

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

FORM 10-K

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

For the fiscal year ended December 30, 2017

Commission file number 1-6770



MUELLER INDUSTRIES, INC.
(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of incorporation or organization)

25-0790410
(I.R.S. Employer Identification No.)

8285 Tournament Drive, Suite 150
Memphis, Tennessee

(Address of principal executive offices)

38125
(Zip Code)

Registrant's telephone number, including area code: (901) 753-3200

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

<u>Title of each class</u>	<u>Name of each exchange on which registered</u>
Common Stock, \$0.01 Par Value	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: None

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

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

Indicate by a 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 ☒ No ☐

Indicate by check mark whether the Registrant has submitted electronically and posted on its corporate Website, 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 ☒ No ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (Section 229.405 of this chapter) is not contained herein, and will not be contained, to the best of Registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☒

Indicate by check mark whether the Registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting 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 <input checked="" type="checkbox"/>	Accelerated filer <input type="checkbox"/>
Non-accelerated filer <input type="checkbox"/>	Smaller reporting company <input type="checkbox"/>
Emerging growth company <input type="checkbox"/>	

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

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

The aggregate market value of the voting and non-voting common equity held by non-affiliates computed by reference to the price at which the common equity was last sold, or the average bid and asked price of such common equity, as of the last business day of the Registrant's most recently completed second fiscal quarter was \$1,698,272,608.

The number of shares of the Registrant's common stock outstanding as of February 23, 2018 was 57,564,175 excluding 22,618,829 treasury shares.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the following document are incorporated by reference into this Report: Registrant's Definitive Proxy Statement for the 2018 Annual Meeting of Stockholders, scheduled to be mailed on or about March 29, 2018 (Part III).

MUELLER INDUSTRIES, INC.

As used in this report, the terms “we,” “us,” “our,” “Company,” “Mueller,” and “Registrant” mean Mueller Industries, Inc. and its consolidated subsidiaries taken as a whole, unless the context indicates otherwise.

TABLE OF CONTENTS

	<u>Page</u>
Part I	
Item 1. Business	3
Item 1A. Risk Factors	6
Item 1B. Unresolved Staff Comments	9
Item 2. Properties	10
Item 3. Legal Proceedings	11
Item 4. Mine Safety Disclosures	11
Part II	
Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities	12
Item 6. Selected Financial Data	15
Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations	15
Item 7A. Quantitative and Qualitative Disclosures About Market Risk	15
Item 8. Financial Statements and Supplementary Data	15
Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure	16
Item 9A. Controls and Procedures	16
Item 9B. Other Information	20
Part III	
Item 10. Directors, Executive Officers and Corporate Governance	20
Item 11. Executive Compensation	20
Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters	20
Item 13. Certain Relationships and Related Transactions, and Director Independence	21
Item 14. Principal Accountant Fees and Services	21
Part IV	
Item 15. Exhibits, Financial Statement Schedules	22
Item 16. Form 10-K Summary	24
Signatures	25
Index to Consolidated Financial Statements	F-1

PART I

ITEM 1. BUSINESS

Introduction

Mueller Industries, Inc. (the Company) is a leading manufacturer of copper, brass, aluminum, and plastic products. The range of these products is broad: copper tube and fittings; line sets; brass and copper alloy rod, bar, and shapes; aluminum and brass forgings; aluminum impact extrusions; PEX plastic tube; refrigeration valves and fittings; fabricated tubular products; and steel nipples. We also resell brass and plastic plumbing valves, plastic fittings, malleable iron fittings, faucets, and plumbing specialty products. Our operations are located throughout the United States and in Canada, Mexico, Great Britain, South Korea, and China. The Company was incorporated in Delaware on October 3, 1990.

Each of our reportable segments is composed of certain operating segments that are aggregated primarily by the nature of products offered. These are the Piping Systems, Industrial Metals, and Climate segments.

Certain administrative expenses and expenses related primarily to retiree benefits at inactive operations are combined into the Corporate and Eliminations classification.

Financial information concerning segments and geographic information appears under [“Note 3 – Segment Information”](#) in the Notes to Consolidated Financial Statements, which is incorporated herein by reference.

New housing starts and commercial construction are important determinants of our sales to the heating, ventilation, and air-conditioning (HVAC), refrigeration, and plumbing markets because the principal end use of a significant portion of our products is in the construction of single and multi-family housing and commercial buildings. Repairs and remodeling projects are also important drivers of underlying demand for these products.

Piping Systems Segment

The Piping Systems segment is composed of Domestic Piping Systems Group, Great Lakes Copper (Great Lakes), Pexcor Manufacturing Company and Heatlink Group Inc. (collectively, Heatlink Group), European Operations, Trading Group, and Jungwoo Metal Ind. Co., LTD (Jungwoo-Mueller).

The Domestic Piping Systems Group manufactures copper tube and fittings, plastic fittings, and line sets. These products are manufactured in the U.S., sold in the U.S., and exported to markets worldwide. Our copper tube ranges in size from 1/8 inch to 8 1/8 inch diameter and is sold in various straight lengths and coils. We are a market leader in the air-conditioning and refrigeration service tube markets and we also supply a variety of water tube in straight lengths and coils used for plumbing applications in virtually every type of construction project. Our copper and plastic fittings, line sets, and related components are produced for the plumbing and heating industry to be used in water distribution systems, heating systems, air-conditioning, and refrigeration applications, and drainage, waste, and vent systems.

Great Lakes manufactures copper tube and line sets in Canada and sells the products primarily in the U.S. and Canada. Heatlink Group manufactures a complete line of products for PEX plumbing and radiant systems in Canada and sells these products in Canada and the U.S. European Operations manufactures copper tube in the United Kingdom, which is sold throughout Europe. The Trading Group manufactures steel pipe nipples and resells imported brass and plastic plumbing valves, malleable iron fittings, faucets, and plumbing specialty products to plumbing wholesalers, distributors to the manufactured housing and recreational vehicle industries, and building materials retailers in North America. Jungwoo-Mueller, our South Korean joint venture, manufactures copper-based joining products that are sold worldwide.

We acquired Howell Metal Company (Howell) on October 17, 2013, Yorkshire Copper Tube (Yorkshire) on February 28, 2014, Great Lakes on July 31, 2015, a 60 percent equity interest in Jungwoo-Mueller on April 26, 2016, and Heatlink Group on May 31, 2017. Howell manufactures copper tube and line sets for U.S. distribution, while Yorkshire produces European standard copper distribution tubes. These acquisitions complement our existing copper tube, line sets, copper fittings, and plastics businesses in the Piping Systems segment.

We disposed of Mueller Primaflow Limited (Primaflow), our U.K. based plumbing and heating systems import distribution business, on November 21, 2014. This business was part of European Operations in the Piping Systems segment. We also disposed of

Jiangsu Mueller-Xingrong Copper Industries Limited (Mueller-Xingrong), the Company's Chinese joint venture, on June 21, 2017. This business manufactured engineered copper tube primarily for air-conditioning applications in China.

The segment sells products to wholesalers in the plumbing and refrigeration markets, distributors to the manufactured housing and recreational vehicle industries, building material retailers, and air-conditioning original equipment manufacturers (OEMs). It markets primarily through its own sales and distribution organization, which maintains sales offices and distribution centers throughout the United States and in Canada, Mexico, Europe, China, and South Korea. Additionally, products are sold and marketed through a complement of agents, which, when combined with our sales organization, provide the Company broad geographic market representation.

The total amount of order backlog for the Piping Systems segment as of December 30, 2017 was not significant.

We compete with various companies, depending on the product line. In the U.S. copper tube business, domestic competition includes Cerro Flow Products LLC, Cambridge-Lee Industries LLC (a subsidiary of Industrias Unidas S.A. de C.V.), and Wieland Copper Products LLC, as well as many actual and potential foreign competitors. In the European copper tube business, we compete with several European-based manufacturers of copper tube as well as other foreign-based manufacturers. In the Canadian copper tube business, our competitors include foreign-based manufacturers. In the copper fittings market, our domestic competitors include Elkhart Products Company (a subsidiary of Aalberts Industries N.V.) and NIBCO, Inc. We also compete with several foreign manufacturers. Additionally, our copper tube and fittings businesses compete with a large number of manufacturers of substitute products made from other metals and plastic. The plastic fittings competitors include NIBCO, Inc., Charlotte Pipe & Foundry, and other companies.

Industrial Metals Segment

The Industrial Metals segment is composed of Brass Rod & Copper Bar Products, Impacts & Micro Gauge, and Brass Value-Added Products.

Brass Rod & Copper Bar Products manufactures a broad range of brass rod and copper alloy shapes, as well as a wide variety of end products including plumbing brass, valves, and fittings sold primarily to OEMs in the industrial, HVAC, plumbing, and refrigeration industries. We extrude brass, bronze, and copper alloy rod in sizes ranging from 3/8 inches to 4 inches in diameter. These alloys are used in applications that require a high degree of machinability, wear and corrosion resistance, as well as electrical conductivity.

Impacts & Micro Gauge manufactures cold-form aluminum and copper products for automotive, industrial, and recreational components, as well as high-volume machining of aluminum, steel, brass, and cast iron impacts and castings for automotive applications. It sells its products primarily to OEMs in the U.S., serving the automotive, military ordnance, aerospace, and general manufacturing industries. Typical applications for impacts are high strength ordnance, high-conductivity electrical components, builders' hardware, hydraulic systems, automotive parts, and other uses where toughness must be combined with varying complexities of design and finish.

Brass Value-Added Products manufactures brass and aluminum forgings; brass, aluminum, and stainless steel valves; fluid control solutions; and gas train assemblies. Our forgings are used in a wide variety of products, including automotive components, brass fittings, industrial machinery, valve bodies, gear blanks, and computer hardware. Our valves, fluid control systems, and gas train assemblies are used in the compressed gas, pharmaceutical, construction, and gas appliance markets.

On June 18, 2015, we acquired Sherwood Valve Products, LLC (Sherwood), which manufactures valves and fluid control solutions for the HVAC, refrigeration, and compressed gas markets. The acquisition of Sherwood complements our existing brass businesses in the Industrial Metals segment.

The segment sells its products primarily to domestic OEMs in the industrial, construction, HVAC, plumbing, and refrigeration markets. The total amount of order backlog for the Industrial Metals segment as of December 30, 2017 was not significant.

Competitors, primarily in the brass rod market, include Chase Brass and Copper Company LLC, a subsidiary of Global Brass and Copper Holdings, Inc., and others, both domestic and foreign.

Climate Segment

The Climate segment is composed of Refrigeration Products, Fabricated Tube Products, Westermeyer Industries, Inc. (Westermeyer), and Turbotec Products, Inc. (Turbotec).

Refrigeration Products designs and manufactures valves, protection devices, and brass fittings for various OEMs in the commercial HVAC and refrigeration markets. Fabricated Tube Products manufactures tubular assemblies and fabrications for OEMs in the HVAC and refrigeration markets. Westermeyer designs, manufactures, and distributes high-pressure components and accessories for the air-conditioning and refrigeration markets. Turbotec manufactures coaxial heat exchangers and twisted tubes for the HVAC, geothermal, refrigeration, swimming pool heat pump, marine, ice machine, commercial boiler, and heat reclamation markets.

We acquired Turbotec on March 30, 2015. The acquisition complements our existing refrigeration business in the Climate segment.

The segment sells its products primarily to OEMs in the HVAC and refrigeration markets in the U.S. The total amount of order backlog for the Climate segment as of December 30, 2017 was not significant.

Labor Relations

At December 30, 2017, the Company employed approximately 4,125 employees, of which approximately 1,678 were represented by various unions. Those union contracts will expire as follows:

<u>Location</u>	<u>Expiration Date</u>
Port Huron, Michigan (Local 119 SPFPA)	April 1, 2018
Wynne, Arkansas	June 28, 2018
North Wales, Pennsylvania	July 31, 2018
Belding, Michigan	September 14, 2018
Fulton, Mississippi	September 30, 2018
Waynesboro, Tennessee	November 2, 2018
Port Huron, Michigan (Local 218 IAM)	May 5, 2019
Port Huron, Michigan (Local 44 UAW)	July 21, 2019

The union agreements at the Company's U.K. and Mexico operations are renewed annually. The Company expects to renew its union contracts without material disruption to its operations.

Raw Material and Energy Availability

A substantial portion of our base metal requirements (primarily copper) is normally obtained through short-term supply contracts with competitive pricing provisions (for cathode) and the open market (for scrap). Other raw materials used in the production of brass, including brass scrap, zinc, tin, and lead are obtained from zinc and lead producers, open-market dealers, and customers with brass process scrap. Raw materials used in the fabrication of aluminum and plastic products are purchased in the open market from major producers.

Adequate supplies of raw material have historically been available to us from primary producers, metal brokers, and scrap dealers. Sufficient energy in the form of natural gas, fuel oils, and electricity is available to operate our production facilities. While temporary shortages of raw material and fuels may occur occasionally, to date they have not materially hampered our operations.

Our copper tube facilities can accommodate both refined copper and certain grades of copper scrap as the primary feedstock. The Company has commitments from refined copper producers for a portion of its metal requirements for 2018. Adequate quantities of copper are currently available. While we will continue to react to market developments, resulting pricing volatility or supply disruptions, if any, could nonetheless adversely affect the Company.

Environmental Proceedings

Compliance with environmental laws and regulations is a matter of high priority for the Company. Mueller's provision for environmental matters related to all properties was \$7.5 million for 2017, \$0.9 million for 2016, and \$0.1 million for 2015. The reserve for environmental matters was \$28.0 million at December 30, 2017 and \$21.9 million at December 31, 2016. Environmental expenses related to non-operating properties are presented below operating income in the Consolidated Statements of Income, and costs related to operating properties are included in cost of goods sold. We currently anticipate that we will need to make expenditures of approximately \$8.6 million for compliance activities related to existing environmental matters during the next three fiscal years.

For a description of material pending environmental proceedings, see “[Note 13 – Commitments and Contingencies](#)” in the Notes to Consolidated Financial Statements, which is incorporated herein by reference.

Other Business Factors

Our business is not materially dependent on patents, trademarks, licenses, franchises, or concessions held. In addition, expenditures for Company-sponsored research and development activities were not material during 2017, 2016, or 2015. No material portion of our business involves governmental contracts. Seasonality of the Company’s sales is not significant.

SEC Filings

We make available through our internet website our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after we electronically file such material with, or furnish it to, the Securities and Exchange Commission (SEC). To retrieve any of this information, you may access our internet home page at www.muellerindustries.com, select Investors, and then select SEC Filings.

ITEM 1A. RISK FACTORS

The Company is exposed to risk as it operates its businesses. To provide a framework to understand our operating environment, we are providing a brief explanation of the more significant risks associated with our businesses. Although we have tried to identify and discuss key risk factors, others could emerge in the future. These risk factors should be considered carefully when evaluating the Company and its businesses.

Increases in costs and the availability of energy and raw materials used in our products could impact our cost of goods sold and our distribution expenses, which could have a material adverse impact on our operating margins.

Both the costs of raw materials used in our manufactured products (copper, brass, zinc, aluminum, and PVC and ABS resins) and energy costs (electricity, natural gas and fuel) have been volatile during the last several years, which has resulted in changes in production and distribution costs. For example, recent and pending climate change regulation and initiatives on the state, regional, federal, and international levels that have focused on reducing greenhouse gas (GHG) emissions from the energy and utility sectors may affect energy availability and costs in the near future. While we typically attempt to pass costs through to our customers or to modify or adapt our activities to mitigate the impact of increases, we may not be able to do so successfully. Failure to fully pass increases to our customers or to modify or adapt our activities to mitigate the impact could have a material adverse impact on our operating margins. Additionally, if we are for any reason unable to obtain raw materials or energy, our ability to manufacture our products would be impacted, which could have a material adverse impact on our operating margins.

The unplanned departure of key personnel could disrupt our business.

We depend on the continued efforts of our senior management. The unplanned loss of key personnel, or the inability to hire and retain qualified executives, could negatively impact our ability to manage our business.

Economic conditions in the housing and commercial construction industries, as well as changes in interest rates, could have a material adverse impact on our business, financial condition, and results of operations.

Our business is sensitive to changes in general economic conditions, particularly in the housing and commercial construction industries. Prices for our products are affected by overall supply and demand in the market for our products and for our competitors’ products. In particular, market prices of building products historically have been volatile and cyclical, and we may be unable to control the timing and extent of pricing changes for our products. Prolonged periods of weak demand or excess supply in any of our businesses could negatively affect our revenues and margins and could result in a material adverse impact on our business, financial condition, and results of operations.

The markets that we serve, including, in particular, the housing and commercial construction industries, are significantly affected by movements in interest rates and the availability of credit. Significantly higher interest rates could have a material adverse effect on our business, financial condition, and results of operations. Our businesses are also affected by a variety of other factors beyond our control, including, but not limited to, employment levels, foreign currency exchange rates, unforeseen inflationary pressures, and consumer confidence. Since we operate in a variety of geographic areas, our businesses are subject to the economic conditions

in each such area. General economic downturns or localized downturns in the regions where we have operations could have a material adverse effect on our business, financial condition, and results of operations.

The impact of economic conditions on the operations or liquidity of any party with which we conduct our business, including our suppliers and customers, may adversely impact our business.

Competitive conditions, including the impact of imports and substitute products and technologies, could have a material adverse effect on the demand for our products as well as our margins and profitability.

The markets we serve are competitive across all product lines. Some consolidation of customers has occurred and may continue, which could shift buying power to customers. In some cases, customers have moved production to low-cost countries such as China, or sourced components from there, which has reduced demand in North America for some of the products we manufacture. These conditions could have a material adverse impact on our ability to maintain margins and profitability. The potential threat of imports and substitute products is based upon many factors, including raw material prices, distribution costs, foreign exchange rates, production costs, and the development of emerging technologies and applications. The end use of alternative import and/or substitute products could have a material adverse effect on our business, financial condition, and results of operations. Likewise, the development of new technologies and applications could result in lower demand for our products and have a material adverse effect on our business.

Our exposure to exchange rate fluctuations on cross border transactions and the translation of local currency results into U.S. dollars could have an adverse impact on our results of operations or financial position.

We conduct our business through subsidiaries in several different countries and export our products to many countries. Fluctuations in currency exchange rates could have a significant impact on the competitiveness of our products as well as the reported results of our operations, which are presented in U.S. dollars. A portion of our products are manufactured in or acquired from suppliers located in lower cost regions. Cross border transactions, both with external parties and intercompany relationships, result in increased exposure to foreign exchange fluctuations. The strengthening of the U.S. dollar could expose our U.S. based businesses to competitive threats from lower cost producers in other countries such as China. Lastly, our sales are translated into U.S. dollars for reporting purposes. The strengthening of the U.S. dollar could result in unfavorable translation effects when the results of foreign operations are translated into U.S. dollars. Accordingly, significant changes in exchange rates, particularly the British pound sterling, Mexican peso, Canadian dollar, South Korean won, and Chinese renminbi, could have an adverse impact on our results of operations or financial position.

The vote by the United Kingdom (U.K.) to leave the European Union (EU) could adversely affect us.

Through a June 2016 U.K. referendum on its membership in the EU, a majority of U.K. voters voted to exit the EU (Brexit). As a result, we face risks associated with the potential uncertainty and consequences that may follow Brexit, including with respect to volatility in exchange rates and interest rates and disruptions affecting our relationships with our existing and future customers, suppliers and employees. Brexit could adversely affect European or worldwide political, regulatory, economic or market conditions and could contribute to instability in global political institutions, regulatory agencies and financial markets. Any of these effects of Brexit, and others we cannot anticipate, could adversely affect our business, results of operations and financial condition.

We are subject to claims, litigation, and regulatory proceedings that could have a material adverse effect on us.

We are, from time-to-time, involved in various claims, litigation matters, and regulatory proceedings. These matters may include contract disputes, personal injury claims, environmental claims and administrative actions, Occupational Safety and Health Administration inspections or proceedings, other tort claims, employment and tax matters and other litigation including class actions that arise in the ordinary course of our business. Although we intend to defend these matters vigorously, we cannot predict with certainty the outcome or effect of any claim or other litigation matter, and there can be no assurance as to the ultimate outcome of any litigation or regulatory proceeding. Litigation and regulatory proceedings may have a material adverse effect on us because of potential adverse outcomes, defense costs, the diversion of our management's resources, availability of insurance coverage and other factors.

A strike, other work stoppage or business interruption, or our inability to renew collective bargaining agreements on favorable terms, could impact our cost structure and our ability to operate our facilities and produce our products, which could have an adverse effect on our results of operations.

We have a number of employees who are covered by collective bargaining or similar agreements. If we are unable to negotiate acceptable new agreements with the unions representing our employees upon expiration of existing contracts, we could experience

strikes or other work stoppages. Strikes or other work stoppages could cause a significant disruption of operations at our facilities, which could have an adverse impact on us. New or renewal agreements with unions representing our employees could call for higher wages or benefits paid to union members, which would increase our operating costs and could adversely affect our profitability. Higher costs and/or limitations on our ability to operate our facilities and manufacture our products resulting from increased labor costs, strikes or other work stoppages could have a material adverse effect on our results of operations.

In addition, unexpected interruptions in our operations or those of our customers or suppliers due to such causes as weather-related events or acts of God, such as earthquakes, could have an adverse effect on our results of operations. For example, the Environmental Protection Agency has found that global climate change would be expected to increase the severity and possibly the frequency of severe weather patterns such as hurricanes. Although the financial impact of such future events is not reasonably estimable at this time, should they occur, our operations in certain coastal and flood-prone areas or operations of our customers and suppliers could be adversely affected.

We are subject to environmental, health, and safety laws and regulations and future compliance may have a material adverse effect on our results of operations, financial position, or cash flows.

The nature of our operations exposes us to the risk of liabilities and claims with respect to environmental, health, and safety matters. While we have established accruals intended to cover the cost of environmental remediation at contaminated sites, the actual cost is difficult to determine and may exceed our estimated reserves. Further, changes to, or more rigorous enforcement or stringent interpretation of environmental or health and safety laws could require significant incremental costs to maintain compliance. Recent and pending climate change regulation and initiatives on the state, regional, federal, and international levels may require certain of our facilities to reduce GHG emissions. While not reasonably estimable at this time, this could require capital expenditures for environmental control facilities and/or the purchase of GHG emissions credits in the coming years. In addition, with respect to environmental matters, future claims may be asserted against us for, among other things, past acts or omissions at locations operated by predecessor entities, or alleging damage or injury or seeking other relief in connection with environmental matters associated with our operations. Future liabilities, claims, and compliance costs may have a material adverse effect on us because of potential adverse outcomes, defense costs, diversion of our resources, availability of insurance coverage, and other factors. The overall impact of these requirements on our operations could increase our costs and diminish our ability to compete with products that are produced in countries without such rigorous standards; the long run impact could negatively impact our results and have a material adverse effect on our business.

If we do not successfully execute or effectively operate, integrate, leverage and grow acquired businesses, our financial results may suffer.

Our strategy for long-term growth, productivity and profitability depends in part on our ability to make prudent strategic acquisitions and to realize the benefits we expect when we make those acquisitions. In furtherance of this strategy, over the past several years, we have acquired businesses in Europe, Canada, South Korea, and the United States.

While we currently anticipate that our past and future acquisitions will enhance our value proposition to customers and improve our long-term profitability, there can be no assurance that we will realize our expectations within the time frame we have established, if at all, or that we can continue to support the value we allocate to these acquired businesses, including their goodwill or other intangible assets.

We are subject to risks associated with changes in tax laws and regulations.

We are a large corporation with operations in the U.S. and other jurisdictions. On December 22, 2017, the U.S. government enacted the Tax Cuts and Jobs Act (the Act). The overall effect of U.S. Tax Reform may be positive for Mueller, however, there are certain changes that may have adverse effects for Mueller. While the Act reduces the U.S. federal corporate tax rate from 35 percent to 21 percent, it also requires companies to pay a one-time transition tax on the accumulated earnings of certain foreign subsidiaries, and creates new taxes on certain foreign sourced earnings. At December 30, 2017, the Company has not completed its accounting for the tax effects of enactment of the Act. However, the Company has made a reasonable estimate of the one-time transition tax on accumulated foreign earnings as well as the impact of the Act on its existing deferred tax balances. The final transition impacts of the Act may differ from the estimates provided elsewhere in this Annual Report, possibly materially, due to, among other things, changes in interpretations of the Act, any legislative action to address questions that arise because of the Act, any changes in accounting standards for income taxes or related interpretations in response to the Act, or any updates or changes to estimates we have used to calculate the transition impacts. Any changes in enacted tax laws (such as the recent U.S. tax legislation), rules or regulatory or judicial interpretations, any adverse outcome in connection with tax audits in any jurisdiction, or any change in the pronouncements relating to accounting for income taxes could materially and adversely impact our financial condition and results of operations.

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

We rely on information technology systems to process, transmit and store electronic information and manage and operate our business. A breach in cyber security could expose us, our customers, our suppliers and our employees to risks of misuse of confidential information. A breach could also result in manipulation and destruction of data, production downtimes and operations disruptions, which in turn could adversely affect our reputation, competitive position, business or results of operations.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

Information pertaining to our major operating facilities is included below. Except as noted, we own all of the principal properties. In addition, we own and/or lease other properties used as distribution centers and corporate offices. Our plants are in satisfactory condition and are suitable for the purpose for which they were designed and are now being used.

Location of Facility	Building Space (Sq. Ft.)	Primary Use	Owned or Leased
<u>Piping Systems Segment</u>			
Fulton, MS	724,300	Manufacturing, Packaging, & Distribution	Owned
New Market, VA	413,120	Manufacturing & Distribution	Owned
Wynne, AR	400,000	Manufacturing & Distribution	Owned
Ansonia, CT	89,396	Manufacturing & Distribution	Owned
Covington, TN	159,500	Manufacturing	Owned
Phoenix, AZ	61,000	Manufacturing	Leased
Lawrenceville, GA	56,000	Manufacturing	Leased
North Wales, PA	174,000	Manufacturing	Owned
Cedar City, UT	260,000	Manufacturing & Distribution	Owned
Bilston, England	402,500	Manufacturing	Owned
London, Ontario, Canada	200,400	Manufacturing	Leased
Calgary, Alberta, Canada	20,000	Manufacturing	Leased
Calgary, Alberta, Canada	21,117	Manufacturing	Leased
Calgary, Alberta, Canada	6,600	Manufacturing	Leased
Monterrey, Mexico	152,000	Manufacturing	Leased
Yangju City, Gyeonggi Province, South Korea	343,909	Manufacturing	Owned
<u>Industrial Metals Segment</u>			
Port Huron, MI	450,000	Manufacturing	Owned
Belding, MI	293,068	Manufacturing	Owned
Brighton, MI	65,000	Machining	Leased
Marysville, MI	81,500	Manufacturing	Owned
Brooklyn, OH	75,000	Manufacturing	Leased
Valley View, OH	65,400	Manufacturing & Distribution	Leased
Middletown, OH	55,000	Manufacturing	Owned
Waynesboro, TN	57,000	Manufacturing	Leased
<u>Climate Segment</u>			
Hartsville, TN	78,000	Manufacturing	Owned
Carthage, TN	67,520	Manufacturing	Owned
Bluffs, IL	107,000	Manufacturing	Owned
Gordonsville, TN	54,000	Manufacturing	Leased
Carrollton, TX	9,230	Manufacturing	Leased
Hickory, NC	100,000	Manufacturing	Owned
Guadalupe, Mexico	130,110	Manufacturing	Leased
Xinbei District, Changzhou, China	33,940	Manufacturing	Leased

ITEM 3. LEGAL PROCEEDINGS

The Company is involved in certain litigation as a result of claims that arose in the ordinary course of business. Additionally, we may realize the benefit of certain legal claims and litigation in the future; these gain contingencies are not recognized in the Consolidated Financial Statements.

For a description of material pending legal proceedings, see “[Note 13 – Commitments and Contingencies](#)” in the Notes to Consolidated Financial Statements, which is incorporated herein by reference.

