquired by the company.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

ARROW ELECTRONICS, INC.

By: /s/ Gregory P. Tarpinian
Gregory P. Tarpinian
Senior Vice President, General Counsel, and Secretary
February 7, 2019

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities indicated on February 7, 2019:

By: /s/ Michael J. Long
Michael J. Long, Chairman, President, and Chief Executive Officer
(principal executive officer)

By: /s/ Chris D. Stansbury
Chris D. Stansbury, Senior Vice President and Chief Financial Officer
(principal financial officer)

By: /s/ Richard A. Seidlitz
Richard A. Seidlitz, Corporate Controller
(*principal accounting officer*)

By: /s/ Barry W. Perry
Barry W. Perry, Lead Independent

Director

By: /s/ Philip K. Asherman
Philip K. Asherman, Director

By: /s/ Steven H. Gunby
Steven H. Gunby, Director

By: /s/ Gail E. Hamilton
Gail E. Hamilton, Director

By: /s/ Richard S. Hill
Richard S. Hill, Director

By: /s/ Fran Keeth
Fran Keeth, Director

By: /s/ Andrew C. Kerin
Andrew C. Kerin, Director

By: /s/ Stephen C. Patrick
Stephen C. Patrick, Director

By: /s/ Laurel J. Krzeminski
Laurel J. Krzeminski, Director