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

Our common stock is listed on the New York Stock Exchange (NYSE) under the symbol "MLI." As of February 23, 2018, the number of holders of record of Mueller's common stock was 740. The following table sets forth, for the periods indicated, the high and low sales prices as reported by the NYSE and the cash dividends paid per share of common stock.

	Sales Prices		Dividend
	High	Low	
2017			
Fourth quarter	\$ 37.53	\$ 32.88	\$ 0.100
Third quarter	35.02	28.49	0.100
Second quarter	35.82	27.72	0.100
First quarter	43.96 ⁽¹⁾	30.93	3.100 ⁽²⁾
2016			
Fourth quarter	\$ 41.27	\$ 29.52	\$ 0.100
Third quarter	35.52	31.38	0.100
Second quarter	32.74	28.01	0.100
First quarter	29.86	23.09	0.075

⁽¹⁾ On March 9, 2017, the Company distributed a special dividend of \$3.00 in cash and \$5.00 in principal amount of the Company's 6% Subordinated Debentures per share of outstanding common stock, which resulted in a commensurate decrease in sales price per share.

⁽²⁾ Does not include the \$5.00 in principal amount of the Company's 6% Subordinated Debentures per share of outstanding common stock issued as part of our special dividend.

Payment of dividends in the future is dependent upon the Company's financial condition, cash flows, capital requirements, earnings, and other factors.

Issuer Purchases of Equity Securities

The Company's Board of Directors has extended, until August 2018, the authorization to repurchase up to 20 million shares of the Company's common stock through open market transactions or through privately negotiated transactions. The Company may cancel, suspend, or extend the time period for the purchase of shares at any time. Any purchases will be funded primarily through existing cash and cash from operations. The Company may hold any shares purchased in treasury or use a portion of the repurchased shares for its stock-based compensation plans, as well as for other corporate purposes. From its initial authorization in 1999 through December 30, 2017, the Company had repurchased approximately 4.7 million shares under this authorization. Below is a summary of the Company's stock repurchases for the quarter ended December 30, 2017.

	(a) Total Number of Shares Purchased <i>(1)</i>	(b) Average Price Paid per Share	(c) Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	(d) Maximum Number of Shares That May Yet Be Purchased Under the Plans or Programs <i>(2)</i>
October 1 – October 28, 2017	753	\$ 28.53	—	15,287,060
October 29 – November 25, 2017	1,842	33.90	—	15,287,060
November 26 – December 30, 2017	1,915	29.30	—	15,287,060
Total	4,510		—	

(1) Shares tendered to the Company by holders of stock-based awards in payment of purchase price and/or withholding taxes upon exercise and/or vesting. Also includes shares resulting from restricted stock forfeitures at the average cost of treasury stock.

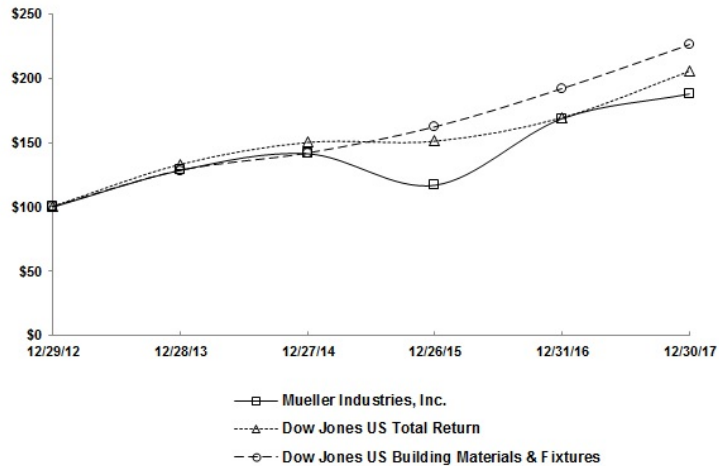
(2) Shares available to be purchased under the Company's 20 million share repurchase authorization until August 2018. The extension of the authorization was announced on October 25, 2017.

Company Stock Performance

The following graph compares total stockholder return since December 29, 2012 to the Dow Jones U.S. Total Return Index (Total Return Index) and the Dow Jones U.S. Building Materials & Fixtures Index (Building Materials Index). Total return values for the Total Return Index, the Building Materials Index and the Company were calculated based on cumulative total return values assuming reinvestment of (i) regular quarterly dividends paid by the Company, (ii) the cash paid by the Company in conjunction with the special dividend and (iii) the proceeds of an assumed sale at par of the Debentures paid by the Company in connection with the special dividend.

COMPARISON OF 5 YEAR CUMULATIVE TOTAL RETURN*

Among Mueller Industries, Inc., the Dow Jones US Total Return Index
and the Dow Jones US Building Materials & Fixtures Index



*\$100 invested on 12/29/12 in stock or 12/31/12 in index, including reinvestment of dividends. Indexes calculated on month-end basis.

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	2012	2013	2014	2015	2016	2017
Mueller Industries, Inc.	100.00	128.51	141.40	116.88	168.73	187.92
Dow Jones U.S. Total Return Index	100.00	132.97	150.19	151.14	169.65	206.12
Dow Jones U.S. Building Materials & Fixtures Index	100.00	128.20	141.74	162.11	192.02	226.29

ITEM 6. SELECTED FINANCIAL DATA

<i>(In thousands, except per share data)</i>	2017	2016	2015	2014	2013
For the fiscal year: ⁽¹⁾					
Net sales	\$ 2,266,073	\$ 2,055,622	\$ 2,100,002	\$ 2,364,227	\$ 2,158,541
Operating income	151,957	152,713	137,268	153,996	270,937
Net income attributable to Mueller Industries, Inc.	85,598 ⁽²⁾	99,727 ⁽³⁾	87,864 ⁽⁴⁾	101,560 ⁽⁵⁾	172,600 ⁽⁶⁾
Diluted earnings per share ⁽⁷⁾	1.49	1.74	1.54	1.79	3.06
Cash dividends per share ⁽⁷⁾	3.40	0.375	0.30	0.30	0.25
At year-end:					
Total assets	1,320,173	1,447,476	1,338,801	1,328,096	1,247,767
Long-term debt	448,592	213,709	204,250	205,250	206,250

⁽¹⁾ Includes activity of acquired businesses from the following purchase dates: Pexcor Manufacturing Company Inc. and Heatlink Group Inc., May 31, 2017; Jungwoo Metal Ind. Co., LTD, April 26, 2016; Great Lakes Copper Ltd., July 31, 2015; Sherwood Valve Products, LLC, June 18, 2015; Turbotec Products, Inc., March 30, 2015; Yorkshire Copper Tube, February 28, 2014; and Howell Metal Company, October 17, 2013.

⁽²⁾ Includes interest expense of \$13.8 million on the Company's Subordinated Debentures and pre-tax environmental expense for non-operating properties of \$7.3 million.

⁽³⁾ Includes pre-tax impairment charges of \$6.8 million on fixed assets.

⁽⁴⁾ Includes \$15.4 million pre-tax gain from the sale of certain assets, severance charges of \$3.4 million and a permanent adjustment to a deferred tax liability of \$4.2 million.

⁽⁵⁾ Includes \$6.3 million pre-tax gain on sale of assets, reversal of valuation allowance of \$5.7 million, and \$7.3 million of pre-tax charges related to severance.

⁽⁶⁾ Includes \$106.3 million pre-tax gain from settlement of insurance claims, \$39.8 million pre-tax gain from the sale of the Company's Schedule 40 pressure plastic fittings business along with the sale of certain other plastic fittings manufacturing assets, and pre-tax impairment charges of \$4.3 million primarily related to real property associated with the aforementioned plastics sale transaction.

⁽⁷⁾ Adjusted retroactively to reflect the two-for-one stock split that occurred on March 14, 2014.

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

Management's discussion and analysis of financial condition and results of operations is contained under the caption "Financial Review" submitted as a separate section of this Annual Report on Form 10-K commencing on page [F-2](#).

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Quantitative and qualitative disclosures about market risk are contained under the caption "Financial Review" submitted as a separate section of this Annual Report on Form 10-K commencing on page [F-2](#).

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Financial Statements required by this item are contained in a separate section of this Annual Report on Form 10-K commencing on page [F-16](#).

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 maintains disclosure controls and procedures designed to ensure information required to be disclosed in Company reports filed under the Securities Exchange Act of 1934, as amended (the Exchange Act), is recorded, processed, summarized, and reported within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures are designed to provide reasonable assurance that information required to be disclosed in Company reports filed under the Exchange Act is accumulated and communicated to management, including the Company's Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

The Company's management, with the participation of the Company's Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of the Company's disclosure controls and procedures pursuant to Rule 13a-15(e) of the Exchange Act as of December 30, 2017. Based on that evaluation, the Company's Chief Executive Officer and Chief Financial Officer have concluded that the Company's disclosure controls and procedures are effective as of December 30, 2017 to ensure that information required to be disclosed in Company reports filed under the Exchange Act is (i) recorded, processed, summarized and reported within the time periods specified in the SEC rules and forms and (ii) accumulated and communicated to management, including the Company's principal executive officer and principal financial officer, as appropriate to allow timely decisions regarding required disclosure.

Management's Report on Internal Control over Financial Reporting

The Company's management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Pursuant to the rules and regulations of the SEC, internal control over financial reporting is a process designed by, or under the supervision of, the Company's principal executive and principal financial officers, and effected by the Company's Board of Directors, management and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with accounting principles generally accepted in the United States and includes those policies and procedures that (i) pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the Company's assets; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the issuer are being made only in accordance with authorizations of the Company's management and directors; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the Company's assets that could have a material effect on the financial statements. Due to inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Further, because of changes in conditions, effectiveness of internal control over financial reporting may vary over time.

The Company acquired Pexcor Manufacturing Company Inc. and Heatlink Group Inc. during 2017 and has excluded these businesses from management's assessment of internal controls. The total value of assets for these businesses at year-end was \$19.8 million, which represents 1.5 percent of the Company's consolidated total assets at December 30, 2017. Net sales from the date of acquisition represents 0.6 percent of the consolidated net sales of the Company for 2017. Operating results from the date of acquisition represents less than 0.1 percent of the consolidated operating income of the Company for 2017. Accordingly, these acquired businesses are not included in the scope of this report.

As required by Rule 13a-15(c) under the Exchange Act, the Company's management, with the participation of the Company's Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of the Company's internal control over financial reporting as of December 30, 2017 based on the control criteria established in a report entitled *Internal Control—Integrated Framework*, (2013 Framework) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on such evaluation, management has concluded that our internal control over financial reporting was effective as of December 30, 2017.

Ernst & Young LLP, the independent registered public accounting firm that audited the Company's financial statements included in this Annual Report on Form 10-K, has issued an attestation report on the Company's internal control over financial reporting, which is included herein.

Changes in Internal Control Over Financial Reporting

There were no changes in the Company's internal control over financial reporting during the Company's fiscal quarter ended December 30, 2017, that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Mueller Industries, Inc.

Opinion on Internal Control over Financial Reporting

We have audited Mueller Industries, Inc.'s internal control over financial reporting as of December 30, 2017, 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, Mueller Industries, Inc. (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 30, 2017, 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 Pexcor Manufacturing Company Inc. and Heatlink Group Inc., which are included in the 2017 consolidated financial statements of the Company and constituted \$19.8 million and \$17.2 million of total and net assets, respectively, as of December 30, 2017 and \$14.5 million and \$0.3 million of net sales and operating losses, 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 Pexcor Manufacturing Company Inc. and Heatlink Group Inc.

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 30, 2017 and December 31, 2016, the related consolidated statements of income, comprehensive income, changes in equity and cash flows for each of the three years in the period ended December 30, 2017, and the related notes and financial statement schedule listed in the Index at Item 15(a) and our report dated February 28, 2018 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.

Ernst & Young LLP

Memphis, Tennessee
February 28, 2018

ITEM 9B. OTHER INFORMATION

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS, AND CORPORATE GOVERNANCE

The information required by Item 10 is contained under the captions “Ownership of Common Stock by Directors and Executive Officers and Information about Director Nominees,” “Corporate Governance,” “Report of the Audit Committee of the Board of Directors,” and “Section 16(a) Beneficial Ownership Compliance Reporting” in the Company’s Proxy Statement for its 2018 Annual Meeting of Stockholders to be filed with the SEC on or about March 29, 2018, which is incorporated herein by reference.

The Company has adopted a Code of Business Conduct and Ethics that applies to its chief executive officer, chief financial officer, and other financial executives. We have also made the Code of Business Conduct and Ethics available on the Company’s website at www.muellerindustries.com.

ITEM 11. EXECUTIVE COMPENSATION

The information required by Item 11 is contained under the caption “Compensation Discussion and Analysis,” “Summary Compensation Table for 2017,” “2017 Grants of Plan Based Awards Table,” “Outstanding Equity Awards at Fiscal 2017 Year-End,” “2017 Option Exercises and Stock Vested,” “Potential Payments Upon Termination of Employment or Change in Control as of the End of 2017,” “2017 Director Compensation,” “Report of the Compensation Committee of the Board of Directors on Executive Compensation” and “Corporate Governance” in the Company’s Proxy Statement for its 2018 Annual Meeting of Stockholders to be filed with the SEC on or about March 29, 2018, which is incorporated herein by reference.

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

Equity Compensation Plan Information

The following table discloses information regarding the securities to be issued and the securities remaining available for issuance under the Registrant’s stock-based incentive plans as of December 30, 2017 (shares in thousands):

Plan category	(a) Number of securities to be issued upon exercise of outstanding options, warrants, and rights	(b) Weighted average exercise price of outstanding options, warrants, and rights	(c) Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))
Equity compensation plans approved by security holders	947	\$ 22.31	696
Equity compensation plans not approved by security holders	—	—	—
Total	947	\$ 22.31	696

Other information required by Item 12 is contained under the captions “Principal Stockholders” and “Ownership of Common Stock by Directors and Executive Officers and Information about Director Nominees” in the Company’s Proxy Statement for its

2018 Annual Meeting of Stockholders to be filed with the SEC on or about March 29, 2018, which is incorporated herein by reference.

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

The information required by Item 13 is contained under the caption “Corporate Governance” in the Company’s Proxy Statement for its 2018 Annual Meeting of Stockholders to be filed with the SEC on or about March 29, 2018, which is incorporated herein by reference.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

The information required by Item 14 is contained under the caption “Appointment of Independent Registered Public Accounting Firm” in the Company’s Proxy Statement for its 2018 Annual Meeting of Stockholders to be filed with the SEC on or about March 29, 2018, which is incorporated herein by reference.

PART IV

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

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

1. Financial Statements: the financial statements, notes, and report of independent registered public accounting firm described in Item 8 of this Annual Report on Form 10-K are contained in a separate section of this Annual Report on Form 10-K commencing on page [F-1](#).
2. Financial Statement Schedule: the financial statement schedule described in Item 8 of this report is contained in a separate section of this Annual Report on Form 10-K commencing on page [F-1](#).

3. Exhibits:

Certificate of Incorporation and Bylaws

- 3.1 [Restated Certificate of Incorporation of the Registrant dated February 8, 2007 \(Incorporated herein by reference to Exhibit 3.1 of the Registrant's Annual Report on Form 10-K, dated February 28, 2007, for the fiscal year ended December 30, 2006\).](#)
- 3.2 [Amended and Restated By-laws of the Registrant, effective as of January 15, 2016 \(Incorporated herein by reference to Exhibit 3.1 of the Registrant's Current Report on Form 8-K, dated January 19, 2016\).](#)

Long-Term Debt Instruments

- 4.1 [Indenture, dated March 9, 2017, among the Registrant \(as issuer\) and Regions Bank \(as trustee\) \(Incorporated herein by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K, dated March 13, 2017\).](#)
- 4.2 [Form of 6% Subordinated Debenture due 2027 \(Incorporated herein by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K, dated March 13, 2017\).](#)
- 4.3 Certain instruments with respect to long-term debt of the Registrant have not been filed as Exhibits to this Report since the total amount of securities authorized under any such instruments does not exceed 10 percent of the total assets of the Registrant and its subsidiaries on a consolidated basis. The Registrant agrees to furnish a copy of each such instrument upon request of the SEC.

Consulting, Employment, and Compensatory Plan Agreements

- 10.1 [Amended and Restated Consulting Agreement, dated October 25, 2007, by and between the Registrant and Harvey Karp \(Incorporated herein by reference to Exhibit 10.2 of the Registrant's Current Report on Form 8-K, dated October 25, 2007\).](#)
- 10.2 [Amendment No. 1, dated December 2, 2008, to the Amended and Restated Consulting Agreement, dated October 25, 2007, by and between the Registrant and Harvey Karp \(Incorporated herein by reference to Exhibit 10.7 of the Registrant's Annual Report on Form 10-K, dated February 24, 2009, for the fiscal year ended December 27, 2008\).](#)
- 10.3 [Amended and Restated Employment Agreement, effective October 30, 2008, by and between the Registrant and Gregory L. Christopher \(Incorporated herein by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K, dated December 26, 2008\).](#)
- 10.4 [Amendment No. 1 to Amended and Restated Employment Agreement by and between the Registrant and Gregory L. Christopher, dated February 14, 2013 \(Incorporated herein by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K, dated February 14, 2013\).](#)
- 10.5 [Amendment No. 2 to Amended and Restated Employment Agreement by and between the Registrant and Gregory L. Christopher, dated July 26, 2016 \(Incorporated herein by reference to Exhibit 10.2 of the Registrant's Quarterly Report on Form 10-Q, for the period ended July 2, 2016, dated July 28, 2016\).](#)

- 10.6 [Mueller Industries, Inc. 2002 Stock Option Plan Amended and Restated as of February 16, 2006 \(Incorporated herein by reference to Exhibit 10.20 of the Registrant's Annual Report on Form 10-K, dated February 28, 2007, for the fiscal year ended December 30, 2006\).](#)
- 10.7 [Mueller Industries, Inc. 2009 Stock Incentive Plan \(Incorporated by reference from Appendix I to the Company's 2009 Definitive Proxy Statement with respect to the Company's 2009 Annual Meeting of Stockholders, as filed with the Securities and Exchange Commission on March 26, 2009\).](#)
- 10.8 [Mueller Industries, Inc. 2014 Stock Incentive Plan \(Incorporated by reference from Appendix I to the Company's 2014 Definitive Proxy Statement with respect to the Company's 2014 Annual Meeting of Stockholders, as filed with the Securities and Exchange Commission on March 19, 2014\).](#)
- 10.9 [Amendment to the Mueller Industries, Inc. 2002 Stock Option Plan, dated July 11, 2011 \(Incorporated herein by reference to Exhibit 10.16 of the Registrant's Annual Report on Form 10-K, dated February 28, 2012, for the fiscal year ended December 31, 2011\).](#)
- 10.10 [Amendment to the Mueller Industries, Inc. 2009 Stock Incentive Plan, dated July 11, 2011 \(Incorporated herein by reference to Exhibit 10.17 of the Registrant's Annual Report on Form 10-K, dated February 28, 2012, for the fiscal year ended December 31, 2011\).](#)
- 10.11 [Mueller Industries, Inc. 2011 Annual Bonus Plan \(Incorporated herein by reference to Exhibit 10.18 of the Registrant's Annual Report on Form 10-K, dated February 28, 2012, for the fiscal year ended December 31, 2011\).](#)
- 10.12 [Summary description of the Registrant's 2018 incentive plan for certain key employees.](#)
- 10.13 [Change in Control Agreement, effective July 26, 2016 by and between the Registrant and Brian K. Barksdale \(Incorporated herein by reference to Exhibit 10.3 of the Registrant's Quarterly Report on Form 10-Q, for the period ended July 2, 2016, dated July 28, 2016\).](#)
- 10.14 [Change in Control Agreement, effective July 26, 2016 by and between the Registrant and Daniel R. Corbin \(Incorporated herein by reference to Exhibit 10.4 of the Registrant's Quarterly Report on Form 10-Q, for the period ended July 2, 2016, dated July 28, 2016\).](#)
- 10.15 [Change in Control Agreement, effective July 26, 2016 by and between the Registrant and Jeffrey A. Martin \(Incorporated herein by reference to Exhibit 10.5 of the Registrant's Quarterly Report on Form 10-Q, for the period ended July 2, 2016, dated July 28, 2016\).](#)
- 10.16 [Change in Control Agreement, effective July 26, 2016 by and between the Registrant and Mark Millerchip \(Incorporated herein by reference to Exhibit 10.6 of the Registrant's Quarterly Report on Form 10-Q, for the period ended July 2, 2016, dated July 28, 2016\).](#)
- 10.17 [Change in Control Agreement, effective July 26, 2016 by and between the Registrant and Nicholas W. Moss \(Incorporated herein by reference to Exhibit 10.7 of the Registrant's Quarterly Report on Form 10-Q, for the period ended July 2, 2016, dated July 28, 2016\).](#)
- 10.18 [Change in Control Agreement, effective July 26, 2016 by and between the Registrant and Steffen Sigloch \(Incorporated herein by reference to Exhibit 10.8 of the Registrant's Quarterly Report on Form 10-Q, for the period ended July 2, 2016, dated July 28, 2016\).](#)
- 10.19 [Change in Control Agreement, effective January 3, 2017 by and between the Registrant and Christopher J. Miritello \(Incorporated herein by reference to Exhibit 10.25 of the Registrant's Annual Report on Form 10-K, dated March 1, 2017, for the fiscal year ended December 31, 2016\).](#)

Financing Agreements

- 10.20 [Amended Credit Agreement, dated as of March 7, 2011, among the Registrant \(as borrower\) and Bank of America, N.A. \(as agent\), and certain lenders named therein, following adoption of Amendment No. 2 dated December 11, 2012 \(Incorporated herein by reference to Exhibit 10.20 of the Registrant's Annual Report on Form 10-K, dated February 27, 2013, for the fiscal year ended December 29, 2012\).](#)
- 10.21 [Amendment No. 1 to Credit Agreement among the Registrant \(as borrower\), Bank of America, N.A. \(as agent\), and certain lenders named therein dated August 12, 2011 \(Incorporated herein by reference to Exhibit 10.1 of the Registrant's Quarterly Report on Form 10-Q, for the Quarterly period ended October 1, 2011, dated October 27, 2011\).](#)

[TABLE OF CONTENTS](#)
[INDEX](#)

- 10.22 [Amendment No. 2 to Credit Agreement among the Registrant \(as borrower\), Bank of America, N.A. \(as agent\), and certain lenders named therein dated December 11, 2012 \(Incorporated herein by reference to Exhibit 10.22 of the Registrant's Annual Report on Form 10-K, dated February 27, 2013, for the fiscal year ended December 29, 2012\).](#)
- 10.23 [Amendment No. 3 to Credit Agreement among the Registrant \(as borrower\), Bank of America, N.A. \(as agent\), and certain lenders named therein dated July 26, 2016 \(Incorporated herein by reference to Exhibit 10.1 of the Registrant's Quarterly Report on Form 10-Q, for the period ended July 2, 2016, dated July 28, 2016\).](#)
- 10.24 [Credit Agreement, dated as of December 6, 2016 among the Registrant \(as borrower\), Bank of America \(as agent\), and certain lenders named therein \(Incorporated herein by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K, dated December 12, 2016\).](#)

Other Exhibits

- 21.0 [Subsidiaries of the Registrant.](#)
- 23.0 [Consent of Independent Registered Public Accounting Firm.](#)
- 31.1 [Certification of Chief Executive Officer pursuant to Rule 13a-14\(a\) and Rule 15d-14\(a\) of the Securities Exchange Act of 1934, as amended.](#)
- 31.2 [Certification of Chief Financial Officer pursuant to Rule 13a-14\(a\) and Rule 15d-14\(a\) of the Securities Exchange Act of 1934, as amended.](#)
- 32.1 [Certification of Chief Executive Officer pursuant to 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.](#)
- 32.2 [Certification of Chief Financial Officer pursuant to 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.](#)
- 101.CAL XBRL Taxonomy Extension Calculation Linkbase
- 101.DEF XBRL Taxonomy Extension Definition Linkbase
- 101.INS XBRL Instance Document
- 101.LAB XBRL Taxonomy Extension Label Linkbase
- 101.PRE XBRL Presentation Linkbase Document
- 101.SCH XBRL Taxonomy Extension Schema

ITEM 16. Form 10-K Summary

None.

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, on February 28, 2018.

MUELLER INDUSTRIES, INC.

/s/ Gregory L. Christopher

Gregory L. Christopher, Chief Executive Officer
(Principal Executive Officer) and Chairman of the Board

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 and on the date indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Gregory L. Christopher</u> Gregory L. Christopher	Chief Executive Officer (Principal Executive Officer) and Chairman of the Board	February 28, 2018
<u>/s/ Gary S. Gladstein</u> Gary S. Gladstein	Lead Independent Director	February 28, 2018
<u>/s/ Paul J. Flaherty</u> Paul J. Flaherty	Director	February 28, 2018
<u>/s/ Gennaro J. Fulvio</u> Gennaro J. Fulvio	Director	February 28, 2018
<u>/s/ Scott J. Goldman</u> Scott J. Goldman	Director	February 28, 2018
<u>/s/ John B. Hansen</u> John B. Hansen	Director	February 28, 2018
<u>/s/ Terry Hermanson</u> Terry Hermanson	Director	February 28, 2018
<u>/s/ Charles P. Herzog, Jr.</u> Charles P. Herzog, Jr.	Director	February 28, 2018

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 and on the date indicated.

<u>Signature and Title</u>	<u>Date</u>
<u>/s/ Jeffrey A. Martin</u> Jeffrey A. Martin Chief Financial Officer and Treasurer (Principal Financial and Accounting Officer)	February 28, 2018
<u>/s/ Anthony J. Steinriede</u> Anthony J. Steinriede Vice President – Corporate Controller	February 28, 2018

MUELLER INDUSTRIES, INC.
INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Financial Review	F-2
Consolidated Statements of Income for the years ended December 30, 2017, December 31, 2016, and December 26, 2015	F-16
Consolidated Statements of Comprehensive Income for the years ended December 30, 2017, December 31, 2016, and December 26, 2015	F-17
Consolidated Balance Sheets for the years ended December 30, 2017 and December 31, 2016	F-18
Consolidated Statements of Cash Flows for the years ended December 30, 2017, December 31, 2016, and December 26, 2015	F-19
Consolidated Statements of Changes in Equity for the years ended December 30, 2017, December 3, 2016, and December 26, 2015	F-20
Notes to Consolidated Financial Statements	F-22
Report of Independent Registered Public Accounting Firm	F-58

FINANCIAL STATEMENT SCHEDULE

Schedule for the years ended December 30, 2017, December 31, 2016, and December 26, 2015

Valuation and Qualifying Accounts (Schedule II)	F-59
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FINANCIAL REVIEW

The Financial Review section of our Annual Report on Form 10-K consists of the following: Management's Discussion and Analysis of Results of Operations and Financial Condition (MD&A), the Consolidated Financial Statements, and Other Financial Information, all of which include information about our significant accounting policies, practices, and the transactions that impact our financial results. The following MD&A describes the principal factors affecting the results of operations, liquidity and capital resources, contractual cash obligations, and the critical accounting estimates of the Company. The discussion in the Financial Review section should be read in conjunction with the other sections of this Annual Report, particularly "[Item 1: Business](#)" and our other detailed discussion of risk factors included in this MD&A.

OVERVIEW

We are a leading manufacturer of copper, brass, aluminum, and plastic products. The range of these products is broad: copper tube and fittings; line sets; brass and copper alloy rod, bar, and shapes; aluminum and brass forgings; aluminum impact extrusions; PEX plastic tube; refrigeration valves and fittings; fabricated tubular products; and steel nipples. We also resell brass and plastic plumbing valves, plastic fittings, malleable iron fittings, faucets and plumbing specialty products. Mueller's operations are located throughout the United States and in Canada, Mexico, Great Britain, South Korea, and China.

Each of the reportable segments is composed of certain operating segments that are aggregated primarily by the nature of products offered as follows:

- **Piping Systems:** The Piping Systems segment is composed of Domestic Piping Systems Group, Great Lakes Copper, Heatlink Group, European Operations, Trading Group, and Jungwoo-Mueller (our South Korean joint venture). The Domestic Piping Systems Group manufactures copper tube and fittings, plastic fittings, and line sets. These products are manufactured in the U.S., sold in the U.S., and exported to markets worldwide. Great Lakes Copper manufactures copper tube and line sets in Canada and sells the products primarily in the U.S. and Canada. Heatlink Group manufactures a complete line of products for PEX plumbing and radiant systems in Canada and sells these products in Canada and the U.S. European Operations manufacture copper tube in the United Kingdom, which is sold throughout Europe. The Trading Group manufactures pipe nipples and sources products for import distribution in North America. Jungwoo-Mueller manufactures copper-based joining products that are sold worldwide. The Piping Systems segment sells products to wholesalers in the plumbing and refrigeration markets, distributors to the manufactured housing and recreational vehicle industries, building material retailers, and air-conditioning original equipment manufacturers (OEMs).

The Company disposed of Mueller-Xingrong (the Company's Chinese joint venture) on June 21, 2017. This business manufactured engineered copper tube primarily for air-conditioning applications in China.

- **Industrial Metals:** The Industrial Metals segment is composed of Brass Rod & Copper Bar Products, Impacts & Micro Gauge, and Brass Value-Added Products. The segment manufactures and sells brass and copper alloy rod, bar, and shapes; aluminum and brass forgings; aluminum impact extrusions; and gas valves and assemblies. The segment manufactures and sells its products primarily to domestic OEMs in the industrial, transportation, construction, heating, ventilation, and air-conditioning, plumbing, refrigeration, and energy markets.
- **Climate:** The Climate segment is composed of Refrigeration Products, Fabricated Tube Products, Westermeyer, and Turbotec. The segment manufactures and sells refrigeration valves and fittings, fabricated tubular products, high pressure components, and coaxial heat exchangers. The segment sells its products primarily to the heating, ventilation, air-conditioning, and refrigeration markets in the U.S.

New housing starts and commercial construction are important determinants of our sales to the heating, ventilation, and air-conditioning, refrigeration, and plumbing markets because the principal end use of a significant portion of our products is in the construction of single and multi-family housing and commercial buildings. Repairs and remodeling projects are also important drivers of underlying demand for these products.

Residential construction activity has shown improvement in recent years, but remains at levels below long-term historical averages. Per the U.S. Census Bureau, actual housing starts in the U.S. were 1.20 million in 2017, which compares to 1.17 million in 2016 and 1.11 million in 2015. Mortgage rates remain at historically low levels, as the average 30-year fixed mortgage rate was approximately 3.99 percent in 2017 and 3.65 percent in 2016. The private nonresidential construction sector, which includes offices, industrial, health care, and retail projects, has also shown improvement in recent years. Per the U.S. Census Bureau, the

[TABLE OF CONTENTS](#)
[INDEX](#)

value of private nonresidential construction put in place was \$434.8 billion in 2017, \$432.1 billion in 2016, and \$401.2 billion in 2015. We expect that most of these conditions will continue to improve.

Profitability of certain of our product lines depends upon the “spreads” between the cost of raw material and the selling prices of our products. The open market prices for copper cathode and copper and brass scrap, for example, influence the selling price of copper tube and brass rod, two principal products manufactured by the Company. We attempt to minimize the effects on profitability from fluctuations in material costs by passing through these costs to our customers. Our earnings and cash flow are dependent upon these spreads that fluctuate based upon market conditions.

Earnings and profitability are also impacted by unit volumes that are subject to market trends, such as substitute products, imports, technologies, and market share. In our core product lines, we intensively manage our pricing structure while attempting to maximize profitability. From time-to-time, this practice results in lost sales opportunities and lower volume. For plumbing systems, plastics are the primary substitute product; these products represent an increasing share of consumption. U.S. consumption of copper tube is still predominantly supplied by U.S. manufacturers. For certain air-conditioning and refrigeration applications, aluminum based systems are the primary substitution threat. We cannot predict the acceptance or the rate of switching that may occur. In recent years, brass rod consumption in the U.S. has declined due to the outsourcing of many manufactured products from offshore regions.

RESULTS OF OPERATIONS

Consolidated Results

The following table compares summary operating results for 2017, 2016, and 2015:

(In thousands)				Percent Change	
	2017	2016	2015	2017 vs. 2016	2016 vs. 2015
Net sales	\$ 2,266,073	\$ 2,055,622	\$ 2,100,002	10.2 %	(2.1) %
Operating income	151,957	152,713	137,268	(0.5)	11.3
Net income	85,598	99,727	87,864	(14.2)	13.5

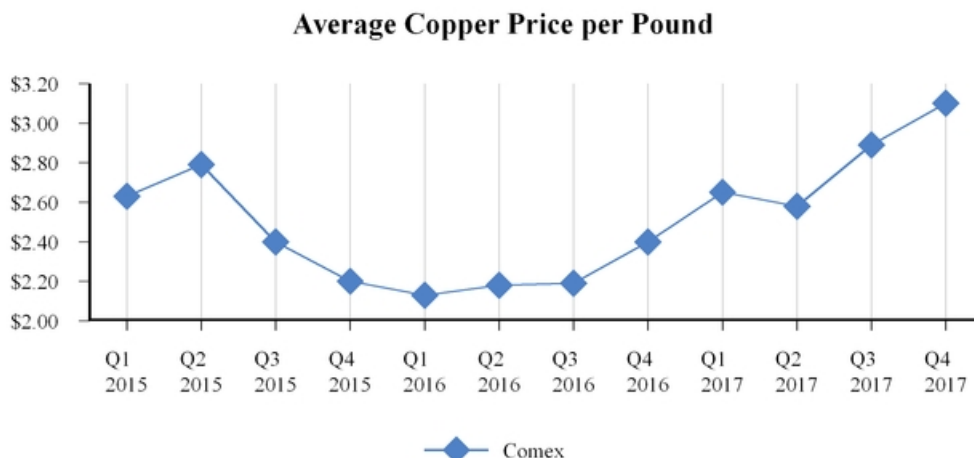
The following are components of changes in net sales compared to the prior year:

	2017 vs. 2016	2016 vs. 2015
Net selling price in core product lines	13.0 %	(9.0) %
Unit sales volume in core product lines	(1.3)	(1.6)
Acquisitions and new products	1.5	9.0
Dispositions	(2.6)	—
Other	(0.4)	(0.5)
	10.2 %	(2.1) %

The increase in net sales in 2017 was primarily due to (i) higher net selling prices of \$266.9 million in our core product lines, primarily copper tube and brass rod, (ii) \$16.4 million of incremental sales recorded by Jungwoo-Mueller, acquired in April 2016, and (iii) \$14.4 million of sales recorded by Pexcor Manufacturing Company Inc. and Heatlink Group Inc. (collectively, Heatlink Group), acquired in May 2017. These increases were partially offset by (i) the absence of sales of \$54.2 million recorded by Mueller-Xingrong, a business we sold during June 2017, and (ii) lower unit sales volume of \$27.3 million in our core product lines.

The decrease in net sales in 2016 was primarily due to (i) lower net selling prices of \$189.0 million in our core product lines, primarily copper tube and brass rod, and (ii) lower unit sales volume of \$33.0 million in our core product lines. The decrease in net sales resulting from lower net selling prices also reflects the impact of translating net sales of the Company’s foreign operations to U.S. dollars, which was approximately \$43.6 million. These decreases were partially offset by (i) \$139.4 million of incremental sales recorded by Great Lakes Copper Ltd. (Great Lakes), acquired in July 2015, (ii) \$22.0 million of sales recorded by Jungwoo-Mueller, (iii) \$19.2 million of incremental sales recorded by Sherwood Valve LLC (Sherwood), acquired in June 2015, and (iv) \$3.5 million of incremental sales recorded by Turbotec Products, Inc. (Turbotec), acquired in March 2015.

Net selling prices generally fluctuate with changes in raw material costs. Changes in raw material costs are generally passed through to customers by adjustments to selling prices. The following graph shows the Comex average copper price per pound by quarter for the most recent three-year period:



The following tables compare cost of goods sold and operating expenses as dollar amounts and as a percent of net sales for 2017, 2016, and 2015:

<i>(In thousands)</i>		2017	2016	2015
Cost of goods sold	\$	1,940,617	\$ 1,723,499	\$ 1,809,702
Depreciation and amortization		33,944	35,133	34,608
Selling, general, and administrative expense		139,580	137,499	130,358
Gain on sale of businesses		(1,491)	—	(15,376)
Impairment charges		1,466	6,778	—
Severance		—	—	3,442
Operating expenses	\$	<u>2,114,116</u>	<u>\$ 1,902,909</u>	<u>\$ 1,962,734</u>
		2017	2016	2015
Cost of goods sold		85.6 %	83.9 %	86.2 %
Depreciation and amortization		1.5	1.7	1.6
Selling, general, and administrative expense		6.2	6.7	6.2
Gain on sale of businesses		(0.1)	—	(0.7)
Impairment charges		0.1	0.3	—
Severance		—	—	0.2
Operating expenses		<u>93.3 %</u>	<u>92.6 %</u>	<u>93.5 %</u>

The increase in cost of goods sold in 2017 was primarily due to the increase in the average cost of copper, our principal raw material. This was partially offset by the decrease in sales volume resulting from the sale of Mueller-Xingrong. The decrease in cost of goods sold in 2016 was primarily due to the decrease in the average cost of copper, largely offset by the increase in sales volume related to businesses acquired during 2015 and 2016.

Depreciation and amortization decreased in 2017 primarily due to several long-lived assets becoming fully depreciated and amortized, as well as the sale of long-lived assets at Mueller-Xingrong. Depreciation and amortization increased in 2016 primarily as a result of depreciation and amortization of long-lived assets for businesses acquired.

Selling, general, and administrative expenses increased in 2017, primarily due to (i) incremental expenses of \$5.5 million associated with Heatlink Group and Jungwoo-Mueller, (ii) higher environmental remediation and product liability costs of \$1.0 million, and (iii) an increase in foreign currency exchange losses of \$0.6 million. These increases were partially offset by a reduction in employment costs of \$4.6 million, including net periodic pension costs of \$3.0 million and incentive compensation of \$1.1 million. The increase in selling, general, and administrative expenses in 2016 was primarily due to (i) incremental expenses of \$8.9 million associated with businesses acquired in 2015 and 2016 and (ii) an increase in employment costs, including incentive compensation and net periodic pension costs, of \$1.6 million. This was partially offset by a reduction in foreign currency exchange losses of \$0.9 million. In addition, there were \$1.9 million of equipment relocation costs and losses on the sale of assets related to the rationalization of Yorkshire Copper Tube (Yorkshire) in 2015.

During 2017, we recognized fixed asset impairment charges for certain copper fittings manufacturing equipment of \$1.5 million and a gain of \$1.5 million on the sale of our interest in Mueller-Xingrong.

During 2016, we recognized fixed asset impairment charges for certain manufacturing equipment of \$6.8 million.

During 2015, our operating results were positively impacted by a net gain of \$15.4 million recorded on the sale of certain assets. This was offset by \$3.4 million of severance charges related to the rationalization of Yorkshire.

Interest expense increased in 2017 primarily as a result of interest associated with our 6% Subordinated Debentures issued during the first quarter as part of our special dividend. The slight decrease in 2016 was primarily due to decreased borrowing costs at Mueller-Xingrong. This was offset by (i) increased borrowing costs and the amortization of debt issuance costs on our Credit Agreement, (ii) borrowing costs associated with revolving credit arrangements at Jungwoo-Mueller, and (iii) lower capitalized interest.

Environmental expense for our non-operating properties was significantly higher in 2017, primarily as a result of ongoing remediation activities related to the Lead Refinery site. It was slightly higher in 2016 due to spending on special projects.

Other income, net, was consistent each period at \$1.8 million in 2017, compared to \$2.0 million in 2016 and \$2.2 million in 2015.

Income tax expense was \$37.9 million in 2017, representing an effective tax rate of 29.8 percent. This rate was lower than what would be computed using the U.S. statutory federal rate primarily due to (i) reductions for the effect of lower foreign tax rates when compared to the U.S. statutory rate and other foreign adjustments of \$6.0 million, (ii) the U.S. production activities deduction of \$1.6 million, (iii) the benefit of stock-based compensation deductions of \$2.2 million, and (iv) the impact of the change in the federal tax rate under the Tax Cuts and Jobs Act (the Act) on deferred taxes of \$12.1 million. These reductions were partially offset by (i) the accrual of federal tax on the Company's accumulated foreign earnings under the Act of \$12.9 million, (ii) the provision for state income taxes, net of federal benefit, of \$1.1 million, and (iii) other adjustments of \$1.2 million.

Income tax expense was \$48.1 million in 2016, representing an effective tax rate of 33.0 percent. This rate was lower than what would be computed using the U.S. statutory federal rate primarily due to reductions for the effect of lower foreign tax rates when compared to the U.S. statutory rate and other foreign adjustments of \$4.1 million and the U.S. production activities deduction of \$3.1 million. These reductions were partially offset by the provision for state income taxes, net of federal benefit, of \$2.0 million, and \$2.2 million of other adjustments.

Income tax expense was \$43.4 million in 2015, representing an effective tax rate of 32.9 percent. This rate was lower than what would be computed using the U.S. statutory federal rate primarily due to reductions to the Company's deferred tax liabilities of \$4.2 million resulting from the acquisition of a foreign subsidiary and the U.S. production activities deduction of \$3.5 million. These reductions were partially offset by the provision for state income taxes, net of federal benefit, of \$2.7 million, and \$2.3 million of other adjustments.

During 2017, we recognized losses of \$2.1 million on our investment in unconsolidated affiliates, which represents our 50 percent interests in Tecumseh Products Company and the entity that provides financing to Tecumseh. During 2016, we recognized \$1.9 million of income on these investments, which included the gain that resulted from the allocation of the purchase price recorded by our equity method investees, but was offset by restructuring and impairment charges and net losses during the year.

Piping Systems Segment

The following table compares summary operating results for 2017, 2016, and 2015 for the businesses comprising our Piping Systems segment:

(In thousands)				Percent Change	
	2017	2016	2015	2017 vs. 2016	2016 vs. 2015
Net sales	\$ 1,564,950	\$ 1,429,589	\$ 1,436,689	9.5 %	(0.5)%
Operating income	99,558	103,886	113,232	(4.2)	(8.3)

The following are components of changes in net sales compared to the prior year:

	2017 vs. 2016	2016 vs. 2015
Net selling price in core product lines	13.1 %	(10.0)%
Unit sales volume in core product lines	(2.3)	(1.3)
Acquisitions	2.2	11.5
Dispositions	(3.8)	—
Other	0.3	(0.7)
	9.5 %	(0.5)%

The increase in net sales in 2017 was primarily attributable to (i) higher net selling prices of \$186.5 million in the segment's core product lines, primarily copper tube, (ii) \$16.4 million of incremental sales recorded by Jungwoo-Mueller and (iii) \$14.4 million of sales recorded by Heatlink Group. These increases were partially offset by (i) the absence of sales of \$54.2 million recorded by Mueller-Xingrong and (ii) lower unit sales volume of \$33.1 million in the segment's core product lines.

The decrease in net sales in 2016 was primarily attributable to (i) lower net selling prices of \$144.4 million in the segment's core product lines, primarily copper tube, (ii) lower unit sales volume of \$18.8 million in the segment's core product lines, and (iii) a decrease in sales of \$5.3 million in the segment's non-core product lines. The decrease in net sales resulting from lower net selling prices also reflects the impact of translating net sales of the segment's foreign operations to U.S. dollars, which was approximately \$43.6 million. These decreases were partially offset by (i) \$139.4 million of incremental sales recorded by Great Lakes and (ii) \$22.0 million of sales recorded by Jungwoo-Mueller.

The following tables compare cost of goods sold and operating expenses as dollar amounts and as a percent of net sales for 2017, 2016, and 2015:

(In thousands)	2017	2016	2015
Cost of goods sold	\$ 1,369,161	\$ 1,228,949	\$ 1,245,929
Depreciation and amortization	21,777	22,421	22,559
Selling, general, and administrative expense	74,479	68,218	66,903
Gain on sale of businesses	(1,491)	—	(15,376)
Impairment charges	1,466	6,115	—
Severance	—	—	3,442
Operating expenses	\$ 1,465,392	\$ 1,325,703	\$ 1,323,457

	2017	2016	2015
Cost of goods sold	87.4 %	86.0 %	86.7 %
Depreciation and amortization	1.4	1.5	1.6
Selling, general, and administrative expense	4.8	4.8	4.7
Gain on sale of businesses	(0.1)	—	(1.1)
Impairment charges	0.1	0.4	—
Severance	—	—	0.2
Operating expenses	93.6 %	92.7 %	92.1 %

The increase in cost of goods sold in 2017 was primarily due to the increase in the average cost of copper and the increase in sales volume related to the acquisition of Jungwoo-Mueller and Heatlink Group, partially offset by the decrease in sales volume resulting from the sale of Mueller-Xingrong and in certain other businesses. The decrease in cost of goods sold in 2016 was primarily due to the decrease in the average cost of copper, offset by the increase in sales volume related to businesses acquired during 2015 and 2016.

Depreciation and amortization decreased slightly in 2017 and 2016. This was a result of the sale of long-lived assets at Mueller-Xingrong as well as several long-lived assets becoming fully depreciated and amortized, offset by depreciation and amortization of long-lived assets for businesses acquired.

Selling, general, and administrative expenses increased for 2017, primarily due to incremental expenses associated with Jungwoo-Mueller and Heatlink Group of \$5.5 million. The increase in 2016 was primarily due to incremental expenses associated with Great Lakes and Jungwoo-Mueller of \$5.7 million. This was offset by a reduction in (i) foreign currency exchange losses of \$0.8 million and (ii) a decrease in employment costs, including incentive compensation, of \$0.3 million. In addition, there was \$1.9 million of equipment relocation costs and losses on the sale of assets related to the rationalization of Yorkshire recognized in 2015.

During 2017, we recognized fixed asset impairment charges for certain copper fittings manufacturing equipment of \$1.5 million and a gain of \$1.5 million on the sale of our interest in Mueller-Xingrong.

During 2016, we recognized fixed asset impairment charges for certain manufacturing equipment of \$6.1 million.

During 2015, our operating results were positively impacted by a net gain of \$15.4 million recorded on the sale of certain assets. This was offset by \$3.4 million of severance charges related to the rationalization of Yorkshire.

Industrial Metals Segment

The following table compares summary operating results for 2017, 2016, and 2015 for the businesses comprising our Industrial Metals segment:

(In thousands)				Percent Change	
	2017	2016	2015	2017 vs. 2016	2016 vs. 2015
Net sales	\$ 602,131	\$ 521,060	\$ 567,467	15.6 %	(8.2)%
Operating income	75,752	78,168	57,442	(3.1)	36.1

The following are components of changes in net sales compared to the prior year:

	2017 vs. 2016	2016 vs. 2015
Net selling price in core product lines	15.7 %	(8.0)%
Unit sales volume in core product lines	1.1	(2.6)
Acquisitions & new products	—	3.5
Other	(1.2)	(1.1)
	15.6 %	(8.2)%

The increase in net sales in 2017 was primarily due to higher net selling prices of \$80.1 million in the segment's core product lines, primarily brass rod.

The decrease in net sales during 2016 was primarily due to (i) lower net selling prices of \$44.5 million in the segment's core product lines and (ii) lower unit sales volume of \$14.2 million in the segment's core product lines. These decreases were partially offset by \$19.2 million of incremental sales recorded by Sherwood.

The following tables compare cost of goods sold and operating expenses as dollar amounts and as a percent of net sales for 2017, 2016, and 2015:

(In thousands)

	2017	2016	2015
Cost of goods sold	\$ 506,973	\$ 420,905	\$ 491,567
Depreciation and amortization	7,516	8,162	7,503
Selling, general, and administrative expense	11,890	13,162	10,955
Impairment charges	—	663	—
Operating expenses	\$ 526,379	\$ 442,892	\$ 510,025
	2017	2016	2015
Cost of goods sold	84.2 %	80.8 %	86.6 %
Depreciation and amortization	1.2	1.6	1.3
Selling, general, and administrative expense	2.0	2.5	2.0
Impairment charges	—	0.1	—
Operating expenses	87.4 %	85.0 %	89.9 %

The increase in cost of goods sold in 2017 was primarily due to the increase in the average cost of copper. The decrease in cost of goods sold in 2016 was primarily related to the decrease in the average cost of copper.

Depreciation and amortization decreased slightly in 2017 as a result of several long-lived assets becoming fully depreciated. Depreciation and amortization increased in 2016 as a result of depreciation and amortization of long-lived assets for the Sherwood business.

Selling, general, and administrative expenses decreased in 2017 primarily due to a reduction in employment costs, including incentive compensation and net periodic pension costs, of \$1.1 million. The increase in 2016 was primarily a result of incremental expenses associated with Sherwood of \$2.7 million, offset by a decrease in net periodic pension costs of \$0.7 million.

During 2016, we recognized fixed asset impairment charges of \$0.7 million on fixed assets related to the rationalization of Sherwood.

Climate Segment

The following table compares summary operating results for 2017, 2016, and 2015 for the businesses comprising our Climate segment:

(In thousands)				Percent Change	
	2017	2016	2015	2017 vs. 2016	2016 vs. 2015
Net sales	\$ 131,448	\$ 119,758	\$ 110,727	9.8%	8.2%
Operating income	20,325	17,733	12,459	14.6	42.3

Net sales for 2017 increased primarily as a result of an increase in volume and improved product mix. Net sales for 2016 increased due to incremental sales recorded by Turbotec of \$3.5 million and an increase in volume in the segment's other businesses.

The following tables compare cost of goods sold and operating expenses as dollar amounts and as a percent of net sales for 2017, 2016, and 2015:

(In thousands)	2017	2016	2015
Cost of goods sold	\$ 98,851	\$ 89,927	\$ 86,894
Depreciation and amortization	2,513	2,437	2,257
Selling, general, and administrative expense	9,759	9,661	9,117
Operating expenses	\$ 111,123	\$ 102,025	\$ 98,268

	2017	2016	2015
Cost of goods sold	75.2%	75.1%	78.5%
Depreciation and amortization	1.9	2.0	2.0
Selling, general, and administrative expense	7.4	8.1	8.2
Operating expenses	84.5%	85.2%	88.7%

The increase in cost of goods sold in 2017 and 2016 was related to factors consistent with those noted regarding changes in net sales. Depreciation and amortization was consistent 2017, 2016, and 2015. Selling, general, and administrative expenses were consistent in 2017 and 2016, and increased slightly in 2016 primarily due to incremental expenses associated with Turbotec of \$0.5 million.

LIQUIDITY AND CAPITAL RESOURCES

The following table presents selected financial information for 2017, 2016, and 2015:

(In thousands)

	2017	2016	2015
Increase (decrease) in:			
Cash and cash equivalents	\$ (231,048)	\$ 76,473	\$ (77,290)
Property, plant, and equipment, net	9,090	15,007	34,314
Total debt	237,708	11,354	(25,434)
Working capital, net of cash and current debt	55,405	9,781	(59,316)
Net cash provided by operating activities	43,995	157,777	159,609
Net cash used in investing activities	(33,422)	(53,057)	(190,807)
Net cash used in financing activities	(244,566)	(22,561)	(41,258)

Cash Provided by Operating Activities

During 2017, net cash provided by operating activities was primarily attributable to (i) consolidated net income of \$87.0 million, (ii) depreciation and amortization of \$34.2 million, and (iii) an increase in current liabilities of \$10.7 million. These cash increases were offset by an increase in inventories of \$86.3 million, primarily driven by the increase in the price of copper and an excess inventory build of \$38.9 million due to a casting outage in our brass rod mill that impaired our ability to melt scrap returns.

During 2016, net cash provided by operating activities was primarily attributable to consolidated net income of \$99.8 million plus the addition of non-cash charges to income.

During 2015, net cash provided by operating activities was primarily attributable to (i) consolidated net income of \$88.4 million, (ii) depreciation and amortization of \$35.0 million, (iii) a decrease in receivables of \$51.7 million, and (iv) a decrease in inventories of \$41.1 million. These cash increases were offset by a decrease in current liabilities of \$45.6 million. These changes were primarily due to decreases in the price of copper and an overall decrease in working capital needs.

Cash Used in Investing Activities

The major components of net cash used in investing activities in 2017 included (i) capital expenditures of \$46.1 million, (ii) \$18.4 million for the purchase of Heatlink Group, net of cash acquired, and (iii) investments in our joint venture in Bahrain of \$3.3 million. These uses of cash were offset by (i) \$17.5 million of proceeds from the sale of our 50.5 percent equity interest in Mueller-Xingrong, net of cash sold, (ii) proceeds from the sale of assets of \$12.3 million, (iii) net withdrawals from restricted cash balances of \$2.9 million, and (iv) proceeds from the sale of securities of \$1.8 million.

The major components of net cash used in investing activities in 2016 included (i) capital expenditures of \$37.5 million, (ii) \$20.5 million for the purchase of a 60.0 percent equity interest in Jungwoo-Mueller, net of cash acquired, and (iii) net deposits to restricted cash balances of \$5.3 million. These uses were offset by \$10.3 million in proceeds from the sale of assets.

The major components of net cash used in investing activities in 2015 included (i) \$105.9 million for the acquisition of Turbotec, Sherwood, and Great Lakes, (ii) \$65.9 million for our investment in MA Industrial JV LLC, the joint venture that acquired Tecumseh Products Company, and (iii) capital expenditures of \$28.8 million. These cash decreases were offset by (i) \$5.5 million in proceeds from the sale of certain assets and (ii) net withdrawals from restricted cash balances of \$4.3 million.

Cash Used in Financing Activities

For 2017, net cash used in investing activities consisted primarily of (i) \$196.9 million used for the payment of the special dividend and the regular quarterly dividends to stockholders of the Company, (ii) \$110.0 million used to reduce the debt outstanding under our Credit Agreement, (iii) \$3.4 million used for repayment of debt by Jungwoo-Mueller and Mueller-Xingrong, and (iv) \$2.9 million used for the payment of dividends to noncontrolling interests. These uses were offset by the issuance of debt of \$70.0 million under our Credit Agreement.

For 2016, net cash used in investing activities consisted primarily of (i) \$21.2 million used for the payment of regular quarterly dividends to stockholders of the Company and (ii) \$3.8 million used for payment of dividends to noncontrolling interests. This was partially offset by the issuance of debt of \$3.5 million.

For 2015, net cash used in investing activities consisted primarily of (i) \$23.6 million used for the repayment of debt by Mueller-Xingrong and (ii) \$16.9 million used for payment of regular quarterly dividends to stockholders of the Company.

Liquidity and Outlook

We believe that cash provided by operations, funds available under the Credit Agreement, and cash on hand will be adequate to meet our liquidity needs, including working capital, capital expenditures, and debt payment obligations. Our current ratio was 3.1 to 1 as of December 30, 2017.

As of December 30, 2017, \$73.3 million of our cash and cash equivalents were held by foreign subsidiaries. All earnings of the foreign subsidiaries are considered to be permanently reinvested. Accordingly, no additional income taxes have been provided for any additional outside basis differences that may exist with respect to these entities or any taxes that may be due should these earnings be repatriated as the calculation of such taxes is not practicable.

The Tax Cuts and Jobs Act (the Act) imposes a one-time transition tax based on our total post-1986 earnings and profits for which the accrual of U.S. income taxes has previously been deferred. We recorded a provisional amount for this one-time transition tax liability, resulting in an increase in income tax expense of \$12.9 million. This amount will be paid over eight years beginning in 2018, with eight percent of the liability paid each year through 2022 and the remaining 60 percent paid in 2023 through 2025.

We expect the reduction in the U.S. federal tax rate from 35 percent to 21 percent under the Act to provide ongoing benefits to liquidity. For 2018, we expect our effective tax rate on consolidated earnings to be in the range of 22 to 26 percent. We believe that cash held domestically, funds available through the credit agreement, and cash generated from U.S. based operations will be adequate to meet the future needs of our U.S. based operations.

Fluctuations in the cost of copper and other raw materials affect the Company's liquidity. Changes in material costs directly impact components of working capital, primarily inventories, accounts receivable, and accounts payable. The price of copper has fluctuated significantly and averaged approximately \$2.80 in 2017, \$2.20 in 2016, and \$2.51 in 2015.

We have significant environmental remediation obligations which we expect to pay over future years. Approximately \$1.4 million was spent during 2017 for environmental matters. As of December 30, 2017, we expect to spend \$4.3 million in 2018, \$2.2 million in 2019, \$2.1 million in 2020, \$0.6 million in 2021, \$0.6 million in 2022, and \$18.2 million thereafter for ongoing projects.

Cash used to fund pension and other postretirement benefit obligations was \$3.2 million in 2017 and \$3.4 million in 2016. We anticipate making contributions of approximately \$2.2 million to these plans in 2018.

The Company declared and paid a quarterly cash dividend of 10.0 cents per common share during each quarter of 2017 and the second, third, and fourth quarters of 2016, and 7.5 cents per common share for the first quarter of 2016 and in each quarter of fiscal 2015. Additionally, during the first quarter of 2017 the Company distributed a special dividend composed of \$3.00 in cash and \$5.00 in principal amount of the Company's 6% Subordinated Debentures (Debentures) due 2027 for each share of common stock outstanding. Payment of dividends in the future is dependent upon our financial condition, cash flows, capital requirements, and other factors.

Capital Expenditures

During 2017 our capital expenditures were \$46.1 million. We anticipate investing approximately \$25.0 to 30.0 million for capital expenditures in 2018.

Long-Term Debt

The Company's Credit Agreement provides for an unsecured \$350.0 million revolving credit facility which matures on December 6, 2021. Funds borrowed under the Credit Agreement may be used for working capital purposes and other general corporate purposes. In addition, the Credit Agreement provides a sublimit of \$50.0 million for the issuance of letters of credit, a sublimit of \$25.0 million for loans and letters of credit made in certain foreign currencies, and a swing line loan sublimit of \$15.0 million. Outstanding letters of credit and foreign currency loans reduce borrowing availability under the Credit Agreement. Total borrowings under the Credit Agreement were \$160.0 million at December 30, 2017.

The Debentures distributed as part of our special dividend are subordinated to all other funded debt of the Company and are callable, in whole or in part, at any time at the option of the Company, subject to declining call premiums during the first five years. The Debentures also grant each holder the right to require the Company to repurchase such holder's Debentures in the event of a change in control at declining repurchase premiums during the first five years. Interest is payable semiannually on September 1 and March 1, and commenced on September 1, 2017. Total Debentures outstanding as of December 30, 2017 were \$284.5 million.

Jungwoo-Mueller has several secured revolving credit arrangements with a total borrowing capacity of KRW29.9 billion (or approximately \$27.5 million). Borrowings are secured by the real property and equipment of Jungwoo-Mueller and were bearing interest at an average rate of 2.96 percent as of December 30, 2017. Total borrowings at Jungwoo-Mueller were \$13.8 million as of December 30, 2017.

As of December 30, 2017, the Company's total debt was \$465.1 million or 46.5 percent of its total capitalization.

Covenants contained in the Company's financing obligations require, among other things, the maintenance of minimum levels of tangible net worth and the satisfaction of certain minimum financial ratios. As of December 30, 2017, we were in compliance with all of our debt covenants.

Share Repurchase Program

The Company's Board of Directors has extended, until August 2018, its authorization to repurchase up to 20 million shares of the Company's common stock through open market transactions or through privately negotiated transactions. We may cancel, suspend, or extend the time period for the repurchase of shares at any time. Any repurchases will be funded primarily through existing cash and cash from operations. The Company may hold any shares repurchased in treasury or use a portion of the repurchased shares for stock-based compensation plans, as well as for other corporate purposes. From its initial authorization in 1999 through December 30, 2017, the Company had repurchased approximately 4.7 million shares under this authorization.

Subsequent to year-end and as of February 23, 2018, the Company has repurchased an additional 250 thousand shares.

CONTRACTUAL CASH OBLIGATIONS

The following table presents payments due by the Company under contractual obligations with minimum firm commitments as of December 30, 2017:

(In millions)	Total	Payments Due by Year			
		2018	2019-2020	2021-2022	Thereafter
Total debt	\$ 466.2	\$ 16.5	\$ 2.4	\$ 160.7	\$ 286.6
Operating leases	40.5	7.0	9.6	6.6	17.3
Heavy machinery and equipment commitments	3.5	3.5	—	—	—
Purchase commitments ⁽¹⁾	829.9	829.9	—	—	—
Transition tax on accumulated foreign earnings	12.9	1.0	2.1	2.1	7.7
Interest payments ⁽²⁾	180.6	22.1	45.7	40.2	72.6
Total contractual cash obligations	\$ 1,533.6	\$ 880.0	\$ 59.8	\$ 209.6	\$ 384.2

⁽¹⁾ This includes contractual supply commitments totaling \$788.2 million at year-end prices; these contracts contain variable pricing based on Comex and the London Metals Exchange. These commitments are for purchases of raw materials that are expected to be consumed in the ordinary course of business.

⁽²⁾ These payments represent interest on long-term debt based on rates in effect at December 30, 2017.

The above obligations will be satisfied with existing cash, funds available under the Credit Agreement, and cash generated by operations. The Company has no off-balance sheet financing arrangements except for the operating leases identified above.

MARKET RISKS

The Company is exposed to market risks from changes in raw material and energy costs, interest rates, and foreign currency exchange rates. To reduce such risks, we may periodically use financial instruments. Hedging transactions are authorized and executed pursuant to policies and procedures. Further, we do not buy or sell financial instruments for trading purposes. A discussion of the Company's accounting for derivative instruments and hedging activities is included in "[Note 1 - Summary of Significant Accounting Policies](#)" in the Notes to Consolidated Financial Statements.

Cost and Availability of Raw Materials and Energy

Raw materials, primarily copper and brass, represent the largest component of the Company's variable costs of production. The cost of these materials is subject to global market fluctuations caused by factors beyond our control. Significant increases in the cost of metal, to the extent not reflected in prices for our finished products, or the lack of availability could materially and adversely affect our business, results of operations and financial condition.

The Company occasionally enters into forward fixed-price arrangements with certain customers. We may utilize futures contracts to hedge risks associated with these forward fixed-price arrangements. We may also utilize futures contracts to manage price risk associated with inventory. Depending on the nature of the hedge, changes in the fair value of the futures contracts will either be offset against the change in fair value of the inventory through earnings or recognized as a component of accumulated other comprehensive income (AOCI) in equity and reflected in earnings upon the sale of inventory. Periodic value fluctuations of the contracts generally offset the value fluctuations of the underlying fixed-price transactions or inventory. At December 30, 2017, we held open futures contracts to purchase approximately \$19.6 million of copper over the next 12 months related to fixed-price sales orders and to sell approximately \$85.3 million of copper over the next five months related to copper inventory.

We may enter into futures contracts or forward fixed-price arrangements with certain vendors to manage price risk associated with natural gas purchases. The effective portion of gains and losses with respect to positions are deferred in equity as a component of AOCI and reflected in earnings upon consumption of natural gas. Periodic value fluctuations of the futures contracts generally offset the value fluctuations of the underlying natural gas prices. There were no open futures contracts to purchase natural gas at December 30, 2017.

Interest Rates

The Company had variable-rate debt outstanding of \$169.9 million at December 30, 2017 and \$212.0 million at December 31, 2016. At this borrowing level, a hypothetical 10 percent increase in interest rates would have had an insignificant unfavorable impact on our pre-tax earnings and cash flows. The primary interest rate exposure on variable-rate debt is based on LIBOR.

Foreign Currency Exchange Rates

Foreign currency exposures arising from transactions include firm commitments and anticipated transactions denominated in a currency other than an entity's functional currency. The Company and its subsidiaries generally enter into transactions denominated in their respective functional currencies. We may utilize certain futures or forward contracts with financial institutions to hedge foreign currency transactional exposures. Gains and losses with respect to these positions are deferred in equity as a component of AOCI and reflected in earnings upon collection of receivables or payment of commitments. At December 30, 2017, we had open forward contracts with a financial institution to sell approximately 6.0 million euros, 24.7 million Swedish kronor, and 5.2 million Norwegian kroner through April 2018.

The Company's primary foreign currency exposure arises from foreign-denominated revenues and profits and their translation into U.S. dollars. The primary currencies to which we are exposed include the Canadian dollar, the British pound sterling, the Mexican peso, the South Korean won, and the Chinese renminbi. The Company generally views its investments in foreign subsidiaries with a functional currency other than the U.S. dollar as long-term. As a result, we generally do not hedge these net investments. The net investment in foreign subsidiaries translated into U.S. dollars using the year-end exchange rates was \$360.7 million at December 30, 2017 and \$271.6 million at December 31, 2016. The potential loss in value of the Company's net investment in foreign subsidiaries resulting from a hypothetical 10 percent adverse change in quoted foreign currency exchange rates at December 30, 2017 and December 31, 2016 amounted to \$36.1 million and \$27.2 million, respectively. This change would be reflected in the foreign currency translation component of AOCI in the equity section of our Consolidated Balance Sheets until the foreign subsidiaries are sold or otherwise disposed.

We have significant investments in foreign operations whose functional currency is the British pound sterling, the Mexican peso, the Canadian dollar, the South Korean won, and the Chinese renminbi. During 2017, the value of the British pound increased

approximately nine percent, the Mexican peso increased approximately five percent, the Canadian dollar increased approximately seven percent, the South Korean won increased approximately 13 percent, and the Chinese renminbi increased approximately seven percent, relative to the U.S. dollar. The resulting net foreign currency translation gains were recorded as a component of AOCI.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

The Company's accounting policies are more fully described in "[Note 1 - Summary of Significant Accounting Policies](#)" in the Notes to Consolidated Financial Statements. As disclosed in Note 1, the preparation of financial statements in conformity with general accepted accounting principles in the United States requires management to make estimates and assumptions about future events that affect amounts reported in the financial statements and accompanying notes. Actual results could differ significantly from those estimates. Management believes the following discussion addresses our most critical accounting policies, which are those that are most important to the portrayal of the Company's financial condition and results of operations and require management's most difficult, subjective, and complex judgments.

Inventory Valuation Reserves

Our inventories are valued at the lower-of-cost-or-market. The market price of copper cathode and scrap are subject to volatility. During periods when open market prices decline below net realizable value, the Company may need to provide an allowance to reduce the carrying value of its inventory. In addition, certain items in inventory may be considered excess or obsolete and, as such, we may establish an allowance to reduce the carrying value of those items to their net realizable value. Changes in these estimates related to the value of inventory, if any, may result in a materially adverse impact on our reported financial position or results of operations. The Company recognizes the impact of any changes in estimates, assumptions, and judgments in income in the period in which they are determined.

As of December 30, 2017 and December 31, 2016, our inventory valuation reserves were \$6.8 million and \$6.9 million, respectively. The expense recognized in each of these periods was immaterial to our Consolidated Financial Statements.

Impairment of Goodwill

As of December 30, 2017, we had \$130.3 million of recorded goodwill from our business acquisitions, representing the excess of the purchase price over the fair value of the net assets we have acquired. During 2017 we recorded \$4.1 million in additional goodwill associated with our Heatlink Group acquisition.

Goodwill is subject to impairment testing, which is performed annually as of the first day of the fourth quarter unless circumstances indicate the need to accelerate the timing of the tests. These circumstances include a significant change in the business climate, operating performance indicators, competition, or sale or disposition of a significant portion of one of our businesses. In our evaluation of goodwill impairment, we perform a qualitative assessment at the reporting unit level that requires management judgment and the use of estimates to determine if it is more likely than not that the fair value of a reporting unit is less than its carrying amount. If the qualitative assessment is not conclusive, management compares the fair value of a reporting unit with its carrying amount and will recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value, not to exceed the total amount of goodwill allocated to the reporting unit.

We identify reporting units by evaluating components of our operating segments and combining those components with similar economic characteristics. Reporting units with significant recorded goodwill include Domestic Piping Systems, B&K LLC, Great Lakes, Heatlink Group, European Operations, Jungwoo-Mueller, Westermeyer, and Turbotec.

The fair value of each reporting unit is estimated using a combination of the income and market approaches, incorporating market participant considerations and management's assumptions on revenue growth rates, operating margins, discount rates and expected capital expenditures. Estimates used by management can significantly affect the outcome of the impairment test. Changes in forecasted operating results and other assumptions could materially affect these estimates.

We evaluated each reporting unit during the fourth quarters of 2017 and 2016, as applicable. The estimated fair value of each of these reporting units exceeded its carrying values in 2017 and 2016, and we do not believe that any of these reporting units were at risk of impairment as of December 30, 2017.

Environmental Reserves

We recognize an environmental reserve when it is probable that a loss is likely to occur and the amount of the loss is reasonably estimable. We estimate the duration and extent of our remediation obligations based upon reports of outside consultants, internal

and third party estimates and analyses of cleanup costs and ongoing monitoring costs, communications with regulatory agencies, and changes in environmental law. If we were to determine that our estimates of the duration or extent of our environmental obligations were no longer accurate, we would adjust our environmental reserve accordingly in the period that such determination is made. Estimated future expenditures for environmental remediation are not discounted to their present value.

Environmental expenses that relate to ongoing operations are included as a component of cost of goods sold. Environmental expenses related to non-operating properties are presented below operating income in the Consolidated Statements of Income.

Income Taxes

We estimate total income tax expense based on domestic and international statutory income tax rates in the tax jurisdictions where we operate, permanent differences between financial reporting and tax reporting, and available credits and incentives.

Deferred income tax assets and liabilities are recognized for the future tax effects of temporary differences between the treatment of certain items for financial statement and tax purposes using tax rates in effect for the years in which the differences are expected to reverse. Realization of certain components of deferred tax assets is dependent upon the occurrence of future events.

Valuation allowances are recorded when, in the opinion of management, it is more likely than not that all or a portion of the deferred tax assets will not be realized. These valuation allowances can be impacted by changes in tax laws, changes to statutory tax rates, and future taxable income levels, and are based on our judgment, estimates, and assumptions. In the event we were to determine that we would not be able to realize all or a portion of the net deferred tax assets in the future, we would increase the valuation allowance through a charge to income tax expense in the period that such determination is made. Conversely, if we were to determine that we would be able to realize our deferred tax assets in the future, in excess of the net carrying amounts, we would decrease the recorded valuation allowance through a decrease to income tax expense in the period that such determination is made.

We record liabilities for known or anticipated tax issues based on our analysis of whether, and the extent to which, additional taxes will be due. These unrecognized tax benefits are retained until the associated uncertainty is resolved. Tax benefits for uncertain tax positions that are recognized in the Consolidated Financial Statements are measured as the largest amount of benefit, determined on a cumulative probability basis, that is more likely than not to be realized upon ultimate settlement. To the extent we prevail in matters for which a liability for an uncertain tax position is established or are required to pay amounts in excess of the liability, our effective tax rate in a given period may be materially affected.

New Accounting Pronouncements

See [“Note 1 – Summary of Significant Accounting Policies”](#) in our Consolidated Financial Statements.

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING INFORMATION

This Annual Report contains various forward-looking statements and includes assumptions concerning the Company’s operations, future results, and prospects. These forward-looking statements are based on current expectations and are subject to risk and uncertainties, and may be influenced by factors that could cause actual outcomes and results to be materially different from those predicted. The forward-looking statements reflect knowledge and information available as of the date of preparation of the Annual Report, and the Company undertakes no obligation to update these forward-looking statements. We identify the forward-looking statements by using the words “anticipates,” “believes,” “expects,” “intends” or similar expressions in such statements.

In connection with the “safe harbor” provisions of the Private Securities Litigation Reform Act of 1995, the Company provides the following cautionary statement identifying important economic, political, and technological factors, among others, which could cause actual results or events to differ materially from those set forth in or implied by the forward-looking statements and related assumptions. In addition to those factors discussed under “Risk Factors” in this Annual Report on Form 10-K, such factors include: (i) the current and projected future business environment, including interest rates and capital and consumer spending; (ii) the domestic housing and commercial construction industry environment; (iii) availability and price fluctuations in commodities (including copper, natural gas, and other raw materials, including crude oil that indirectly affects plastic resins); (iv) competitive factors and competitor responses to the Company’s initiatives; (v) stability of government laws and regulations, including taxes; (vi) availability of financing; and (vii) continuation of the environment to make acquisitions, domestic and foreign, including regulatory requirements and market values of candidates.

MUELLER INDUSTRIES, INC.
CONSOLIDATED STATEMENTS OF INCOME
Years Ended December 30, 2017, December 31, 2016, and December 26, 2015

(In thousands, except per share data)

	2017	2016	2015
Net sales	\$ 2,266,073	\$ 2,055,622	\$ 2,100,002
Cost of goods sold	1,940,617	1,723,499	1,809,702
Depreciation and amortization	33,944	35,133	34,608
Selling, general, and administrative expense	139,580	137,499	130,358
Gain on sale of businesses	(1,491)	—	(15,376)
Impairment charges	1,466	6,778	—
Severance	—	—	3,442
Operating income	151,957	152,713	137,268
Interest expense	(19,502)	(7,387)	(7,667)
Environmental expense	(7,284)	(1,279)	(46)
Other income, net	1,801	1,983	2,234
Income before income taxes	126,972	146,030	131,789
Income tax expense	(37,884)	(48,137)	(43,382)
(Loss) income from unconsolidated affiliates, net of tax	(2,077)	1,861	—
Consolidated net income	87,011	99,754	88,407
Net income attributable to noncontrolling interests	(1,413)	(27)	(543)
Net income attributable to Mueller Industries, Inc.	\$ 85,598	\$ 99,727	\$ 87,864
Weighted average shares for basic earnings per share	56,925	56,572	56,316
Effect of dilutive stock-based awards	559	597	652
Adjusted weighted average shares for diluted earnings per share	57,484	57,169	56,968
Basic earnings per share	\$ 1.50	\$ 1.76	\$ 1.56
Diluted earnings per share	\$ 1.49	\$ 1.74	\$ 1.54
Dividends per share	\$ 8.400	\$ 0.375	\$ 0.300

See accompanying notes to consolidated financial statements.

MUELLER INDUSTRIES, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
Years Ended December 30, 2017, December 31, 2016, and December 26, 2015

<i>(In thousands)</i>	2017	2016	2015
Consolidated net income	\$ 87,011	\$ 99,754	\$ 88,407
Other comprehensive income (loss), net of tax:			
Foreign currency translation	13,174	(27,767)	(19,108)
Net change with respect to derivative instruments and hedging activities, net of tax of \$(541), \$(917), and \$575	1,147	1,709	(1,056)
Net change in pension and postretirement obligation adjustments, net of tax of \$(1,071), \$(2,606), and \$(3,221)	2,436	5,383	6,735
Attributable to unconsolidated affiliates, net of tax of \$(505) and \$(3,375)	895	5,975	—
Other, net	(380)	159	(49)
Total other comprehensive income (loss), net	17,272	(14,541)	(13,478)
Consolidated comprehensive income	104,283	85,213	74,929
Comprehensive (income) loss attributable to noncontrolling interests	(2,785)	2,548	867
Comprehensive income attributable to Mueller Industries, Inc.	<u>\$ 101,498</u>	<u>\$ 87,761</u>	<u>\$ 75,796</u>

See accompanying notes to consolidated financial statements.

MUELLER INDUSTRIES, INC.
CONSOLIDATED BALANCE SHEETS
As of December 30, 2017 and December 31, 2016

(In thousands, except share data)

	2017	2016
Assets		
Current assets:		
Cash and cash equivalents	\$ 120,269	\$ 351,317
Accounts receivable, less allowance for doubtful accounts of \$980 in 2017 and \$637 in 2016	244,795	256,291
Inventories	327,901	242,013
Other current assets	46,150	44,702
Total current assets	739,115	894,323
Property, plant, and equipment, net	304,321	295,231
Goodwill, net	130,293	123,993
Intangible assets, net	42,008	36,168
Investment in unconsolidated affiliates	76,434	77,110
Other noncurrent assets	28,002	20,651
Total Assets	<u>\$ 1,320,173</u>	<u>\$ 1,447,476</u>
Liabilities		
Current liabilities:		
Current portion of debt	\$ 16,480	\$ 13,655
Accounts payable	102,503	103,175
Accrued wages and other employee costs	33,546	35,121
Other current liabilities	89,723	67,041
Total current liabilities	242,252	218,992
Long-term debt, less current portion	448,592	213,709
Pension liabilities	11,606	14,890
Postretirement benefits other than pensions	17,107	16,383
Environmental reserves	23,699	21,208
Deferred income taxes	19,403	19,573
Other noncurrent liabilities	21,486	6,284
Total liabilities	784,145	511,039
Equity		
Mueller Industries, Inc. stockholders' equity:		
Preferred stock - \$1.00 par value; shares authorized 5,000,000; none outstanding	—	—
Common stock - \$.01 par value; shares authorized 100,000,000; issued 80,183,004; outstanding 57,809,509 in 2017 and 57,395,209 in 2016	802	802
Additional paid-in capital	274,585	273,345
Retained earnings	743,503	1,141,831
Accumulated other comprehensive loss	(51,056)	(66,956)
Treasury common stock, at cost	(445,723)	(450,338)
Total Mueller Industries, Inc. stockholders' equity	522,111	898,684
Noncontrolling interests	13,917	37,753
Total equity	536,028	936,437
Commitments and contingencies	—	—
Total Liabilities and Equity	<u>\$ 1,320,173</u>	<u>\$ 1,447,476</u>

See accompanying notes to consolidated financial statements.

MUELLER INDUSTRIES, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
Years Ended December 30, 2017, December 31, 2016, and December 26, 2015

<i>(In thousands)</i>	2017	2016	2015
Operating activities:			
Consolidated net income	\$ 87,011	\$ 99,754	\$ 88,407
Reconciliation of net income to net cash provided by operating activities:			
Depreciation	30,800	30,827	30,556
Amortization of intangibles	3,144	4,306	4,052
Amortization of debt issuance costs	303	569	432
Loss (income) from unconsolidated affiliates	2,077	(1,861)	—
Insurance proceeds - noncapital related	500	—	—
Stock-based compensation expense	7,450	6,387	6,244
Gain on sale of businesses	(1,491)	—	(15,376)
(Gain) loss on disposal of assets	(624)	(651)	561
Impairment charges	1,466	6,778	—
Income tax benefit from exercise of stock options	—	—	(972)
Deferred income tax (benefit) expense	(3,160)	6,998	(15,818)
Recovery of doubtful accounts receivable	—	(50)	(130)
Changes in assets and liabilities, net of businesses acquired and sold:			
Receivables	(1,779)	(16,502)	51,660
Inventories	(86,286)	6,662	41,086
Other assets	(5,325)	5,808	12,449
Current liabilities	10,678	5,646	(45,585)
Other liabilities	64	1,518	436
Other, net	(833)	1,588	1,607
Net cash provided by operating activities	43,995	157,777	159,609
Investing activities:			
Proceeds from sale of assets, net of cash transferred	31,564	10,304	5,538
Acquisition of businesses, net of cash acquired	(18,396)	(20,533)	(105,944)
Capital expenditures	(46,131)	(37,497)	(28,834)
Investment in unconsolidated affiliates	(3,317)	—	(65,900)
Net withdrawals from (deposits to) restricted cash balances	2,858	(5,331)	4,333
Net cash used in investing activities	(33,422)	(53,057)	(190,807)
Financing activities:			
Dividends paid to stockholders of Mueller Industries, Inc.	(196,944)	(21,224)	(16,903)
Dividends paid to noncontrolling interests	(2,909)	(3,765)	—
Issuance of long-term debt	71,475	3,500	—
Repayments of long-term debt	(111,224)	(1,074)	(1,000)
(Repayment) issuance of debt by consolidated joint ventures, net	(3,369)	2,265	(23,567)
Net cash used to settle stock-based awards	(1,595)	(1,306)	(760)
Income tax benefit from exercise of stock options	—	—	972
Debt issuance costs	—	(957)	—
Net cash used in financing activities	(244,566)	(22,561)	(41,258)
Effect of exchange rate changes on cash	2,945	(5,686)	(4,834)
(Decrease) increase in cash and cash equivalents	(231,048)	76,473	(77,290)
Cash and cash equivalents at the beginning of the year	351,317	274,844	352,134
Cash and cash equivalents at the end of the year	\$ 120,269	\$ 351,317	\$ 274,844

See accompanying notes to consolidated financial statements. Refer to Note 11 for discussion of significant noncash financing activities.

MUELLER INDUSTRIES, INC.
CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY
Years Ended December 30, 2017, December 31, 2016, and December 26, 2015

	2017		2016		2015	
	Shares	Amount	Shares	Amount	Shares	Amount
<i>(In thousands)</i>						
Common stock:						
Balance at beginning of year	80,183	\$ 802	80,183	\$ 802	80,183	\$ 802
Balance at end of year	80,183	\$ 802	80,183	\$ 802	80,183	\$ 802
Additional paid-in capital:						
Balance at beginning of year		\$ 273,345		\$ 271,158		\$ 268,575
Issuance of shares under incentive stock option plans		(2,118)		(419)		(1,074)
Stock-based compensation expense		7,450		6,387		6,244
Income tax benefit from exercise of stock options		—		—		972
Issuance of restricted stock		(4,092)		(3,781)		(3,559)
Balance at end of year		\$ 274,585		\$ 273,345		\$ 271,158
Retained earnings:						
Balance at beginning of year		\$ 1,141,831		\$ 1,063,543		\$ 992,798
Net income attributable to Mueller Industries, Inc.		85,598		99,727		87,864
Dividends paid or payable to stockholders of Mueller Industries, Inc.		(483,926)		(21,439)		(17,119)
Balance at end of year		\$ 743,503		\$ 1,141,831		\$ 1,063,543
Accumulated other comprehensive loss						
Balance at beginning of year		\$ (66,956)		\$ (54,990)		\$ (42,923)
Total other comprehensive income (loss) attributable to Mueller Industries, Inc.		15,900		(11,966)		(12,067)
Balance at end of year		\$ (51,056)		\$ (66,956)		\$ (54,990)

MUELLER INDUSTRIES, INC.
CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY
(continued)

Years Ended December 30, 2017, December 31, 2016, and December 26, 2015

	2017		2016		2015	
	Shares	Amount	Shares	Amount	Shares	Amount
Treasury stock:						
Balance at beginning of year	22,788	\$ (450,338)	23,024	\$ (453,228)	23,282	\$ (457,102)
Issuance of shares under incentive stock option plans	(395)	7,828	(178)	3,499	(149)	2,930
Repurchase of common stock	188	(7,305)	133	(4,389)	84	(2,840)
Issuance of restricted stock	(208)	4,092	(191)	3,780	(193)	3,784
Balance at end of year	22,373	\$ (445,723)	22,788	\$ (450,338)	23,024	\$ (453,228)
Noncontrolling interests:						
Balance at beginning of year		\$ 37,753		\$ 32,417		\$ 33,284
Sale of Mueller-Xingrong		(23,712)		—		—
Purchase of Jungwoo-Mueller		—		11,649		—
Dividends paid to noncontrolling interests		(2,909)		(3,765)		—
Net income attributable to noncontrolling interests		1,413		27		543
Foreign currency translation		1,372		(2,575)		(1,410)
Balance at end of year		\$ 13,917		\$ 37,753		\$ 32,417

See accompanying notes to consolidated financial statements.

Notes to Consolidated Financial Statements

Note 1 – Summary of Significant Accounting Policies

Nature of Operations

The principal business of Mueller Industries, Inc. is the manufacture and sale of copper tube and fittings; line sets; brass and copper alloy rod, bar, and shapes; aluminum and brass forgings; aluminum impact extrusions; plastic fittings and valves; refrigeration valves and fittings; fabricated tubular products; and steel nipples. The Company also resells imported brass and plastic plumbing valves, malleable iron fittings, faucets, and plumbing specialty products. The Company markets its products to the HVAC, plumbing, refrigeration, hardware, and other industries. Mueller's operations are located throughout the United States and in Canada, Mexico, Great Britain, South Korea, and China.

Fiscal Years

The Company's fiscal year ends on the last Saturday of December, and consisted of 52 weeks in 2017, 53 weeks in 2016, and 52 weeks in 2015. These dates were December 30, 2017, December 31, 2016, and December 26, 2015.

Basis of Presentation

The Consolidated Financial Statements include the accounts of Mueller Industries, Inc. and its majority-owned subsidiaries. The noncontrolling interests represent separate private ownership interests of 40 percent of Jungwoo Metal Ind. Co., LTD (Jungwoo-Mueller) and 49.5 percent of Jiangsu Mueller-Xingrong Copper Industries Limited (Mueller-Xingrong), which the Company sold during 2017. See "[Note 2 – Acquisitions and Dispositions](#)" for additional information.

Revenue Recognition

Revenue is recognized when title and risk of loss pass to the customer, provided collection is determined to be probable and no significant obligations remain for the Company. Estimates for future rebates on certain product lines and product returns are recognized in the period in which the revenue is recorded. The cost of shipping product to customers is expensed as incurred as a component of cost of goods sold.

Acquisitions

Accounting for acquisitions requires the Company to recognize separately from goodwill the assets acquired and liabilities assumed at their acquisition date fair values. Goodwill is measured as the excess of the purchase price over the net amount allocated to the identifiable assets acquired and liabilities assumed. While management uses its best estimates and assumptions to accurately value assets acquired and liabilities assumed at the acquisition date, the estimates are inherently uncertain and subject to refinement. As a result, during the measurement period, which may be up to one year from the acquisition date, the Company may record adjustments to the assets acquired and liabilities assumed with the corresponding offset to goodwill. The operating results generated by the acquired businesses are included in the Consolidated Statements of Income from their respective dates of acquisition. Acquisition related costs are expensed as incurred. See "[Note 2 – Acquisitions and Dispositions](#)" for additional information.

Cash Equivalents

Temporary investments with original maturities of three months or less are considered to be cash equivalents. These investments are stated at cost. At December 30, 2017 and December 31, 2016, temporary investments consisted of money market mutual funds, commercial paper, bank repurchase agreements, and U.S. and foreign government securities totaling \$0.6 million and \$40.9 million, respectively. Included in other current assets is restricted cash of \$6.2 million and \$9.0 million at December 30, 2017 and December 31, 2016, respectively. These amounts represent required deposits into brokerage accounts that facilitate the Company's hedging activities, and in 2016 included deposits that secured certain short-term notes issued under Mueller-Xingrong's credit facility and funds received in conjunction with the New Markets Tax Credit transactions; see "[Note 10 – New Markets Tax Credit Transaction](#)" for additional information.

Allowance for Doubtful Accounts

The Company provides an allowance for receivables that may not be fully collected. In circumstances where the Company is aware of a customer's inability to meet their financial obligations (e.g., bankruptcy filings or substantial credit rating downgrades), it records an allowance for doubtful accounts against amounts due to reduce the net recognized receivable to the amount it believes

most likely will be collected. For all other customers, the Company recognizes an allowance for doubtful accounts based on its historical collection experience. If circumstances change (e.g., greater than expected defaults or an unexpected material change in a major customer's ability to meet their financial obligations), the Company could change its estimate of the recoverability of amounts due by a material amount.

Inventories

The Company's inventories are valued at the lower-of-cost-or-market. The material component of its U.S. copper tube and copper fittings inventories is valued on a LIFO basis and the non-material components of U.S. copper tube and copper fittings inventories are valued on a FIFO basis. The material component of its U.K. and Canadian copper tube inventories are valued on a FIFO basis. The material component of its brass rod and forgings inventories are valued on a FIFO basis. Certain inventories purchased for resale are valued on an average cost basis. Elements of cost in finished goods inventory in addition to the cost of material include depreciation, amortization, utilities, maintenance, production wages, and transportation costs.

The market price of copper cathode and scrap is subject to volatility. During periods when open market prices decline below net book value, the Company may need to provide an allowance to reduce the carrying value of its inventory. In addition, certain items in inventory may be considered obsolete and, as such, the Company may establish an allowance to reduce the carrying value of those items to their net realizable value. Changes in these estimates related to the value of inventory, if any, may result in a materially adverse impact on the Company's reported financial position or results of operations. The Company recognizes the impact of any changes in estimates, assumptions, and judgments in income in the period in which it is determined. See "[Note 4 – Inventories](#)" for additional information.

Property, Plant, and Equipment

Property, plant, and equipment is stated at cost less accumulated depreciation. Expenditures for major additions and improvements are capitalized, while minor replacements, maintenance, and repairs are charged to expense as incurred. Depreciation of buildings, machinery, and equipment is provided on the straight-line method over the estimated useful lives ranging from 20 to 40 years for buildings and five to 20 years for machinery and equipment. Leasehold improvements are amortized over the lesser of their useful life or the remaining lease term.

The Company continually evaluates these assets to determine whether events or changes in circumstances have occurred that may warrant revision of the estimated useful life or whether the remaining balance should be evaluated for possible impairment. See "[Note 7 – Property, Plant, and Equipment, Net](#)" for additional information.

Goodwill

Goodwill is recognized for the excess of the purchase price over the fair value of tangible and identifiable intangible net assets of businesses acquired. Several factors give rise to goodwill in business acquisitions, such as the expected benefit from synergies of the combination and the existing workforce of the acquired business. Goodwill is evaluated annually for possible impairment as of the first day of the fourth quarter unless circumstances indicate the need to accelerate the timing of the evaluation. In the evaluation of goodwill impairment, management performs a qualitative assessment to determine if it is more likely than not that the fair value of a reporting unit is less than its carrying amount. If the qualitative assessment is not conclusive, management compares the fair value of a reporting unit with its carrying amount and will recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value, not to exceed the total amount of goodwill allocated to the reporting unit.

Fair value for the Company's reporting units is determined using a combination of the income and market approaches (level 3 within the fair value hierarchy), incorporating market participant considerations and management's assumptions on revenue growth rates, operating margins, discount rates and expected capital expenditures. The market approach measures the fair value of a business through the analysis of publicly traded companies or recent sales of similar businesses. The income approach uses a discounted cash flow model to estimate the fair value of reporting units based on expected cash flows (adjusted for capital investment required to support operations) and a terminal value. This cash flow stream is discounted to its present value to arrive at a fair value for each reporting unit. Future earnings are estimated using the Company's most recent annual projections, applying a growth rate to future periods. Those projections are directly impacted by the condition of the markets in which the Company's businesses participate. The discount rate selected for the reporting units is generally based on rates of return available for comparable companies at the date of valuation. Fair value determinations may include both internal and third-party valuations. See "[Note 8 – Goodwill and Other Intangible Assets](#)" for additional information.

Investment in Unconsolidated Affiliates

The Company owns a 50 percent interest in Tecumseh Products Holding LLC (Joint Venture), an unconsolidated affiliate that acquired Tecumseh Products Company (Tecumseh). The Company also owns a 50 percent interest in a second unconsolidated affiliate that provides financing to Tecumseh. These investments are recorded using the equity method of accounting, as the Company can exercise significant influence but does not own a majority equity interest or otherwise control the respective entities. Under the equity method of accounting, investments are stated at initial cost and are adjusted for subsequent additional investments and the Company's proportionate share of earnings or losses and distributions.

The Company records its proportionate share of the investee's net income or loss one quarter in arrears as income (loss) from unconsolidated affiliates, net of tax, in the Consolidated Statements of Income. The Company's proportionate share of the investees' other comprehensive income (loss), net of income taxes, is recorded in the Consolidated Statements of Comprehensive Income and Consolidated Statements of Changes in Equity. In general, the equity investment in the unconsolidated affiliates is equal to the current equity investment plus the investees' undistributed earnings.

The investment in unconsolidated affiliates is assessed periodically for impairment and is written down when the carrying amount is not considered fully recoverable. See "[Note 9 – Investment in Unconsolidated Affiliates](#)" for additional information.

Self-Insurance Accruals

The Company is primarily self-insured for workers' compensation claims and benefits paid under certain employee health care programs. Accruals are primarily based on estimated undiscounted cost of claims, which includes incurred but not reported claims, and are classified as accrued wages and other employee costs.

Pension and Other Postretirement Benefit Plans

The Company sponsors several qualified and nonqualified pension and other postretirement benefit plans in the U.S. and certain foreign locations. The Company recognizes the overfunded or underfunded status of the plans as an asset or liability in the Consolidated Balance Sheets with changes in the funded status recorded through comprehensive income in the year in which those changes occur. The obligations for these plans are actuarially determined and affected by assumptions, including discount rates, expected long-term return on plan assets for defined benefit pension plans, and certain employee-related factors, such as retirement age and mortality. The Company evaluates its assumptions periodically and makes adjustments as necessary.

The expected return on plan assets is determined using the market value of plan assets. Differences between assumed and actual returns are amortized to the market value of assets on a straight-line basis over the average remaining service period of the plan participants using the corridor approach. The corridor approach defers all actuarial gains and losses resulting from variances between actual results and actuarial assumptions. These unrecognized gains and losses are amortized when the net gains and losses exceed 10 percent of the greater of the market value of the plan assets or the projected benefit obligation. The amount in excess of the corridor is amortized over the average remaining service period of the plan participants. For 2017, the average remaining service period for the pension plans was nine years. See "[Note 12 – Benefit Plans](#)" for additional information.

Environmental Reserves and Environmental Expenses

The Company recognizes an environmental liability when it is probable the liability exists and the amount is reasonably estimable. The Company estimates the duration and extent of its remediation obligations based upon reports of outside consultants, internal and third party estimates and analyses of cleanup costs and ongoing monitoring costs, communications with regulatory agencies, and changes in environmental law. If the Company were to determine that its estimates of the duration or extent of its environmental obligations were no longer accurate, it would adjust environmental liabilities accordingly in the period that such determination is made. Estimated future expenditures for environmental remediation are not discounted to their present value.

Environmental expenses that relate to ongoing operations are included as a component of cost of goods sold. Environmental expenses related to non-operating properties are presented below operating income in the Consolidated Statements of Income. See "[Note 13 – Commitments and Contingencies](#)" for additional information.

Earnings Per Share

Basic earnings per share is computed based on the weighted average number of common shares outstanding. Diluted earnings per share reflects the increase in weighted average common shares outstanding that would result from the assumed exercise of outstanding stock options and vesting of restricted stock awards calculated using the treasury stock method. Approximately 20

thousand and 190 thousand stock-based awards were excluded from the computation of diluted earnings per share for the years ended December 30, 2017 and December 31, 2016, respectively, because they were antidilutive.

Income Taxes

Deferred income tax assets and liabilities are recognized when differences arise between the treatment of certain items for financial statement and tax purposes. Realization of certain components of deferred tax assets is dependent upon the occurrence of future events. The Company records valuation allowances to reduce its deferred tax assets to the amount it believes is more likely than not to be realized. These valuation allowances can be impacted by changes in tax laws, changes to statutory tax rates, and future taxable income levels and are based on the Company's judgment, estimates, and assumptions regarding those future events. In the event the Company was to determine that it would not be able to realize all or a portion of the net deferred tax assets in the future, it would increase the valuation allowance through a charge to income tax expense in the period that such determination is made. Conversely, if it was to determine that it would be able to realize its deferred tax assets in the future, in excess of the net carrying amounts, the Company would decrease the recorded valuation allowance through a decrease to income tax expense in the period that such determination is made.

The Company provides for uncertain tax positions and the related interest and penalties, if any, based upon management's assessment of whether a tax benefit is more likely than not to be sustained upon examination by tax authorities. Tax benefits for uncertain tax positions that are recognized in the financial statements are measured as the largest amount of benefit, determined on a cumulative probability basis, that is more likely than not to be realized upon ultimate settlement. To the extent the Company prevails in matters for which a liability for an uncertain tax position is established or is required to pay amounts in excess of the liability, the Company's effective tax rate in a given financial statement period may be affected.

These estimates are highly subjective and could be affected by changes in business conditions and other factors. Changes in any of these factors could have a material impact on future income tax expense. See "[Note 14 – Income Taxes](#)" for additional information.

Taxes Collected from Customers and Remitted to Governmental Authorities

Taxes assessed by a governmental authority that are directly imposed on a revenue producing transaction between the Company and its customers, primarily value added taxes in foreign jurisdictions, are accounted for on a net (excluded from revenues and costs) basis.

Stock-Based Compensation

The Company has in effect stock incentive plans under which stock-based awards have been granted to certain employees and members of its Board of Directors. Stock-based compensation expense is recognized in the Consolidated Statements of Income as a component of selling, general, and administrative expense based on the grant date fair value of the awards. See "[Note 16 – Stock-Based Compensation](#)" for additional information.

Concentrations of Credit and Market Risk

Concentrations of credit risk with respect to accounts receivable are limited due to the large number of customers comprising the Company's customer base, and their dispersion across different geographic areas and different industries, including HVAC, plumbing, refrigeration, hardware, automotive, OEMs, and others.

The Company minimizes its exposure to base metal price fluctuations through various strategies. Generally, it prices an equivalent amount of copper raw material, under flexible pricing arrangements it maintains with its suppliers, at the time it determines the selling price of finished products to its customers.

Derivative Instruments and Hedging Activities

The Company's earnings and cash flows are subject to fluctuations due to changes in commodity prices, foreign currency exchange rates, and interest rates. The Company uses derivative instruments such as commodity futures contracts, foreign currency forward contracts, and interest rate swaps to manage these exposures.

All derivatives are recognized in the Consolidated Balance Sheets at their fair value. On the date the derivative contract is entered into, it is either a) designated as a hedge of (i) a forecasted transaction or the variability of cash flow to be paid (cash flow hedge) or (ii) the fair value of a recognized asset or liability (fair value hedge), or b) not designated in a hedge accounting relationship.

even though the derivative contract was executed to mitigate an economic exposure (economic hedge), as the Company does not enter into derivative contracts for trading purposes. Changes in the fair value of a derivative that is qualified, designated, and highly effective as a cash flow hedge are recorded in stockholders' equity within accumulated other comprehensive income (AOCI), to the extent effective, until they are reclassified to earnings in the same period or periods during which the hedged transaction affects earnings. Changes in the fair value of a derivative that is qualified, designated, and highly effective as a fair value hedge, along with the gain or loss on the hedged recognized asset or liability that is attributable to the hedged risk, are recorded in current earnings. Changes in the fair value of undesignated derivative instruments executed as economic hedges and the ineffective portion of designated derivatives are reported in current earnings.

The Company documents all relationships between derivative instruments and hedged items, as well as the risk-management objective and strategy for undertaking various hedge transactions. This process includes linking all derivative instruments that are designated as fair value hedges to specific assets and liabilities in the Consolidated Balance Sheets and linking cash flow hedges to specific forecasted transactions or variability of cash flow.

The Company also assesses, both at the hedge's inception and on an ongoing basis, whether the designated derivative instruments that are used in hedging transactions are highly effective in offsetting changes in cash flow or fair values of hedged items. When a derivative instrument is determined not to be highly effective as a hedge or the underlying hedged transaction is no longer probable of occurring, hedge accounting is discontinued prospectively in accordance with the derecognition criteria for hedge accounting.

The Company primarily executes derivative contracts with major financial institutions. These counterparties expose the Company to credit risk in the event of non-performance. The amount of such exposure is limited to the fair value of the contract plus the unpaid portion of amounts due to the Company pursuant to terms of the derivative instruments, if any. If a downgrade in the credit rating of these counterparties occurs, management believes that this exposure is mitigated by provisions in the derivative arrangements which allow for the legal right of offset of any amounts due to the Company from the counterparties with any amounts payable to the counterparties by the Company. As a result, management considers the risk of loss from counterparty default to be minimal. See "[Note 6 – Derivative Instruments and Hedging Activities](#)" for additional information.

Fair Value of Financial Instruments

The carrying amounts for cash and cash equivalents, accounts receivable, and accounts payable approximate fair value due to the short-term maturity of these instruments.

The fair value of long-term debt at December 30, 2017 approximates the carrying value on that date. The estimated fair values were determined based on quoted market prices and the current rates offered for debt with similar terms and maturities. The fair value of long-term debt is classified as level 2 within the fair value hierarchy. This classification is defined as a fair value determined using market-based inputs other than quoted prices that are observable for the liability, either directly or indirectly.

Foreign Currency Translation

For foreign subsidiaries in which the functional currency is not the U.S. dollar, balance sheet accounts are translated at exchange rates in effect at the end of the year and income statement accounts are translated at average exchange rates for the year. Translation gains and losses are included in equity as a component of AOCI. Transaction gains and losses that arise from exchange rate fluctuations on transactions denominated in a currency other than the functional currency are recognized in selling, general, and administrative expense in the Consolidated Statements of Income. Included in the Consolidated Statements of Income were net transaction losses of \$0.4 million in 2017, gains of \$0.4 million in 2016, and losses of \$1.7 million in 2015.

Use of and Changes in Estimates

The preparation of financial statements in conformity with generally accepted accounting principles in the United States (U.S. GAAP) requires management to make estimates, assumptions, and judgments that affect the amounts reported in the financial statements and accompanying notes. Management makes its best estimate of the ultimate outcome for these items based on historical trends and other information available when the financial statements are prepared. Changes in estimates are recognized in accordance with the accounting rules for the estimate, which is typically in the period when new information becomes available to management. Areas where the nature of the estimate makes it reasonably possible that actual results could materially differ from amounts estimated include but are not limited to: pension and other postretirement benefit plan obligations, tax liabilities, loss contingencies, litigation claims, environmental reserves, and impairment assessments on long-lived assets (including goodwill).

Change in Segment Reporting

At the beginning of fiscal year 2016, the Company made changes to its management reporting structure as a result of a change in the way the Chief Executive Officer, who serves as the Chief Operating Decision Maker, manages and evaluates the business, makes key operating decisions, and allocates resources. Previously, the Company had two reportable segments: Plumbing & Refrigeration and OEM. During 2016, the Company realigned its operating segments into three reportable segments: Piping Systems, Industrial Metals, and Climate. Management has recast certain prior year amounts to conform to the current year presentation. See “[Note 3 - Segment Information](#)” for additional information.

Recently Adopted Accounting Standard

In January 2017, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) No. 2017-04, *Intangibles – Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment*. The ASU eliminates step two from the goodwill impairment test and instead requires an entity to perform its annual, or interim, goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount. An entity is required to recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value, not to exceed the total amount of goodwill allocated to the reporting unit. The updated guidance requires a prospective adoption. The guidance is effective for the Company beginning in 2020 and early adoption is permitted. The Company adopted the ASU during the fourth quarter of 2017 and the adoption had no impact on its Consolidated Financial Statements.

Recently Issued Accounting Standards

In February 2018, the FASB issued ASU No. 2018-02, *Income Statement - Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income*. The ASU permits entities to reclassify tax effects stranded in AOCI as a result of tax reform to retained earnings. The guidance is effective for the Company in interim and annual periods beginning in 2019. Early adoption is permitted and can be applied retrospectively or in the period of adoption. The Company does not expect the adoption of the standard to have a material impact on its Consolidated Financial Statements.

In March 2017, the FASB issued ASU No. 2017-07, *Compensation - Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost*. The ASU requires employers that sponsor defined benefit pension and/or other postretirement benefit plans to present the service cost component of net periodic benefit cost in the same income statement line item(s) as other employee compensation costs arising from services rendered during the period and other components of net periodic benefits cost separately from the line item(s) that includes the service cost and outside of any subtotal of operating income. The guidance is effective for the Company in interim and annual periods beginning in 2018. Early adoption is permitted as of the beginning of an annual period for which financial statements have not been issued or made available for issuance. The Company does not expect the adoption of the standard to have a material impact on its Consolidated Financial Statements.

In January 2017, the FASB issued ASU No. 2017-01, *Business Combinations (Topic 805): Clarifying the Definition of a Business*. The ASU provides guidance to assist entities in evaluating whether transactions should be accounted for as acquisitions (or disposals) of assets or businesses. The updated guidance requires a prospective adoption. Early adoption is permitted. This update will be effective for the Company beginning in 2018. The Company does not expect the provisions of the ASU to have a material impact on its Consolidated Financial Statements.

In December 2016, the FASB issued ASU No. 2016-20, *Technical Corrections and Improvements to Topic 606, Revenue from Contracts with Customers*. The ASU provides correction or improvement to the guidance previously issued in ASU 2014-09, *Revenue from Contracts with Customers (Topic 606)*. Under the ASU, an entity will recognize revenue to depict the transfer of promised goods or services to customers at an amount that reflects the consideration that it expects to receive in exchange for the goods or services. It also requires more detailed disclosures to enable users of financial statements to understand the nature, amount, timing and uncertainty of revenue and cash flows arising from contracts with customers. This guidance is effective for the Company at the beginning of 2018. The standard permits the use of either the full retrospective or cumulative transition effect (modified retrospective) method. The ASU requires revenue to be recognized over time (i.e., throughout the production process) rather than at a point in time (generally upon shipment to the customer) if performance does not create an asset with an alternative use to the entity and the entity has an enforceable right to payment for performance completed to date. The Company has evaluated specific contract terms, primarily within the Industrial Metals and Climate segments, related to the production of customized products and payment rights and determined that there will be no significant changes to the timing of revenue recognition under the ASU. As part of the overall evaluation of the standard, the Company has assessed changes to its accounting policies, practices, and internal controls over financial reporting to support the standard. The Company does not expect the adoption of the standard to have a material impact on its Consolidated Financial Statements.

In November 2016, the FASB issued ASU No. 2016-18, *Statement of Cash Flows (Topic 230): Restricted Cash*. The ASU requires entities to show the changes in the total of cash, cash equivalents, restricted cash, and restricted cash equivalents in the statement of cash flows. As a result, entities will no longer present transfers between cash and cash equivalents and restricted cash and restricted cash equivalents in the statement of cash flows. The guidance will be applied retrospectively and is effective for the Company beginning in 2018. Early adoption is permitted. The Company does not expect the adoption of the standard to have a material impact on its Consolidated Financial Statements.

In October 2016, the FASB issued ASU No. 2016-16, *Income Taxes (Topic 740): Intra-Entity Transfers of Assets Other Than Inventory*. The ASU requires companies to account for the income tax effects of intercompany transfers of assets other than inventory when the transfer occurs. Companies will still be required to defer the income tax effects of intercompany inventory transactions in an exception to the income tax accounting guidance. The guidance is effective for the Company beginning in 2018. Early adoption is permitted as of the beginning of an annual period. The Company is still evaluating the effects that the provisions of the ASU will have on its Consolidated Financial Statements.

In February 2016, the FASB issued ASU No. 2016-02, *Leases (Topic 842)*. The ASU requires an entity to recognize a right-of-use asset and lease liability for all leases with terms of more than 12 months. Recognition, measurement and presentation of expenses will depend on classification as a financing or operating lease. The amendments also require certain quantitative and qualitative disclosures about leasing arrangements. The ASU will be effective for interim and fiscal periods beginning in 2018. Early adoption is permitted. Currently the guidance requires a modified retrospective adoption, but in January 2018 the FASB proposed ASU No. 2018-01, *Leases (Topic 842)*, which if approved will allow entities to elect a simplified transition approach whereby they would apply the provisions of the new guidance at the effective date without adjusting the comparative periods presented. The Company is still evaluating the effects that the provision of ASU 2016-02 will have on its Consolidated Financial Statements.

Note 2 – Acquisitions and Dispositions

2017 Acquisition

On May 31, 2017, the Company entered into a share purchase agreement pursuant to which the Company acquired all of the outstanding shares of Pexcor Manufacturing Company Inc. and Heatlink Group Inc. (collectively, Heatlink Group) for approximately \$16.3 million in cash, net of working capital adjustments. Heatlink Group, based out of Calgary, Alberta, Canada, produces and sells a complete line of products for PEX plumbing and radiant systems. The business complements the Company's existing businesses within the Piping Systems segment.

2016 Acquisition

On April 26, 2016, the Company entered into an agreement providing for the purchase of a 60 percent equity interest in Jungwoo-Mueller for approximately \$20.5 million in cash. Jungwoo-Mueller, which manufactures copper-based pipe joining products, is headquartered in Seoul, South Korea and serves markets worldwide. This business complements the Company's existing copper fittings businesses in the Piping Systems segment and is reported in the Company's Consolidated Financial Statements one month in arrears.

2015 Acquisitions

Great Lakes Copper

On July 31, 2015, the Company entered into a Share Purchase Agreement with Great Lakes Copper, Inc. providing for the purchase of all of the outstanding shares of Great Lakes Copper Ltd. (Great Lakes) for \$70.0 million in cash, including a \$1.5 million post-closing working capital adjustment. Great Lakes manufactures copper tube products in Canada. This acquisition complements the Company's existing copper tube businesses in the Piping Systems segment.

Sherwood Valve Products

On June 18, 2015, the Company entered into a Membership Interest Purchase Agreement with Sherwood Valve Products Inc. providing for the purchase of all of the outstanding equity interests of Sherwood Valve LLC (Sherwood) for \$21.8 million in cash, net of a post-closing working capital adjustment. Sherwood manufactures valves and fluid control solutions for the HVAC, refrigeration, and compressed gas markets. The acquisition of Sherwood complements our existing compressed gas business in the Industrial Metals segment.

Turbotec Products, Inc.

On March 30, 2015, the Company entered into a Stock Purchase Agreement with Turbotec Products PLC providing for the purchase of all of the outstanding capital stock of Turbotec Products, Inc. (Turbotec) for approximately \$14.1 million in cash, net of a post-closing working capital adjustment. Turbotec manufactures coaxial heat exchangers and twisted tubes for the heating, ventilation, and air-conditioning (HVAC), geothermal, refrigeration, swimming pool heat pump, marine, ice machine, commercial boiler, and heat reclamation markets. The acquisition of Turbotec complements the Company's existing refrigeration business, a component of the Climate segment.

These acquisitions were accounted for using the acquisition method of accounting whereby the total purchase price was allocated to tangible and intangible assets acquired and liabilities assumed based on respective fair values.

The following table summarizes the allocation of the purchase price to acquire these businesses, which was financed by available cash balances, as well as the assets acquired and liabilities assumed at the respective acquisition dates. The purchase price allocation for Heatlink Group is provisional as of December 30, 2017 and subject to change upon completion of the final valuation of the long-lived assets during the measurement period. During 2017, the valuation of the Jungwoo-Mueller acquisition was finalized and changes to the purchase price allocation from the amounts presented in the Company's 2016 Consolidated Financial Statements were immaterial.

<i>(in thousands)</i>	Heatlink Group	Jungwoo-Mueller	Great Lakes	Sherwood	Turbotec
Total consideration	\$ 16,317	\$ 20,533	\$ 70,011	\$ 21,795	\$ 14,138
Allocated to:					
Accounts receivable	2,809	5,551	26,079	6,490	1,936
Inventories	4,648	17,616	15,233	11,892	3,247
Other current assets	508	1,437	22	260	72
Property, plant, and equipment	2,024	24,191	22,771	10,327	9,080
Goodwill	4,071	223	23,208 ⁽¹⁾	—	2,088
Intangible assets	6,413	756	27,468	(38)	880
Other assets	—	277	1,413	—	59
Total assets acquired	20,473	50,051	116,194	28,931	17,362
Accounts payable	3,633	7,252	36,026	6,022	1,603
Accrued wages & other employee costs	—	—	—	471	356
Other current liabilities	523	577	381	487	51
Long-term debt	—	8,659	—	—	—
Pension and other postretirement liabilities	—	799	5,655	—	—
Other noncurrent liabilities	—	582	4,121	156	1,214
Total liabilities assumed	4,156	17,869	46,183	7,136	3,224
Noncontrolling interest	—	11,649	—	—	—
Net assets acquired	\$ 16,317	\$ 20,533	\$ 70,011	\$ 21,795	\$ 14,138

⁽¹⁾ Tax-deductible goodwill

The fair value of the noncontrolling interest at Jungwoo-Mueller was determined based on the proportionate share of consideration transferred and adjusted for lack of control and marketability based on the average of the classic put option model and the Finnerty Formula.

The following details the total intangible assets identified in the allocation of the purchase price at the respective acquisition dates:

<i>(in thousands)</i>	Estimated Useful Life	Heatlink Group	Jungwoo-Mueller	Great Lakes	Turbotec
Intangible asset type:					
Customer relationships	20 years	\$ 4,265	\$ —	\$ 20,273	\$ 350
Non-compete agreements	3-5 years	74	—	2,269	90
Patents and technology	10-15 years	1,466	756	3,104	220
Trade names, licenses, and other	5-10 years	608	—	1,822	220
Total intangible assets		\$ 6,413	\$ 756	\$ 27,468	\$ 880

2017 Disposition

On June 21, 2017, the Company entered into a definitive equity transfer agreement with Jiangsu Xingrong Hi-Tech Co. Ltd. and Jiangsu Baiyang Industries Co. Ltd. (Baiyang), together, the minority partners in Mueller-Xingrong (the Company's Chinese joint venture), pursuant to which the Company sold its 50.5 percent equity interest in Mueller-Xingrong to Baiyang for approximately \$18.3 million. Mueller-Xingrong manufactured engineered copper tube primarily for air-conditioning applications in China and was included in the Piping Systems segment. Mueller-Xingrong reported net sales of \$67.3 million and net losses of \$9 thousand in 2017, compared to net sales of \$121.5 million and net income of \$62 thousand in 2016, and net sales of \$155.9 million and net income of \$555 thousand in 2015. The carrying value of the assets disposed totaled \$56.8 million, consisting primarily of accounts receivable, inventories, and long-lived assets. The carrying value of the liabilities disposed (consisting primarily of current debt and accounts payable), noncontrolling interest, and amounts recognized in accumulated other comprehensive income (AOCI) totaled \$36.2 million. Since the disposal constituted a complete liquidation of the Company's investment in a foreign entity, the Company removed from AOCI and recognized a cumulative translation gain of \$3.8 million. As a result of the disposal, the Company recognized a net gain on the sale of this business of \$1.5 million in the Consolidated Financial Statements.

2015 Disposition

On June 1, 2015, the Company sold certain assets. Simultaneously, the Company entered into a lease agreement with the purchaser of the assets for their continued use for a period of approximately 22 months (Lease Period).

The total sales price was \$20.2 million, of which \$5.0 million was received on June 1, 2015, \$5.0 million was received on December 30, 2016, and \$10.2 million was received on August 28, 2017. This transaction resulted in a pre-tax gain of \$15.4 million in the second quarter of 2015, or 17 cents per diluted share after tax. This gain was recognized in the Piping Systems segment.

The net book value of the assets disposed was \$2.3 million. For goodwill testing purposes, these assets were part of the Domestic Piping Systems (DPS) reporting unit, which is a component of the Company's Piping Systems segment. Because these assets met the definition of a business, \$2.4 million of the DPS reporting unit's goodwill balance was allocated to the disposal group based on the relative fair values of the asset group that was disposed and the portion of the DPS reporting unit that was retained.

Note 3 –Segment Information

The Company's reportable segments are Piping Systems, Industrial Metals, and Climate. Each of the reportable segments is composed of certain operating segments that are aggregated primarily by the nature of products offered as follows:

Piping Systems

Piping Systems is composed of the following operating segments: DPS, Great Lakes Copper, Heatlink Group, European Operations, Trading Group, and Jungwoo-Mueller (the Company's South Korean joint venture). DPS manufactures copper tube and fittings, plastic fittings, and line sets. These products are manufactured in the U.S., sold in the U.S., and exported to markets worldwide. Outside the U.S., Great Lakes Copper manufactures copper tube and line sets in Canada and sells the products primarily in the U.S. and Canada, Heatlink Group produces a complete line of products for PEX plumbing and radiant systems in Canada and sells these products in Canada and the U.S., and the European Operations manufacture copper tube in the U.K. which is sold primarily in Europe. The Trading Group manufactures pipe nipples and imports and resells brass and plastic plumbing valves,

[TABLE OF CONTENTS](#)
[INDEX](#)

malleable iron fittings, faucets, and plumbing specialty products in the U.S. and Mexico. Jungwoo-Mueller manufactures copper-based joining products that are sold worldwide. The Piping Systems segment's products are sold primarily to plumbing, refrigeration, and air-conditioning wholesalers, hardware wholesalers and co-ops, building product retailers, and air-conditioning OEMs.

During 2017, the segment recognized a gain of \$1.5 million on the sale of the Company's interest in Mueller-Xingrong and impairment charges of \$1.5 million on certain copper fittings manufacturing equipment.

During 2016, the segment recognized impairment charges of \$6.1 million on fixed assets used for product development.

During 2015, the segment recognized approximately \$3.4 million of severance costs related to the reorganization of the European Operations as a result of the acquisition of Yorkshire Copper Tube in 2014.

Industrial Metals

Industrial Metals is composed of the following operating segments: Brass Rod & Copper Bar Products, Impacts & Micro Gauge, and Brass Value-Added Products. These businesses manufacture brass rod, impact extrusions, and forgings, as well as a wide variety of end products including plumbing brass, automotive components, valves, fittings, and gas assemblies. These products are manufactured in the U.S. and sold primarily to OEMs in the U.S., many of which are in the industrial, transportation, construction, heating, ventilation, and air-conditioning, plumbing, refrigeration, and energy markets.

During 2016, the segment recognized impairment charges of \$0.7 million on fixed assets related to the rationalization of Sherwood.

Climate

Climate is composed of the following operating segments: Refrigeration Products, Fabricated Tube Products, Westermeyer, and Turbotec. These domestic businesses manufacture and fabricate valves, assemblies, high pressure components, and coaxial heat exchangers primarily for the heating, ventilation, air-conditioning, and refrigeration markets in the U.S.

Performance of segments is generally evaluated by their operating income. Summarized product line, geographic, and segment information is shown in the following tables. Geographic sales data indicates the location from which products are shipped. Unallocated expenses include general corporate expenses, plus certain charges or credits not included in segment activity.

During 2017, 2016, and 2015, no single customer exceeded 10 percent of worldwide sales.

Net Sales by Major Product Line:

<i>(In thousands)</i>	2017	2016	2015
Tube and fittings	\$ 1,260,105	\$ 1,072,242	\$ 1,053,761
Brass rod and forgings	450,063	371,237	436,456
OEM components, tube & assemblies	272,567	327,327	342,651
Valves and plumbing specialties	200,409	209,217	198,012
Other	82,929	75,599	69,122
	<u>\$ 2,266,073</u>	<u>\$ 2,055,622</u>	<u>\$ 2,100,002</u>

Geographic Information:

<i>(In thousands)</i>	2017	2016	2015
Net sales:			
United States	\$ 1,556,825	\$ 1,400,893	\$ 1,519,456
United Kingdom	231,039	197,039	240,823
Canada	280,140	237,162	97,967
Asia	121,295	149,875	162,664
Mexico	76,774	70,653	79,092
	<u>\$ 2,266,073</u>	<u>\$ 2,055,622</u>	<u>\$ 2,100,002</u>

<i>(In thousands)</i>	2017	2016	2015
Long-lived assets:			
United States	\$ 238,752	\$ 223,099	\$ 223,398
United Kingdom	17,661	15,978	19,982
Canada	21,327	18,928	20,460
Asia	25,973	36,722	15,863
Mexico	608	504	521
	<u>\$ 304,321</u>	<u>\$ 295,231</u>	<u>\$ 280,224</u>

Summarized segment information is as follows:

<i>(In thousands)</i>	For the Year Ended December 30, 2017				
	Piping Systems	Industrial Metals	Climate	Corporate and Eliminations	Total
Net sales	\$ 1,564,950	\$ 602,131	\$ 131,448	\$ (32,456)	\$ 2,266,073
Cost of goods sold	1,369,161	506,973	98,851	(34,368)	1,940,617
Depreciation and amortization	21,777	7,516	2,513	2,138	33,944
Selling, general, and administrative expense	74,479	11,890	9,759	43,452	139,580
Gain on sale of businesses	(1,491)	—	—	—	(1,491)
Impairment charges	1,466	—	—	—	1,466
Operating income	99,558	75,752	20,325	(43,678)	151,957
Interest expense					(19,502)
Environmental expense					(7,284)
Other income, net					1,801
Income before income taxes					<u>\$ 126,972</u>

Segment information (continued):

(In thousands)	For the Year Ended December 31, 2016				
	Piping Systems	Industrial Metals	Climate	Corporate and Eliminations	Total
Net sales	\$ 1,429,589	\$ 521,060	\$ 119,758	\$ (14,785)	\$ 2,055,622
Cost of goods sold	1,228,949	420,905	89,927	(16,282)	1,723,499
Depreciation and amortization	22,421	8,162	2,437	2,113	35,133
Selling, general, and administrative expense	68,218	13,162	9,661	46,458	137,499
Impairment charges	6,115	663	—	—	6,778
Operating income	103,886	78,168	17,733	(47,074)	152,713
Interest expense					(7,387)
Environmental expense					(1,279)
Other income, net					1,983
Income before income taxes					\$ 146,030

(In thousands)	For the Year Ended December 26, 2015				
	Piping Systems	Industrial Metals	Climate	Corporate and Eliminations	Total
Net sales	\$ 1,436,689	\$ 567,467	\$ 110,727	\$ (14,881)	\$ 2,100,002
Cost of goods sold	1,245,929	491,567	86,894	(14,688)	1,809,702
Depreciation and amortization	22,559	7,503	2,257	2,289	34,608
Selling, general, and administrative expense	66,903	10,955	9,117	43,383	130,358
Gain on sale of businesses	(15,376)	—	—	—	(15,376)
Severance	3,442	—	—	—	3,442
Operating income	113,232	57,442	12,459	(45,865)	137,268
Interest expense					(7,667)
Environmental expense					(46)
Other income, net					2,234
Income before income taxes					\$ 131,789

Segment information (continued):

<i>(In thousands)</i>	2017	2016	2015
Expenditures for long-lived assets (including those resulting from business acquisitions):			
Piping Systems	\$ 18,124	\$ 56,286	\$ 41,900
Industrial Metals	5,322	3,302	16,603
Climate	2,191	2,045	12,373
General Corporate	22,518	55	136
	<u>\$ 48,155</u>	<u>\$ 61,688</u>	<u>\$ 71,012</u>

During the fourth quarter of 2017, the Company took early delivery of a Corporate aircraft to replace its existing aircraft. Subsequent to year-end, the existing aircraft was taken out of service and classified as held-for-sale, and the Company expects to recognize an impairment charge of approximately \$3.3 million in the first quarter of 2018. The Company expects to sell the aircraft in 2018.

Segment assets:

Piping Systems	\$ 801,468	\$ 826,663	\$ 811,343
Industrial Metals	212,638	160,478	153,102
Climate	73,458	66,968	61,672
General Corporate	232,609	393,367	312,684
	<u>\$ 1,320,173</u>	<u>\$ 1,447,476</u>	<u>\$ 1,338,801</u>

Note 4 – Inventories

<i>(In thousands)</i>	2017	2016
Raw materials and supplies	\$ 108,397	\$ 57,387
Work-in-process	46,158	42,227
Finished goods	180,143	149,288
Valuation reserves	(6,797)	(6,889)
Inventories	<u>\$ 327,901</u>	<u>\$ 242,013</u>

Inventories valued using the LIFO method totaled \$26.5 million at December 30, 2017 and \$14.4 million at December 31, 2016. At December 30, 2017 and December 31, 2016, the approximate FIFO cost of such inventories was \$111.0 million and \$76.6 million, respectively. Additionally, the Company values certain inventories purchased for resale on an average cost basis. The value of those inventories was \$43.9 million at December 30, 2017 and \$43.8 million at December 31, 2016.

During 2016, inventory quantities valued using the LIFO method declined, which resulted in liquidation of LIFO inventory layers. This liquidation resulted primarily from intercompany sales; therefore \$2.5 million of the \$3.3 million loss related to the LIFO liquidation was deferred at the end of 2016. The deferred loss increased cost of goods sold in the first quarter of 2017 when the inventory was sold to third parties.

During September 2017, the Company experienced a casting outage at its brass rod mill which impaired its ability to melt scrap returns, causing an excess build of \$38.9 million in inventory.

At the end of 2017 and 2016, the FIFO value of inventory consigned to others was \$4.4 million and \$2.5 million, respectively.

Note 5 – Consolidated Financial Statement Details

Other Current Liabilities

Included in other current liabilities as of December 30, 2017 and December 31, 2016 were the following: (i) accrued discounts, allowances, and customer rebates of \$39.5 million and \$40.4 million, respectively, (ii) current taxes payable of \$9.2 million and \$4.6 million, respectively, (iii) accrued interest of \$5.9 million and \$0.3 million, respectively, and (iv) current environmental liabilities of \$4.3 million and \$0.8 million, respectively.

Other Income, Net

<i>(In thousands)</i>	2017	2016	2015
Interest income	\$ 684	\$ 1,185	\$ 1,029
Other	1,117	798	1,205
Other income, net	<u>\$ 1,801</u>	<u>\$ 1,983</u>	<u>\$ 2,234</u>

Note 6 – Derivative Instruments and Hedging Activities

The Company's earnings and cash flows are subject to fluctuations due to changes in commodity prices, foreign currency exchange rates, and interest rates. The Company uses derivative instruments such as commodity futures contracts, foreign currency forward contracts, and interest rate swaps to manage these exposures.

Commodity Futures Contracts

Copper and brass represent the largest component of the Company's variable costs of production. The cost of these materials is subject to global market fluctuations caused by factors beyond the Company's control. The Company occasionally enters into forward fixed-price arrangements with certain customers; the risk of these arrangements is generally managed with commodity futures contracts. These futures contracts have been designated as cash flow hedges.

At December 30, 2017, the Company held open futures contracts to purchase approximately \$19.6 million of copper over the next 12 months related to fixed price sales orders. The fair value of those futures contracts was a \$1.0 million net gain position, which was determined by obtaining quoted market prices (level 1 within the fair value hierarchy). In the next twelve months, the Company will reclassify into earnings realized gains or losses relating to cash flow hedges. At December 30, 2017, this amount was approximately \$0.7 million of deferred net gains, net of tax.

The Company may also enter into futures contracts to protect the value of inventory against market fluctuations. At December 30, 2017, the Company held open futures contracts to sell approximately \$85.3 million of copper over the next five months related to copper inventory. The fair value of those futures contracts was a \$.2 million net loss position, which was determined by obtaining quoted market prices (level 1 within the fair value hierarchy).

[TABLE OF CONTENTS](#)
[INDEX](#)

The Company presents its derivative assets and liabilities in the Consolidated Balance Sheets on a net basis by counterparty. The following table summarizes the location and fair value of the derivative instruments and disaggregates the net derivative assets and liabilities into gross components on a contract-by-contract basis:

(In thousands)	Asset Derivatives			Liability Derivatives		
	Balance Sheet Location	Fair Value		Balance Sheet Location	Fair Value	
		2017	2016		2017	2016
Commodity contracts - gains	Other current assets	\$ 1,014	\$ 1,013	Other current liabilities	\$ 55	\$ 564
Commodity contracts - losses	Other current assets	(5)	(148)	Other current liabilities	(3,210)	(920)
Interest rate swap	Other current assets	—	—	Other current liabilities	—	(787)
Total derivatives ⁽¹⁾		<u>\$ 1,009</u>	<u>\$ 865</u>		<u>\$ (3,155)</u>	<u>\$ (1,143)</u>

⁽¹⁾ Does not include the impact of cash collateral provided to counterparties

The following tables summarize the effects of derivative instruments on the Consolidated Statements of Income:

(In thousands)	Location	2017	2016
Fair value hedges:			
Loss on commodity contracts (qualifying)	Cost of goods sold	\$ (724)	\$ (420)
Gain on hedged item - inventory	Cost of goods sold	625	382
Undesignated derivatives:			
(Loss) gain on commodity contracts (nonqualifying)	Cost of goods sold	\$ (6,078)	\$ 4,068

The following tables summarize amounts recognized in and reclassified from AOCI during the period:

	Year Ended December 30, 2017		
	(Loss) Gain Recognized in AOCI (Effective Portion), Net of Tax	Classification Gains (Losses)	Loss Reclassified from AOCI (Effective Portion), Net of Tax
(In thousands)			
Cash flow hedges:			
Commodity contracts	\$ (574)	Cost of goods sold	\$ 990
Interest rate swap	—	Interest expense	546
Other	185	Other	—
Total	\$ (389)	Total	\$ 1,536

Derivative instruments and hedging activities (continued):

	Year Ended December 31, 2016		
	Gain (Loss) Recognized in AOCI (Effective Portion), Net of Tax	Classification Gains (Losses)	Loss Reclassified from AOCI (Effective Portion), Net of Tax
<i>(In thousands)</i>			
Cash flow hedges:			
Commodity contracts	\$ 308	Cost of goods sold	\$ 1,078
Interest rate swap	305	Interest expense	231
Other	(213)	Other	—
Total	\$ 400	Total	\$ 1,309

The Company enters into futures and forward contracts that closely match the terms of the underlying transactions. As a result, the ineffective portion of the qualifying open hedge contracts through December 30, 2017 was not material to the Consolidated Statements of Income.

The Company primarily enters into International Swaps and Derivatives Association master netting agreements with major financial institutions that permit the net settlement of amounts owed under their respective derivative contracts. Under these master netting agreements, net settlement generally permits the Company or the counterparty to determine the net amount payable for contracts due on the same date and in the same currency for similar types of derivative transactions. The master netting agreements generally also provide for net settlement of all outstanding contracts with the counterparty in the case of an event of default or a termination event. The Company does not offset fair value amounts for derivative instruments and fair value amounts recognized for the right to reclaim cash collateral. At December 30, 2017 and December 31, 2016, the Company had recorded restricted cash in other current assets of \$5.3 million and \$1.4 million, respectively, as collateral related to open derivative contracts under the master netting arrangements.

Note 7 – Property, Plant, and Equipment, Net

<i>(In thousands)</i>	2017	2016
Land and land improvements	\$ 18,740	\$ 19,928
Buildings	144,527	144,914
Machinery and equipment	649,667	607,344
Construction in progress	9,274	30,344
	822,208	802,530
Less accumulated depreciation	(517,887)	(507,299)
Property, plant, and equipment, net	\$ 304,321	\$ 295,231

Note 8 – Goodwill and Other Intangible Assets

Goodwill

The changes in the carrying amount of goodwill by segment were as follows:

<i>(In thousands)</i>	Piping Systems	Industrial Metals	Climate	Total
Goodwill	\$ 156,387	\$ 8,854	\$ 4,416	\$ 169,657
Accumulated impairment charges	(40,552)	(8,853)	—	(49,405)
Balance at December 26, 2015:	115,835	1	4,416	120,252
Additions ⁽¹⁾	4,601	—	—	4,601
Currency translation	(860)	—	—	(860)
Balance at December 31, 2016:	119,576	1	4,416	123,993
Additions ⁽²⁾	3,852	—	—	3,852
Currency translation	2,448	—	—	2,448
Balance at December 30, 2017:				
Goodwill	166,428	8,854	4,416	179,698
Accumulated impairment charges	(40,552)	(8,853)	—	(49,405)
Goodwill, net	\$ 125,876	\$ 1	\$ 4,416	\$ 130,293

⁽¹⁾ Includes finalization of the purchase price allocation adjustment for Great Lakes of \$4.1 million.

⁽²⁾ Includes finalization of the purchase price allocation adjustment for Jungwoo-Mueller of \$0.2 million.

Reporting units with recorded goodwill include DPS, B&K LLC, Great Lakes, Heatlink Group, European Operations, Jungwoo-Mueller, Westermeyer, and Turbotec. Several factors give rise to goodwill in the Company's acquisitions, such as the expected benefit from synergies of the combination and the existing workforce of the acquired businesses. There were no impairment charges resulting from the 2017, 2016, or 2015 annual impairment tests as the estimated fair value of each of the reporting units exceeded its carrying value.

Other Intangible Assets

The carrying amount of intangible assets at December 30, 2017 was as follows:

<i>(In thousands)</i>	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Customer relationships	\$ 36,518	\$ (4,644)	\$ 31,874
Non-compete agreements	2,834	(1,497)	1,337
Patents and technology	7,673	(1,868)	5,805
Trade names and licenses	4,977	(1,575)	3,402
Other	213	(623)	(410)
Other intangible assets	\$ 52,215	\$ (10,207)	\$ 42,008

The carrying amount of intangible assets at December 31, 2016 was as follows:

<i>(In thousands)</i>	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Customer relationships	\$ 29,833	\$ (2,845)	\$ 26,988
Non-compete agreements	5,926	(4,063)	1,863
Patents and technology	5,922	(1,179)	4,743
Trade names and licenses	4,087	(1,032)	3,055
Other	213	(694)	(481)
Other intangible assets	<u>\$ 45,981</u>	<u>\$ (9,813)</u>	<u>\$ 36,168</u>

Amortization expense for intangible assets was \$3.1 million in 2017, \$4.3 million in 2016, and \$4.1 million in 2015. Future amortization expense is estimated as follows:

<i>(In thousands)</i>	Amount
2018	\$ 3,338
2019	3,253
2020	3,017
2021	2,747
2022	2,851
Thereafter	26,802
Expected amortization expense	<u>\$ 42,008</u>

Note 9 – Investment in Unconsolidated Affiliates

The Company owns a 50 percent interest in an unconsolidated affiliate that acquired Tecumseh. The Company also owns a 50 percent interest in a second unconsolidated affiliate that provides financing to Tecumseh. Tecumseh is a global manufacturer of hermetically sealed compressors for residential and specialty air conditioning, household refrigerators and freezers, and commercial refrigeration applications, including air conditioning and refrigeration compressors, as well as condensing units, heat pumps, and complete refrigeration systems.

The following tables present summarized financial information derived from the Company's equity method investees' combined consolidated financial statements, which are prepared in accordance with U.S. GAAP.

<i>(In thousands)</i>	2017	2016
Current assets	\$ 246,127	\$ 244,323
Noncurrent assets	139,200	130,400
Current liabilities	174,710	148,806
Noncurrent liabilities	58,334	71,681
Net sales	\$ 556,600	\$ 579,400
Gross profit	75,600	79,600
Net (loss) income	(4,153)	3,720

Included in the equity method investees' net income for 2016 is a gain of \$17.1 million that resulted from the allocation of the purchase price, which was finalized during Tecumseh's quarter ended December 31, 2015. That gain was offset by restructuring and impairment charges of \$5.3 million and net losses of \$8.1 million.

On December 30, 2015, the Company entered into a joint venture agreement with Cayan Ventures and Bahrain Mumtalakat Holding Company to build a copper tube mill in Bahrain. The business will operate and brand its products under the Mueller Industries family of brands. The Company has invested approximately \$3.9 million of cash to date and will be the technical and marketing lead in return for 40 percent ownership in the joint venture.

Note 10 – New Markets Tax Credit Transactions

On October 18, 2016, the Company entered into a financing transaction with Wells Fargo Community Investment Holdings, LLC (Wells Fargo) related to an equipment modernization project at the Company's copper tube and line sets production facilities in Fulton, MS. Wells Fargo made a capital contribution and the Company made a loan to MCTC Investment Fund, LLC (Investment Fund) under a qualified New Markets Tax Credit (NMTC) program. The NMTC program was provided for in the Community Renewal Tax Relief Act of 2000 (CRTR Act) and is intended to induce capital investment in qualified lower income communities. The CRTR Act permits taxpayers to claim credits against their Federal income taxes for up to 39 percent of qualified investments in the equity of community development entities (CDEs). CDEs are privately managed investment institutions that are certified to make qualified low-income community investments.

In connection with the financing, the Company loaned \$13.7 million aggregate principal amount of a one percent loan (Leverage Loan) due October 17, 2041, to the Investment Fund. Additionally, Wells Fargo contributed \$6.6 million to the Investment Fund, and as such, Wells Fargo is entitled to substantially all of the benefits derived from the NMTCs. The Investment Fund then contributed the proceeds to certain CDEs, which, in turn, loaned the funds on similar terms as the Leverage Loan to Mueller Copper Tube Company, Inc. (MCTC), an indirect, wholly-owned subsidiary of the Company. The proceeds of the loans from the CDEs, including loans representing the capital contribution made by Wells Fargo, net of syndication fees, are restricted for use on the modernization project.

The NMTC is subject to 100 percent recapture for a period of seven years as provided in the Internal Revenue Code. The Company is required to comply with various regulations and contractual provisions that apply to the NMTC arrangement. Non-compliance with applicable requirements could result in projected tax benefits not being realized and, therefore, require the Company to indemnify Wells Fargo for any loss or recapture of NMTCs related to the financing until such time as the Company's obligation to deliver tax benefits is relieved. The Company does not anticipate any credit recaptures will be required in connection with this arrangement. This transaction also includes a put/call provision whereby the Company may be obligated or entitled to repurchase Wells Fargo's interest in the Investment Fund. The Company believes that Wells Fargo will exercise the put option in October 2023, at the end of the recapture period. The value attributed to the put/call is negligible.

The Company has determined that the financing arrangement with the Investment Fund and CDEs is a variable interest entity (VIE), and that it is the primary beneficiary of the VIE. This conclusion was reached based on the following:

- The ongoing activities of the VIE, collecting and remitting interest and fees, and NMTC compliance were all considered in the initial design and are not expected to significantly affect economic performance throughout the life of the VIE;
- Contractual arrangements obligate the Company to comply with NMTC rules and regulations and provide various other guarantees to the Investment Fund and CDEs;
- Wells Fargo lacks a material interest in the underlying economics of the project;
- and
- The Company is obligated to absorb losses of the VIE.

Because the Company is the primary beneficiary of the VIE, it has been included in the Company's Consolidated Financial Statements. Wells Fargo's contribution of \$6.6 million was initially recorded as restricted cash and its interest in the Investment Fund is included in other liabilities.

Note 11 – Debt

(In thousands)

	2017	2016
Subordinated Debentures with interest at 6.00%, due 2027	\$ 284,536	\$ —
Revolving Credit Facility with interest at 3.06%, due 2021	160,000	200,000
Jungwoo-Mueller credit facility with interest at 2.72%, due 2018	5,119	4,724
Jungwoo-Mueller credit facility with interest at 3.19%, due 2017	8,648	7,990
2001 Series IRB's with interest at 2.22%, due 2021	3,250	4,250
Mueller-Xingrong credit facility	—	3,048
Other	4,694	8,309
	<u>466,247</u>	<u>228,321</u>
Less debt issuance costs	(1,175)	(957)
Less current portion of debt	<u>(16,480)</u>	<u>(13,655)</u>
Long-term debt	<u>\$ 448,592</u>	<u>\$ 213,709</u>

Subordinated Debentures

On March 9, 2017, the Company distributed a special dividend of \$3.00 in cash and \$5.00 in principal amount of the Company's 6% Subordinated Debentures (Debentures) due March 1, 2027 for each share of common stock outstanding. Interest on the Debentures is payable semiannually on September 1 and March 1 and commenced on September 1, 2017. At issuance, the Debentures were recorded at their estimated fair value. The fair value of the Debentures was estimated based on quoted market prices for the same or similar issues, the current rates offered to the Company for debt of the same remaining maturities, or the use of market standard models.

The Debentures are subordinated to all other funded debt of the Company and are callable, in whole or in part, at any time at the option of the Company, subject to declining call premiums during the first five years. The Debentures also grant each holder the right to require the Company to repurchase such holder's Debentures in the event of a change in control at declining repurchase premiums during the first five years. The Debentures may be redeemed, subject to the conditions set forth above, at the following redemption price (expressed as a percentage of principal amount) plus any accrued but unpaid interest to, but excluding, the redemption date:

If redeemed during the 12-month period beginning March 9:

Year	Redemption Price
2017	106%
2018	105
2019	104
2020	103
2021	102
2022 and thereafter	100

The effect of the special dividend was a decrease in stockholders' equity of approximately \$458.7 million, an increase in long-term debt of approximately \$284.5 million, and a decrease in cash of approximately \$174.2 million.

Revolving Credit Facility

The Company's Credit Agreement provides for an unsecured \$350.0 million revolving credit facility (Revolving Credit Facility) that matures on December 6, 2021. Borrowings under the Revolving Credit Facility bear interest, at the Company's option, at

LIBOR or Base Rate as defined by the Credit Agreement, plus a variable premium. LIBOR advances may be based upon the one, three, or six-month LIBOR. The variable premium is based upon the Company's debt to total capitalization ratio, and can range from 112.5 to 162.5 basis points for LIBOR based loans and 12.5 to 62.5 basis points for Base Rate loans. At December 30, 2017, the premium was 150.0 basis points for LIBOR loans and 50.0 basis points for Base Rate loans. Additionally, a commitment fee is payable quarterly on the total commitment less any outstanding loans or issued letters of credit, and varies from 15.0 to 30.0 basis points based upon the Company's debt to total capitalization ratio. Availability of funds under the Revolving Credit Facility is reduced by the amount of certain outstanding letters of credit, which are used to secure the Company's payment of insurance deductibles and certain retiree health benefits, totaling approximately \$8.4 million at December 30, 2017. Terms of the letters of credit are generally renewable annually.

Jungwoo-Mueller

Jungwoo-Mueller has several secured revolving credit arrangements with a total borrowing capacity of KRW29.9 billion (or approximately \$27.5 million). Borrowings are secured by the real property and equipment of Jungwoo-Mueller.

Covenants contained in the Company's financing obligations require, among other things, the maintenance of minimum levels of tangible net worth and the satisfaction of certain minimum financial ratios. At December 30, 2017, the Company was in compliance with all debt covenants.

Aggregate annual maturities of the Company's debt are as follows:

<i>(In thousands)</i>	Amount
2018	\$ 16,480
2019	1,222
2020	1,222
2021	160,472
2022	222
Thereafter	286,629
Long-term debt	<u>\$ 466,247</u>

Net interest expense consisted of the following:

<i>(In thousands)</i>	2017	2016	2015
Interest expense	\$ 19,716	\$ 7,749	\$ 8,335
Capitalized interest	(214)	(362)	(668)
	<u>\$ 19,502</u>	<u>\$ 7,387</u>	<u>\$ 7,667</u>

Interest paid in 2017, 2016, and 2015 was \$13.8 million, \$7.1 million, and \$8.1 million, respectively.

Note 12 – Benefit Plans

Pension and Other Postretirement Plans

The Company sponsors several qualified and nonqualified pension plans and other postretirement benefit plans for certain employees. The following tables provide a reconciliation of the changes in the plans' benefit obligations and the fair value of the plans' assets for 2017 and 2016, and a statement of the plans' aggregate funded status:

	Pension Benefits		Other Benefits	
	2017	2016	2017	2016
<i>(In thousands)</i>				
Change in benefit obligation:				
Obligation at beginning of year	\$ 178,736	\$ 192,761	\$ 15,274	\$ 15,843
Service cost	128	532	235	232
Interest cost	6,344	7,553	599	594
Actuarial loss (gain)	4,688	9,399	923	(249)
Plan amendments	—	—	—	43
Benefit payments	(10,171)	(17,572)	(883)	(1,023)
Settlement charge	—	—	(209)	—
Foreign currency translation adjustment	7,041	(13,937)	468	(166)
Obligation at end of year	186,766	178,736	16,407	15,274
Change in fair value of plan assets:				
Fair value of plan assets at beginning of year	169,140	176,077	—	—
Actual return on plan assets	19,175	19,319	—	—
Employer contributions	2,271	2,377	883	1,023
Benefit payments	(10,171)	(17,572)	(883)	(1,023)
Foreign currency translation adjustment	5,921	(11,061)	—	—
Fair value of plan assets at end of year	186,336	169,140	—	—
Underfunded status at end of year	\$ (430)	\$ (9,596)	\$ (16,407)	\$ (15,274)

During 2016, the Company offered a lump sum window to certain inactive participants in one of its pension plans, resulting in incremental benefit payments of \$7.0 million and a settlement charge of \$1.2 million.

The following represents amounts recognized in AOCI (before the effect of income taxes):

	Pension Benefits		Other Benefits	
	2017	2016	2017	2016
<i>(In thousands)</i>				
Unrecognized net actuarial loss	\$ 34,627	\$ 39,986	\$ 1,540	\$ 614
Unrecognized prior service credit	—	—	(7,289)	(8,180)

The Company sponsors one pension plan in the U.K. which comprised 44 and 42 percent of the above benefit obligation at December 30, 2017 and December 31, 2016, respectively, and 39 and 36 percent of the above plan assets at December 30, 2017 and December 31, 2016, respectively.

As of December 30, 2017, \$1.5 million of the actuarial net loss and \$0.9 million of the prior service credit will, through amortization, be recognized as components of net periodic benefit cost in 2018.

[TABLE OF CONTENTS](#)
[INDEX](#)

The aggregate status of all overfunded plans is recognized as an asset and the aggregate status of all underfunded plans is recognized as a liability in the Consolidated Balance Sheets. The amounts recognized as a liability are classified as current or long-term on a plan-by-plan basis. Liabilities are classified as current to the extent the actuarial present value of benefits payable within the next 12 months exceeds the fair value of plan assets, with all remaining amounts classified as long-term.

As of December 30, 2017 and December 31, 2016, the total funded status of the plans recognized in the Consolidated Balance Sheets was as follows:

(In thousands)	Pension Benefits		Other Benefits	
	2017	2016	2017	2016
Long-term asset	\$ 9,894	\$ 4,442	\$ —	\$ —
Current liability	—	—	(1,070)	(1,128)
Long-term liability	(10,324)	(14,038)	(15,337)	(14,146)
Total underfunded status	\$ (430)	\$ (9,596)	\$ (16,407)	\$ (15,274)

The components of net periodic benefit cost are as follows:

(In thousands)	2017	2016	2015
Pension benefits:			
Service cost	\$ 128	\$ 532	\$ 803
Interest cost	6,344	7,553	8,032
Expected return on plan assets	(9,374)	(9,615)	(10,289)
Amortization of net loss	2,206	2,898	2,710
Settlement charge	—	1,214	—
Net periodic benefit (income) cost	\$ (696)	\$ 2,582	\$ 1,256
Other benefits:			
Service cost	\$ 235	\$ 232	\$ 363
Interest cost	599	594	1,005
Amortization of prior service (credit) cost	(901)	(896)	6
Amortization of net gain	(42)	(60)	(28)
Settlement charge	17	—	—
Net periodic benefit (income) cost	\$ (92)	\$ (130)	\$ 1,346

The weighted average assumptions used in the measurement of the Company's benefit obligations are as follows:

	Pension Benefits		Other Benefits	
	2017	2016	2017	2016
Discount rate	3.22%	3.61%	3.89%	4.21%
Expected long-term return on plan assets	5.27%	5.56%	N/A	N/A
Rate of compensation increases	N/A	N/A	5.00%	5.00%
Rate of inflation	3.30%	3.30%	N/A	N/A

The weighted average assumptions used in the measurement of the Company's net periodic benefit cost are as follows:

	Pension Benefits			Other Benefits		
	2017	2016	2015	2017	2016	2015
Discount rate	3.61%	4.02%	4.03%	4.21%	4.25%	4.33%
Expected long-term return on plan assets	5.56%	5.59%	5.58%	N/A	N/A	N/A
Rate of compensation increases	N/A	N/A	N/A	5.00%	5.00%	5.00%
Rate of inflation	3.30%	3.20%	3.10%	N/A	N/A	N/A

The Company's Mexican postretirement plans use the rate of compensation increase in the benefit formulas. Past service in the U.K. pension plan will be adjusted for the effects of inflation. All other pension and postretirement plans use benefit formulas based on length of service.

The annual assumed rate of increase in the per capita cost of covered benefits (i.e., health care cost trend rate) is assumed to range from 6.6 to 10.1 percent for 2018, gradually decrease to 3.0 percent through 2036, and remain at that level thereafter. The health care cost trend rate assumption does not have a significant effect on the amounts reported.

Pension Assets

The weighted average asset allocation of the Company's pension fund assets are as follows:

Asset category	Pension Plan Assets	
	2017	2016
Equity securities (includes equity mutual funds)	46%	47%
Fixed income securities (includes fixed income mutual funds)	48	48
Cash and equivalents (includes money market funds)	3	3
Alternative investments	3	2
Total	100%	100%

At December 30, 2017, the long-term target allocation, by asset category, of assets of the Company's defined benefit pension plans was: (i) fixed income securities – at least 60 percent; (ii) equity securities, including equity index funds – not more than 30 percent; and (iii) alternative investments – not more than 5 percent.

The pension plan obligations are long-term and, accordingly, the plan assets are invested for the long-term. Plan assets are monitored periodically. Based upon results, investment managers and/or asset classes are redeployed when considered necessary. None of the plans' assets are expected to be returned to the Company during the next fiscal year. The assets of the plans do not include investments in securities issued by the Company.

The estimated rates of return on plan assets are the expected future long-term rates of earnings on plan assets and are forward-looking assumptions that materially affect pension cost. Establishing the expected future rates of return on pension assets is a judgmental matter. The Company reviews the expected long-term rates of return on an annual basis and revises as appropriate. The expected long-term rate of return on plan assets was 5.27 percent for 2017 and 5.56 percent in 2016.

The Company's investments for its pension plans are reported at fair value. The following methods and assumptions were used to estimate the fair value of the Company's plan asset investments:

Cash and money market funds – Valued at cost, which approximates fair value.

Common stock – Valued at the closing price reported on the active market on which the individual securities are traded.

Mutual funds – Valued at the net asset value of shares held by the plans at December 30, 2017 and December 31, 2016, respectively, based upon quoted market prices.

Limited partnerships – Limited partnerships include investments in various Cayman Island multi-strategy hedge funds. The plans' investments in limited partnerships are valued at the estimated fair value of the class shares owned by the plans based upon the equity in the estimated fair value of those shares. The estimated fair values of the limited partnerships are determined by the investment managers. In determining fair value, the investment managers of the limited partnerships utilize the estimated net asset valuations of the underlying investment entities. The underlying investment entities value securities and other financial instruments on a mark-to-market or estimated fair value basis. The estimated fair value is determined by the investment managers based upon, among other things, the type of investments, purchase price, marketability, current financial condition, operating results, and other information. The estimated fair values of substantially all of the investments of the underlying investment entities, which may include securities for which prices are not readily available, are determined by the investment managers or management of the respective underlying investment entities and may not reflect amounts that could be realized upon immediate sale. Accordingly, the estimated fair values may differ significantly from the values that would have been used had a ready market existed for these investments.

The following table sets forth by level, within the fair value hierarchy, the assets of the plans at fair value:

(In thousands)	Fair Value Measurements at December 30, 2017			
	Level 1	Level 2	Level 3	Total
Cash and money market funds	\$ 5,364	\$ —	\$ —	\$ 5,364
Common stock ⁽¹⁾	11,113	—	—	11,113
Mutual funds ⁽²⁾	8,412	156,442	—	164,854
Limited partnerships	—	—	5,005	5,005
Total	<u>\$ 24,889</u>	<u>\$ 156,442</u>	<u>\$ 5,005</u>	<u>\$ 186,336</u>

(In thousands)	Fair Value Measurements at December 31, 2016			
	Level 1	Level 2	Level 3	Total
Cash and money market funds	\$ 4,245	\$ —	\$ —	\$ 4,245
Common stock ⁽³⁾	18,601	—	—	18,601
Mutual funds ⁽⁴⁾	5,572	136,027	—	141,599
Limited partnerships	—	—	4,695	4,695
Total	<u>\$ 28,418</u>	<u>\$ 136,027</u>	<u>\$ 4,695</u>	<u>\$ 169,140</u>

⁽¹⁾ Approximately 91 percent of common stock represents investments in U.S. companies primarily in the health care, utilities, financials, consumer staples, industrials, and information technology sectors. All investments in common stock are listed on U.S. stock exchanges.

⁽²⁾ Approximately 66 percent of mutual funds are actively managed funds and approximately 34 percent of mutual funds are index funds. Additionally, five percent of the mutual funds' assets are invested in U.S. equities, 41 percent in non-U.S. equities, 52 percent in U.S. fixed income securities, and two percent in non-U.S. fixed income securities.

⁽³⁾ Approximately 90 percent of common stock represents investments in U.S. companies primarily in the health care, utilities, financials, consumer staples, industrials, and information technology sectors. All investments in common stock are listed on U.S. stock exchanges.

⁽⁴⁾ Approximately 68 percent of mutual funds are actively managed funds and approximately 32 percent of mutual funds are index funds. Additionally, five percent of the mutual funds' assets are invested in U.S. equities, 38 percent in non-U.S. equities, 54 percent in U.S. fixed income securities, and three percent in non-U.S. fixed income securities.

[TABLE OF CONTENTS](#)
[INDEX](#)

The table below reflects the changes in the assets of the plan measured at fair value on a recurring basis using significant unobservable inputs (level 3 of fair value hierarchy) during the year ended December 30, 2017:

<i>(In thousands)</i>	<u>Limited Partnerships</u>
Balance, December 31, 2016	\$ 4,695
Redemptions	(283)
Subscriptions	273
Net appreciation in fair value	320
Balance, December 30, 2017	<u>\$ 5,005</u>

Contributions and Benefit Payments

The Company expects to contribute approximately \$1.0 million to its pension plans and \$1.2 million to its other postretirement benefit plans in 2017. The Company expects future benefits to be paid from the plans as follows:

<i>(In thousands)</i>	<u>Pension Benefits</u>	<u>Other Benefits</u>
2018	\$ 10,423	\$ 1,177
2019	10,398	1,056
2020	10,329	1,277
2021	10,246	1,129
2022	10,182	1,157
2023-2027	49,965	6,154
Total	<u>\$ 101,543</u>	<u>\$ 11,950</u>

Multiemployer Plan

The Company contributes to the IAM National Pension Fund, National Pension Plan (IAM Plan), a multiemployer defined benefit plan. Participation in the IAM Plan was negotiated under the terms of two collective bargaining agreements in Port Huron, Michigan, the Local 218 IAM and Local 44 UAW that expire on May 5, 2019 and July 21, 2019, respectively. The Employer Identification Number for this plan is 51-6031295.

The risks of participating in multiemployer plans are different from single-employer plans in the following aspects: (i) assets contributed to the multiemployer plan by one employer may be used to provide benefits to employees of other participating employers; (ii) if a participating employer stops contributing to the plan, the underfunded obligations of the plan may be borne by the remaining participating employers; (iii) if the Company chooses to stop participating in the plan, the Company may be required to pay the plan an amount based on the underfunded status of the plan, referred to as a withdrawal liability.

The Company makes contributions to the IAM Plan trusts that cover certain union employees; contributions by employees are not permitted. Contributions to the IAM Plan were approximately \$1.1 million each year in 2017, 2016, and 2015. The Company's contributions are less than five percent of total employer contributions made to the IAM Plan indicated in the most recently filed Form 5500.

Under the Pension Protection Act of 2006, the IAM Plan's actuary must certify the plan's zone status annually. Plans in the red zone are generally less than 65 percent funded, plans in the yellow zone are less than 80 percent funded, and plans in the green zone are at least 80 percent funded. If a plan is determined to be in endangered status, red zone or yellow zone, the plan's trustees must develop a formal plan of corrective action, a Financial Improvement Plan and/or a Rehabilitation Plan. For 2017 and 2016 the IAM Plan was determined to have green zone status; therefore, no formal plan of corrective action is either pending or has been implemented.

401(k) Plans

The Company sponsors voluntary employee savings plans that qualify under Section 401(k) of the Internal Revenue Code of 1986. Compensation expense for the Company's matching contribution to the 401(k) plans was \$5.1 million in 2017, \$5.2 million in 2016, and \$4.2 million in 2015. The Company match is a cash contribution. Participants direct the investment of their account balances by allocating among a range of asset classes including mutual funds (equity, fixed income, and balanced funds) and money market funds. The plans do not allow direct investment in securities issued by the Company.

UMWA Benefit Plans

In October 1992, the Coal Industry Retiree Health Benefit Act of 1992 (1992 Act) was enacted. The 1992 Act mandates a method of providing for postretirement benefits to the United Mine Workers of America (UMWA) current and retired employees, including some retirees who were never employed by the Company. In October 1993, beneficiaries were assigned to the Company and the Company began its mandated contributions to the UMWA Combined Benefit Fund, a multiemployer trust. Beginning in 1994, the Company was required to make contributions for assigned beneficiaries under an additional multiemployer trust created by the 1992 Act, the UMWA 1992 Benefit Plan. The ultimate amount of the Company's liability under the 1992 Act will vary due to factors which include, among other things, the validity, interpretation, and regulation of the 1992 Act, its joint and several obligation, the number of valid beneficiaries assigned, and the extent to which funding for this obligation will be satisfied by transfers of excess assets from the 1950 UMWA pension plan and transfers from the Abandoned Mine Reclamation Fund. Contributions to the plan were \$182 thousand, \$197 thousand, and \$214 thousand for the years ended 2017, 2016, and 2015, respectively.

Note 13 – Commitments and Contingencies

Environmental

The Company is subject to federal, state, local, and foreign environmental laws and regulations. For all properties, the Company has provided and charged to expense \$7.5 million in 2017, \$0.9 million in 2016, and \$0.1 million in 2015 for pending environmental matters. Environmental reserves totaled \$28.0 million at December 30, 2017 and \$21.9 million at December 31, 2016. As of December 30, 2017, the Company expects to spend \$4.3 million in 2018, \$2.2 million in 2019, \$2.1 million in 2020, \$0.6 million in 2021, \$0.6 million in 2022, and \$18.2 million thereafter for ongoing projects.

Non-operating Properties

Southeast Kansas Sites

The Kansas Department of Health and Environment (KDHE) has contacted the Company regarding environmental contamination at three former smelter sites in Kansas (Altoona, East La Harpe, and Lanyon). The Company is not a successor to the companies that operated these smelter sites, but is exploring possible settlement with KDHE and other potentially responsible parties (PRP) in order to avoid litigation. Another PRP conducted a site investigation of the Altoona site under a consent decree with KDHE and submitted a removal site evaluation report recommending a remedy. The remedial design plan, which covers both on-site and certain off-site cleanup costs, was approved by the KDHE in 2016. At the East La Harpe site, the Company and two other PRPs conducted a site study evaluation under KDHE supervision and prepared a site cleanup plan approved by KDHE. In 2016, the corporate parent of a third party that the Company understands may owe indemnification obligations to one of the other PRPs in connection with the East La Harpe site filed for protection under Chapter 11 of the U.S. Bankruptcy Code. KDHE has extended the deadline for the PRPs to develop a repository design plan to allow for wetlands permitting to take place. With respect to the Lanyon Site, in 2016, the Company received a general notice letter from the United States Environmental Protection Agency (EPA) asserting that the Company is a PRP, which the Company has denied. The Company's reserve for its proportionate share of the remediation costs associated with the Southeast Kansas sites is \$5.6 million.

Shasta Area Mine Sites

Mining Remedial Recovery Company (MRRC), a wholly owned subsidiary, owns certain inactive mines in Shasta County, California. MRRC has continued a program, begun in the late 1980s, of implementing various remedial measures, including sealing mine portals with concrete plugs in portals that were discharging water. The sealing program achieved significant reductions in the metal load in discharges from these adits; however, additional reductions are required pursuant to an order issued by the California Regional Water Quality Control Board (QCB). In response to a 1996 QCB Order, MRRC completed a feasibility study in 1997 describing measures designed to mitigate the effects of acid rock drainage. In December 1998, the QCB modified the

1996 order extending MRRC's time to comply with water quality standards. In September 2002, the QCB adopted a new order requiring MRRC to adopt Best Management Practices (BMP) to control discharges of acid mine drainage, and again extended the time to comply with water quality standards until September 2007. During that time, implementation of BMP further reduced impacts of acid rock drainage; however, full compliance has not been achieved. The QCB is presently renewing MRRC's discharge permit and will concurrently issue a new order. It is expected that the new 10-year permit will include an order requiring continued implementation of BMP through 2025 to address residual discharges of acid rock drainage. At this site, MRRC spent approximately \$1.2 million from 2015 through 2017 for remediation, and currently estimates that it will spend between approximately \$12.8 million and \$17.6 million over the next 30 years.

Lead Refinery Site

U.S.S. Lead Refinery, Inc. (Lead Refinery), a non-operating wholly owned subsidiary of MRRC, has conducted corrective action and interim remedial activities (collectively, Site Activities) at Lead Refinery's East Chicago, Indiana site pursuant to the Resource Conservation and Recovery Act since December 1996. Although the Site Activities have been substantially concluded, Lead Refinery is required to perform monitoring and maintenance-related activities pursuant to a post-closure permit issued by the Indiana Department of Environmental Management effective as of March 2, 2013. Lead Refinery spent approximately \$0.6 million from 2015 through 2017 with respect to this site. Approximate costs to comply with the post-closure permit, including associated general and administrative costs, are estimated at between \$1.8 million and \$3.0 million over the next 19 years.

On April 9, 2009, pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the U.S. Environmental Protection Agency (EPA) added the Lead Refinery site and surrounding properties to the National Priorities List (NPL). On July 17, 2009, Lead Refinery received a written notice from the EPA indicating that it may be a PRP under CERCLA due to the release or threat of release of hazardous substances including lead into properties surrounding the Lead Refinery NPL site. The EPA identified two other PRPs in connection with that matter. In November 2012, the EPA adopted a remedy for the surrounding properties and in September 2014, the EPA announced that it had entered into a settlement with the two other PRPs whereby they will pay approximately \$26.0 million to fund the cleanup of approximately 300 properties surrounding the Lead Refinery NPL site (zones 1 and 3 of operable unit 1) and perform certain remedial action tasks.

On November 8, 2016, the Company, its subsidiary Arava Natural Resources Company, Inc. (Arava), and Arava's subsidiary MRRC each received general notice letters from the EPA asserting that they may be PRPs in connection with the Lead Refinery NPL site. The Company, Arava, and MRRC have denied liability for any remedial action and response costs associated with the Lead Refinery NPL site. In June 2017, the EPA requested that Lead Refinery conduct, and the Company fund, a remedial investigation and feasibility study of operable unit 2 of the Lead Refinery NPL site pursuant to a proposed administrative settlement agreement and order on consent. The Company and Lead Refinery entered into that agreement in September 2017. The Company will make a capital contribution to Lead Refinery to conduct the remedial investigation and feasibility study with respect to operable unit 2 and provide a financial guarantee in the amount of \$1.0 million. The EPA has also asserted its position that Mueller is a responsible party for the Lead Refinery NPL site, and accordingly is responsible for a share of remedial action and response costs at the site and in the adjacent residential area.

In January 2018, the EPA issued two unilateral administrative orders (UAOs) directing the Company, Lead Refinery, and four other PRPs to conduct soil and interior remediation of certain residences at the Lead Refinery NPL site (zones 2 and 3 of operable unit 1). The Company and Lead Refinery have reached agreement with the four other PRPs to implement these two UAOs, with the Company agreeing to pay, on an interim basis, (i) an estimated \$4.5 million (subject to potential change through a future reallocation process) of the approximately \$25.0 million the PRPs currently estimate it will cost to implement the UAOs, which estimate is subject to change, and (ii) \$2.0 million relating to past costs incurred by other PRPs for work conducted at the site. These amounts are included in the Company's reserve for environmental liabilities as of December 30, 2017. The Company disputes that it was properly named in the UAOs, and has reserved its rights to petition the EPA for reimbursement of any costs incurred to comply with the UAOs upon the completion of the work required therein. In October 2017, a group of private plaintiffs sued the Company, Arava, MRRC, and Lead Refinery, along with other defendants, in a private tort action relating to the site. At this juncture, the Company is unable to determine the likelihood of a material adverse outcome or the amount or range of a potential loss in excess of the current reserve with respect to any remedial action or litigation relating to the Lead Refinery NPL site, either at Lead Refinery's former operating site (operable unit 2) or the adjacent residential area (operable unit 1).

Bonita Peak Mining District

Following an August 2015 spill from the Gold King Mine into the Animas River near Silverton, Colorado, the EPA listed the Bonita Peak Mining District on the NPL. Said listing was finalized in September 2016. The Bonita Peak Mining District encompasses 48 mining sites within the Animas River watershed, including the Sunnyside Mine, the American Tunnel, and the Sunbank Group. On or about July 25, 2017, Washington Mining Company (Washington Mining) (a wholly-owned subsidiary of

the Company's wholly-owned subsidiary, Arava), received a general notice letter from the EPA stating that Washington Mining may be a PRP under CERCLA in connection with the Bonita Peak Mining District site and therefore responsible for the remediation of certain portions of the site, along with related costs incurred by the EPA. Shortly thereafter, the Company received a substantively identical letter asserting that it may be a PRP at the Site and similarly responsible for the cleanup of certain portions of the site. The general notice letters identify one other PRP at the site, and do not require specific action by Washington Mining or the Company at this time. At this juncture, the Company is unable to determine the likelihood of a materially adverse outcome or the amount or range of a potential loss with respect to any remedial action related to the Bonita Peak Mining District NPL site.

Operating Properties

Mueller Copper Tube Products, Inc.

In 1999, Mueller Copper Tube Products, Inc. (MCTP), a wholly owned subsidiary, commenced a cleanup and remediation of soil and groundwater at its Wynne, Arkansas plant to remove trichloroethylene, a cleaning solvent formerly used by MCTP. On August 30, 2000, MCTP received approval of its Final Comprehensive Investigation Report and Storm Water Drainage Investigation Report addressing the treatment of soils and groundwater from the Arkansas Department of Environmental Quality (ADEQ). The Company established a reserve for this project in connection with the acquisition of MCTP in 1998. Effective November 17, 2008, MCTP entered into a Settlement Agreement and Administrative Order by Consent to submit a Supplemental Investigation Work Plan (SIWP) and subsequent Final Remediation Work Plan (RWP) for the site. By letter dated January 20, 2010, ADEQ approved the SIWP as submitted, with changes acceptable to the Company. On December 16, 2011, MCTP entered into an amended Administrative Order by Consent to prepare and implement a revised RWP regarding final remediation for the Site. The remediation system was activated in February 2014. Costs to implement the work plans, including associated general and administrative costs, are estimated to approximate \$0.8 million to \$1.2 million over the next eight years.

United States Department of Commerce Antidumping Review

On December 24, 2008, the Department of Commerce (DOC) initiated an antidumping administrative review of the antidumping duty order covering circular welded non-alloy steel pipe and tube from Mexico for the November 1, 2007 through October 31, 2008 period of review. The DOC selected Mueller Comercial as a respondent in the review. On April 19, 2010, the DOC published the final results of the review and assigned Mueller Comercial an antidumping duty rate of 48.33 percent. On May 25, 2010, the Company appealed the final results to the U.S. Court of International Trade (CIT). On December 16, 2011, the CIT issued a decision remanding the Department's final results. While the matter was still pending, the Company and the United States reached an agreement to settle the appeal. Subject to the conditions of the agreement, the Company anticipated that certain of its subsidiaries would incur antidumping duties on subject imports made during the period of review and, as such, established a reserve for this matter. After the lapse of the statutory period of time during which U.S. Customs and Border Protection (CBP) was required, but failed, to liquidate the entries at the settled rate, the Company released the reserve. Between October 30, 2015 and November 27, 2015, CBP sent a series of invoices to Southland Pipe Nipples Co., Inc. (Southland), requesting payment of approximately \$3.0 million in duties and interest in connection with 795 import entries made during the November 1, 2007 through October 31, 2008 period. On January 26, 2016 and January 27, 2016, Southland filed protests with CBP in connection with these invoices, noting that CBP's asserted claims were not made in accordance with applicable law, including statutory provisions governing deemed liquidation. The Company believes in the merits of the legal objections raised in Southland's protests, and CBP's response to Southland's protests is currently pending. Given the procedural posture and issues raised by this legal dispute, the Company cannot estimate the amount of potential duty liability, if any, that may result from CBP's asserted claims.

Equal Employment Opportunity Commission Matter

On October 5, 2016, the Company received a demand letter from the Los Angeles District Office of the United States Equal Employment Opportunity Commission (EEOC). The EEOC alleges that between May 2011 and April 2015, various Company employees were terminated in violation of the Americans with Disabilities Act, and that certain of the Company's employee leave and attendance policies were discriminatory in nature. On that basis, the EEOC's letter includes a demand for monetary relief on behalf of an identified class of 20 individuals, and an unidentified class of 150 individuals, in addition to injunctive relief.

The Company believes the EEOC's allegations are without merit. Notwithstanding the Company's position, in consultation with its liability insurers, the Company entered into a conciliation process with the EEOC for purposes of resolving the claims. On April 12, 2017, the Company received a letter from the EEOC stating that the conciliation process had concluded without a resolution of the claims, and that the matter would be referred to its Legal Department for potential litigation. The Company and the EEOC have since engaged in mediation efforts. Due to the procedural stage of this matter, the Company is unable to determine the likelihood of a material adverse outcome in this matter, or the amount or range of a potential loss in excess of any available insurance coverage.

Leases

The Company leases certain facilities, vehicles, and equipment under operating leases expiring on various dates through 2033. The lease payments under these agreements aggregate to approximately \$7.0 million in 2018, \$5.2 million in 2019, \$4.4 million in 2020, \$3.5 million in 2021, \$3.1 million in 2022, and \$17.3 million thereafter. Total lease expense amounted to \$11.9 million in 2017, \$11.6 million in 2016, and \$9.7 million in 2015.

Other

The Company is involved in certain litigation as a result of claims that arose in the ordinary course of business, which management believes will not have a material adverse effect on the Company's financial position, results of operations, or cash flows. It may also realize the benefit of certain legal claims and litigation in the future; these gain contingencies are not recognized in the Consolidated Financial Statements.

Note 14 – Income Taxes

The components of income before income taxes were taxed under the following jurisdictions:

<i>(In thousands)</i>	2017	2016	2015
Domestic	\$ 76,876	\$ 103,576	\$ 121,614
Foreign	50,096	42,454	10,175
Income before income taxes	<u>\$ 126,972</u>	<u>\$ 146,030</u>	<u>\$ 131,789</u>

Income tax expense consists of the following:

<i>(In thousands)</i>	2017	2016	2015
Current tax expense:			
Federal	\$ 28,584	\$ 32,262	\$ 50,272
Foreign	10,219	5,667	4,042
State and local	<u>2,241</u>	<u>3,210</u>	<u>4,886</u>
Current tax expense	<u>41,044</u>	<u>41,139</u>	<u>59,200</u>
Deferred tax (benefit) expense:			
Federal	(1,764)	2,004	(13,739)
Foreign	1,118	5,099	(1,180)
State and local	<u>(2,514)</u>	<u>(105)</u>	<u>(899)</u>
Deferred tax (benefit) expense	<u>(3,160)</u>	<u>6,998</u>	<u>(15,818)</u>
Income tax expense	<u>\$ 37,884</u>	<u>\$ 48,137</u>	<u>\$ 43,382</u>

The difference between the reported income tax expense and a tax determined by applying the applicable U.S. federal statutory income tax rate to income before income taxes is reconciled as follows:

<i>(In thousands)</i>	2017	2016	2015
Expected income tax expense	\$ 44,440	\$ 51,110	\$ 46,126
State and local income tax, net of federal benefit	1,135	1,982	2,673
Effect of foreign statutory rate different from U.S. and other foreign adjustments	(6,026)	(4,092)	(654)
U.S. production activities deduction	(1,575)	(3,063)	(3,500)
Goodwill disposition	—	—	646
Investment in unconsolidated affiliates	216	1,030	—
Permanent adjustment to deferred tax liabilities	—	—	(4,218)
Benefit of stock-based compensation deductions	(2,160)	(656)	—
Effect of tax on accumulated foreign earnings	12,893	—	—
Effect of tax rate change on net deferred tax liability balance	(12,067)	—	—
Other, net	1,028	1,826	2,309
Income tax expense	\$ 37,884	\$ 48,137	\$ 43,382

The Tax Cuts and Jobs Act (the Act) was enacted on December 22, 2017. The Act reduces the U.S. federal corporate tax rate from 35 percent to 21 percent, requires companies to pay a one-time transition tax on the accumulated earnings of certain foreign subsidiaries, and creates new taxes on certain foreign-sourced earnings. At December 30, 2017, the Company has not completed its accounting for the tax effects of enactment of the Act. However, the Company has made a reasonable estimate of the one-time transition tax on accumulated foreign earnings as well as the impact of the Act on its existing deferred tax balances.

The one-time transition tax is based on the Company's total post-1986 earnings and profits (E&P) for which the accrual of U.S. income taxes has previously been deferred. The Company recorded a provisional amount for its one-time transition tax liability, resulting in an increase in income tax expense of \$12.9 million, or 22 cents per diluted share. The Company has not yet completed its calculation of the total post-1986 foreign E&P for these foreign subsidiaries. Further, the transition tax is impacted in part by the amount of those earnings held in cash and other specified assets. Accordingly, the Company's estimate of the one-time transition tax may change when it finalizes the calculation of post-1986 foreign E&P previously deferred from U.S. federal taxation and finalizes the amounts held in cash or other specified assets. Consistent with prior years, the Company continues to assert that the earnings subject to the transition tax are permanently reinvested. Accordingly, no additional income taxes have been provided for any additional outside basis differences that may exist with respect to these entities or any taxes that may be due upon the repatriation of these earnings. Determining the amount of unrecognized deferred tax liability related to any additional outside basis difference in these entities (i.e., basis differences other than those subject to the one-time transition tax) is not practicable due to the complexities of the hypothetical calculation in determining residual taxes on undistributed earnings, including the availability of foreign tax credits, applicability of any additional local withholding tax, and other indirect tax consequences that may arise due to the distribution of these earnings.

The Company remeasured certain deferred tax assets and liabilities based on the rates at which they are expected to reverse in the future, which is generally 21 percent. However, the Company is still analyzing certain aspects of the Act and refining its calculations, which could potentially affect the measurement of these balances. The provisional amount recorded related to the remeasurement of the deferred tax balance was an income tax benefit of \$12.1 million, or 21 cents per diluted share.

The global intangible low-taxed income (GILTI) provisions of the Act impose a tax on the income of certain foreign subsidiaries in excess of a specified return on tangible assets used by the foreign companies. The FASB Staff Q&A, Topic 740, No. 5, Accounting for Global Intangible Low-Taxed Income, states that an entity can make an accounting policy election to either recognize deferred taxes for temporary basis differences expected to reverse as GILTI in future years or provide for the tax expense related to GILTI in the year the tax is incurred. Given the complexity of the GILTI provisions, the Company is still evaluating the effects of these provisions and has not yet determined the new accounting policy. Accordingly, the Company is unable to make a reasonable estimate and has not reflected any adjustments related to GILTI in its Consolidated Financial Statements.

During 2015, the Company had an adjustment to a deferred tax liability of \$4.2 million, or seven cents per diluted share, resulting from the acquisition of a foreign subsidiary.

[TABLE OF CONTENTS](#)
[INDEX](#)

The Company includes interest and penalties related to income tax matters as a component of income tax expense. The income tax expense related to penalties and interest was immaterial in 2017, 2016, and 2015.

The Internal Revenue Service completed its audit of the Company's 2013 tax return during 2016, the results of which were immaterial to the Consolidated Financial Statements. The Company is currently under audit in various other jurisdictions.

The statute of limitations is still open for the Company's federal tax return and most state income tax returns for 2014 and all subsequent years. The statutes of limitations for certain state and foreign returns are also open for some earlier tax years due to differing statute periods. While the Company believes that it is adequately reserved for possible audit adjustments, the final resolution of these examinations cannot be determined with certainty and could result in final settlements that differ from current estimates.

The tax effects of temporary differences that give rise to significant portions of the deferred tax assets and deferred tax liabilities are presented below:

<i>(In thousands)</i>	2017	2016
Deferred tax assets:		
Inventories	\$ 10,598	\$ 15,483
Other postretirement benefits and accrued items	9,239	13,180
Other reserves	9,029	9,821
Federal and foreign tax attributes	11,936	5,813
State tax attributes, net of federal benefit	29,720	22,572
Stock-based compensation	2,102	2,416
Basis difference in unconsolidated affiliates	—	211
Total deferred tax assets	72,624	69,496
Less valuation allowance	(30,316)	(18,681)
Deferred tax assets, net of valuation allowance	42,308	50,815
Deferred tax liabilities:		
Property, plant, and equipment	43,972	52,319
Pension	3,841	4,633
Basis difference in unconsolidated affiliates	203	—
Total deferred tax liabilities	48,016	56,952
Net deferred tax liabilities	\$ (5,708)	\$ (6,137)

As of December 30, 2017, after consideration of the federal impact, the Company had state income tax credit carryforwards of \$4.5 million, all of which expire by 2020, and other state income tax credit carryforwards of \$12.6 million with unlimited lives. The Company had state net operating loss (NOL) carryforwards with potential tax benefits of \$13.5 million expiring between 2019 and 2032. The state tax credit and NOL carryforwards are offset by valuation allowances totaling \$17.6 million.

As of December 30, 2017, the Company had foreign tax credits with potential tax benefits of \$5.1 million, which were fully offset by a valuation allowance.

As of December 30, 2017, the Company had foreign tax attributes with potential tax benefits of \$5.9 million which have an unlimited life. These attributes were fully offset by a valuation allowance.

Income taxes paid were approximately \$42.5 million in 2017, \$40.1 million in 2016, and \$49.9 million in 2015.

Note 15 – Equity

The Company's Board of Directors has extended, until August 2018, its authorization to repurchase up to 20 million shares of the Company's common stock through open market transactions or through privately negotiated transactions. The Company has no obligation to purchase any shares and may cancel, suspend, or extend the time period for the purchase of shares at any time. Any purchases will be funded primarily through existing cash and cash from operations. The Company may hold any shares purchased in treasury or use a portion of the repurchased shares for its stock-based compensation plans, as well as for other corporate purposes. From its initial authorization in 1999 through December 30, 2017, the Company has repurchased approximately 4.7 million shares under this authorization.

Note 16 – Stock-Based Compensation

The Company has in effect stock incentive plans under which stock-based awards have been granted to certain employees and members of its Board of Directors. Under these existing plans, the Company may grant options to purchase shares of common stock at prices not less than the fair market value of the stock on the date of grant, as well as restricted stock awards. Generally, the awards vest within five years from the date of grant. Any unexercised options expire after not more than ten years.

During the years ended December 30, 2017, December 31, 2016, and December 26, 2015, the Company recognized stock-based compensation, as a component of selling, general, and administrative expense, in its Consolidated Statements of Income of \$7.5 million, \$6.4 million, and \$6.2 million, respectively.

Stock Options

The fair value of each option is estimated as a single award and amortized into compensation expense on a straight-line or accrual basis over its vesting period based on its vesting schedule. The weighted average grant-date fair value of options granted during 2017, 2016, and 2015 was \$9.38, \$7.87, and \$7.58, respectively.

The Company estimates the fair value of all stock option awards as of the grant date by applying the Black-Scholes-Merton option pricing model. The use of this valuation model in the determination of compensation expense involves certain assumptions that are judgmental and/or highly sensitive including the expected life of the option, stock price volatility, risk-free interest rate, and dividend yield. Additionally, forfeitures are not estimated at the time of valuation; they are recognized as they occur. The weighted average of key assumptions used in determining the fair value of options granted and a discussion of the methodology used to develop each assumption are as follows:

	2017	2016	2015
Expected term	7.7 years	6.7 years	5.5 years
Expected price volatility	28.9 %	25.6 %	26.2 %
Risk-free interest rate	2.1 %	1.6 %	1.7 %
Dividend yield	1.3 %	1.0 %	0.9 %

Expected term – This is the period of time estimated based on historical experience over which the options granted are expected to remain outstanding. An increase in the expected term will increase compensation expense.

Expected price volatility – This is a measure of the amount by which a price has fluctuated or is expected to fluctuate. The Company uses actual historical changes in the market value of its stock to calculate the volatility assumption. Daily market value changes from the date of grant over a past period representative of the expected term of the options are used. An increase in the expected price volatility rate will increase compensation expense.

Risk-free interest rate – This is the U.S. Treasury rate for the week of the grant, having a term representative of the expected term of the options. An increase in the risk-free rate will increase compensation expense.

Dividend yield – This rate is the annual dividends per share as a percentage of the Company's stock price. An increase in the dividend yield will decrease compensation expense.

The total intrinsic value of options exercised was \$10.2 million, \$2.5 million, and \$3.1 million in 2017, 2016, and 2015, respectively. The total fair value of options that vested was \$1.0 million, \$0.3 million, and \$0.8 million in 2017, 2016, and 2015, respectively.

At December 30, 2017, the aggregate intrinsic value of all outstanding options was \$12.4 million with a weighted average remaining contractual term of 6.2 years. Of the outstanding options, 476 thousand are currently exercisable with an aggregate intrinsic value of \$8.5 million, a weighted average exercise price of \$17.57, and a weighted average remaining contractual term of 4.5 years.

The total compensation expense not yet recognized related to unvested options at December 30, 2017 was \$1.9 million with an average expense recognition period of 3.5 years.

Restricted Stock Awards

The fair value of each restricted stock award equals the fair value of the Company's stock on the grant date and is amortized into compensation expense on a straight-line or accrual basis over its vesting period based on its vesting schedule. The weighted average grant-date fair value of awards granted during 2017, 2016, and 2015 was \$30.97, \$34.04, and \$32.54, respectively.

The aggregate intrinsic value of outstanding and unvested awards was \$27.7 million at December 30, 2017. Total compensation expense for restricted stock awards not yet recognized was \$15.8 million with an average expense recognition period of 3.2 years. The total fair value of awards that vested was \$3.5 million, \$4.7 million, and \$4.8 million in 2017, 2016, and 2015, respectively.

The Company generally issues treasury shares when options are exercised or restricted stock awards are granted. A summary of the activity and related information follows:

	Stock Options		Restricted Stock Awards	
	Shares	Weighted Average Exercise Price	Shares	Weighted Average Grant Date Fair Value
<i>(Shares in thousands)</i>				
Outstanding at December 31, 2016	1,034	\$ 21.24	709	\$ 31.02
Granted	165	31.04	209	30.97
Exercised	(395)	12.10	(135)	26.22
Forfeited	(10)	26.68	(2)	33.13
Equitable Adjustment ⁽¹⁾	153		—	
Outstanding at December 30, 2017	947	22.31	781	31.83

⁽¹⁾ Represents the adjustment made in conjunction with the special dividend issued on March 9, 2017 to equalize the intrinsic value of stock options pre- and post-distribution.

Approximately 0.7 million shares were available for future stock incentive awards at December 30, 2017.

Note 17 – Accumulated Other Comprehensive Income (Loss)

AOI includes certain foreign currency translation adjustments from those subsidiaries not using the U.S. dollar as their functional currency, net deferred gains and losses on certain derivative instruments accounted for as cash flow hedges, adjustments to pension and OPEB liabilities, unrealized gains and losses on marketable securities classified as available-for-sale, and other comprehensive income attributable to unconsolidated affiliates.

The following table provides changes in AOCI by component, net of taxes and noncontrolling interest (amounts in parentheses indicate debits to AOCI):

<i>(In thousands)</i>	Cumulative Translation Adjustment	Unrealized (Loss) Gain on Derivatives	Pension/ OPEB Liability Adjustment	Unrealized Gain on Equity Securities	Attributable to Unconsol. Affiliates	Total
Balance at December 26, 2015	\$ (24,773)	\$ (2,009)	\$ (28,429)	\$ 221	\$ —	\$ (54,990)
Other comprehensive (loss) income before reclassifications	(25,192)	400	3,962	159	5,975	(14,696)
Amounts reclassified from AOCI	—	1,309	1,421	—	—	2,730
Balance at December 31, 2016	(49,965)	(300)	(23,046)	380	5,975	(66,956)
Other comprehensive income (loss) before reclassifications	15,579	(389)	1,394	(1)	895	17,478
Amounts reclassified from AOCI	(3,777)	1,536	1,042	(379)	—	(1,578)
Balance at December 30, 2017	\$ (38,163)	\$ 847	\$ (20,610)	\$ —	\$ 6,870	\$ (51,056)

Reclassification adjustments out of AOCI were as follows:

<i>(In thousands)</i>	Amount reclassified from AOCI			Affected Line Item
	2017	2016	2015	
Unrealized losses on derivatives:				
Commodity contracts	\$ 1,309	\$ 1,061	\$ 4,486	Cost of goods sold
Interest rate swap	851	361	372	Interest expense
	(624)	(113)	(1,310)	Income tax benefit
	\$ 1,536	\$ 1,309	\$ 3,548	Net of tax and noncontrolling interests
Amortization of net loss and prior service cost on employee benefit plans	\$ 1,263	\$ 1,942	\$ 2,688	Selling, general, and administrative expense
	(221)	(521)	(719)	Income tax benefit
	\$ 1,042	\$ 1,421	\$ 1,969	Net of tax and noncontrolling interests
Gain recognized upon sale of business	\$ (3,777)	\$ —	\$ —	Selling, general, and administrative expense
	—	—	—	Income tax expense
	\$ (3,777)	\$ —	\$ —	Net of tax and noncontrolling interests
Sale of available-for-sale securities	\$ (611)	\$ —	\$ —	Other income
	232	—	—	Income tax expense
	\$ (379)	\$ —	\$ —	Net of tax and noncontrolling interests

Note 18 – Quarterly Financial Information (Unaudited) ⁽¹⁾

(In thousands, except per share data)

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
2017				
Net sales	\$ 577,920	\$ 614,266	\$ 550,363	\$ 523,524
Gross profit ⁽²⁾	89,493	89,955	79,101	66,907
Consolidated net income ⁽³⁾	30,455	27,833	22,754	5,969 ⁽⁴⁾
Net income attributable to Mueller Industries, Inc.	29,987	27,633	22,258	5,720
Basic earnings per share	0.53	0.49	0.39	0.10
Diluted earnings per share	0.52	0.48	0.39	0.10
Dividends per share	8.10	0.10	0.10	0.10

2016				
Net sales	\$ 532,809	\$ 544,071	\$ 506,584	\$ 472,158
Gross profit ⁽²⁾	86,167	88,011	81,916	76,029
Consolidated net income ⁽⁵⁾	28,665	28,259	26,062 ⁽⁶⁾	16,768 ⁽⁷⁾
Net income attributable to Mueller Industries, Inc.	28,630	27,797	25,978	17,322
Basic earnings per share	0.51	0.49	0.46	0.31
Diluted earnings per share	0.50	0.49	0.45	0.30
Dividends per share	0.075	0.100	0.100	0.100

⁽¹⁾ The sum of quarterly amounts may not equal the annual amounts reported due to rounding. In addition, the earnings per share amounts are computed independently for each quarter, while the full year is based on the weighted average shares outstanding.

⁽²⁾ Gross profit is net sales less cost of goods sold, which excludes depreciation and amortization.

⁽³⁾ Includes income earned by Heatlink Group, acquired during Q2 2017.

⁽⁴⁾ Includes \$1.1 million of pre-tax charges related to asset impairments, \$4.3 million of interest expense on the Company's Subordinated Debentures, and pre-tax environmental expense for non-operating properties of \$6.2 million.

⁽⁵⁾ Includes income earned by Jungwoo-Mueller, acquired during Q2 2016.

⁽⁶⁾ Includes \$3.0 million of pre-tax charges related to asset impairments.

⁽⁷⁾ Includes \$3.8 million of pre-tax charges related to asset impairments.

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Mueller Industries, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Mueller Industries, Inc. (the Company) as of December 30, 2017 and December 31, 2016, the related consolidated statements of income, comprehensive income, changes in equity and cash flows for each of the three years in the period ended December 30, 2017, 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 30, 2017 and December 31, 2016, and the results of its operations and its cash flows for each of the three years in the period ended December 30, 2017, 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 30, 2017, 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 28, 2018 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.

Ernst & Young LLP

We have served as the Company's auditor since 1991.

Memphis, Tennessee
February 28, 2018

MUELLER INDUSTRIES, INC.
SCHEDULE II - VALUATION AND QUALIFYING ACCOUNTS
Years Ended December 30, 2017, December 31, 2016, and December 26, 2015

(In thousands)	Balance at beginning of year	Additions		Deductions	Balance at end of year
		Charged to costs and expenses	Other additions		
2017					
Allowance for doubtful accounts	\$ 637	\$ 422	\$ (61)	\$ 18	\$ 980
Environmental reserves	\$ 21,864	\$ 7,491	\$ —	\$ 1,351	\$ 28,004
Valuation allowance for deferred tax assets	\$ 18,681	\$ 7	\$ 11,628 ⁽¹⁾	\$ —	\$ 30,316
2016					
Allowance for doubtful accounts	\$ 623	\$ 160	\$ 2	\$ 148	\$ 637
Environmental reserves	\$ 21,667	\$ 894	\$ —	\$ 697	\$ 21,864
Valuation allowance for deferred tax assets	\$ 17,650	\$ 3	\$ 1,028	\$ —	\$ 18,681
2015					
Allowance for doubtful accounts	\$ 666	\$ (130)	\$ 201	\$ 114	\$ 623
Environmental reserves	\$ 22,661	\$ 76	\$ —	\$ 1,070	\$ 21,667
Valuation allowance for deferred tax assets	\$ 17,119	\$ (5)	\$ 536	\$ —	\$ 17,650

⁽¹⁾ The valuation allowance increased by \$11.6 million during 2017 to a balance of \$30.3 million as of December 30, 2017. The change to the valuation allowance in 2017 was attributable to the recording of valuation allowances against tax attributes generated in 2017 primarily resulting from the Act and increased interest expense in state tax jurisdictions where the Company has no tax liability.

2018 INCENTIVE PLAN FOR CERTAIN KEY EMPLOYEES

The Company has a discretionary annual incentive program under which exempt salaried employees may earn cash payments based on a percentage of base annual salary. The actual percent is based on a variety of guidelines including performance levels of the respective business units primarily measured by operating income subject to certain adjustments.

The payment to an employee is based upon (i) their assigned grade level, (ii) actual company earnings achieved relative to a pre-determined target, which is adjusted upward if company performance exceeds target and reduced if company performance is less than target, and (iii) base salary paid during the fiscal year.

MUELLER INDUSTRIES, INC.
List of Subsidiaries

Subsidiary*	State or Country of Incorporation
Mueller Brass Holding Company, Inc.	Delaware
Mueller Brass Co. (Assumed name: Mueller Brass Products)	Michigan
Extruded Metals, Inc.	Delaware
Mueller Industrial Realty Co.	Michigan
Itawamba Industrial Gas Company, Inc.	Mississippi
Streamline Copper & Brass Ltd.	Canada
Mueller Plastics Holding Company, Inc.	Ohio
Mueller Plastics Corporation, Inc.	Delaware
MPC Foundry, Inc.	Delaware
MPC Machine Shop, Inc.	Delaware
Mueller Brass Forging Company, Inc.	Delaware
Mueller Copper Tube Company, Inc.	Delaware
Mueller Fittings, LLC	Mississippi
Mueller Fittings Company, Inc.	Michigan
MCTC, LLC	Mississippi
Mueller East, Inc.	Delaware
Mueller Formed Tube Company, Inc.	Delaware
Mueller Impacts Company, Inc.	Delaware
Mueller Press Company, Inc.	Mississippi
Mueller Refrigeration Products Company, Inc.	Delaware
Mueller LBHC, Inc.	Delaware
Lincoln Brass Works, Inc. (Assumed name: Mueller Gas Products)	Michigan
Overstreet-Hughes, Co., Inc. (Assumed name: Fabricated Tube Products)	Tennessee
Mueller Refrigeration LLC	Delaware
Mueller Refrigeration Holding Company, Inc.	Delaware
Mueller Streamline Co.	Delaware
B&K, LLC	Delaware
Precision Tube Company, LLC	Pennsylvania
Mueller Southeast, Inc.	Pennsylvania
Southland Pipe Nipples Company, Inc.	Texas
Mueller Tool and Machine, Inc.	Delaware
Mueller Casting Company, Inc.	Delaware
Mueller Packaging, LLC	Mississippi
Micro Gauge, Inc.	Michigan
Microgauge Machining, Inc.	Michigan
Propipe Technologies, Inc. (Assumed name: Mueller Gas Products)	Ohio
WTC Holding Company	Michigan
MA Industrial Secured Lending, LLC ⁽⁴⁾	Delaware
Muellux Holding Company I SARL	Luxembourg

Subsidiary*	State or Country of Incorporation
Muellux Holding Company II SARL	Luxembourg
Mueller Middle East B.S.C. ⁽⁷⁾	Bahrain
Mueller Europe Investment Company Ltd.	United Kingdom
Jungwoo Metal Ind. Co., Ltd. ⁽⁵⁾	South Korea
Mueller Europe, Limited	United Kingdom
Westermeyer Industries, Inc.	Illinois
Sherwood Valve Products, Inc.	Ohio
Sherwood Valve LLC	Delaware
DENO Investment Company, Inc.	Michigan
Mueller de Mexico, S.A. de C.V. ⁽¹⁾	Mexico
DENO Holding Company, Inc.	Michigan
B & K Industries, Inc.	Illinois
Mueller Copper Tube Products, Inc.	Delaware
MCTP, LLC	Michigan
Howell Metal Company	Virginia
Turbotec Products, Inc.	Connecticut
Mueller Canada Holding Co. Ltd.	Alberta
Pexcor Manufacturing Co., Inc.	Alberta
Heatlink Group, Inc.	Alberta
Great Lakes Copper Ltd.	Nova Scotia
Linesets, Inc.	Delaware
Climate Components, LLC	Delaware
Arava Natural Resources Company, Inc.	Delaware
United States Fuel Company	Nevada
King Coal Company	Utah
Canco Oil & Gas Ltd.	Alberta, Canada
Aegis Oil and Gas Leasing Ltd.	Alberta, Canada
Bayard Mining Corp.	Delaware
Washington Mining Company	Maine
Amwest Exploration Company	Delaware
USSRAM Exploration Company	Maine
White Knob Mining Company	Idaho
Arava Exploration Company	Colorado
Summit Systems, Inc.	Delaware
Kennet Company Limited	Bermuda
Mining Remedial Recovery Company	Delaware
Carpentertown Coal & Coke Company	Pennsylvania
U.S.S. Lead Refinery, Inc.	Maine
Leon Water Enterprises, Inc. (50%)	Texas
Macomber Construction Company	Ohio
Macomber, Incorporated	Ohio
Macomber Building and Land Corporation	Delaware
DENO Investment Company II, Inc.	Michigan
Tecumseh Products Holdings LLC ⁽⁶⁾	Delaware

Subsidiary*	State or Country of Incorporation
Tecumseh Products Co.	Michigan
MII Financial Corporation	Michigan
Mueller Streamline Holding S.L.U.	Spain
WTC HoldCo I, LLC	Delaware
WTC HoldCo II, LLC	Delaware
Mueller Comercial de Mexico S. de R.L. de C.V. ⁽²⁾	Mexico
NICNA Mexico, S. de R.L. de C.V. ⁽³⁾	Mexico
NICNA Mexico Servicios, S. de R.L. de C.V. ⁽³⁾	Mexico
NICNA Mexico Proyectos, S. de R.L. de C.V. ⁽³⁾	Mexico
Mueller Streamline II, LLC	Delaware
Changzhou Mueller Refrigerant Valve Manufacturing Co., Ltd.	China
Mueller Industries Trading (Shanghai) Co., Ltd.	China
Mueller Streamline Trading, LLC	Delaware
Mueller Streamline China, LLC	Delaware

**All subsidiaries are 100% owned, except as shown.*

(1) Owned by DENO Investment Company, Inc. (99.94%) and Mueller Streamline Co. (.06%)

(2) Owned by Mueller Streamline Holding S.L.U. (99.983%), WTC HoldCo I, LLC (0.016%), and WTC HoldCo II, LLC (0.001%)

(3) Less than 1% of the outstanding common stock is owned by WTC HoldCo I, LLC

(4) Owned by WTC Holding Company (50%)

(5) Owned by Muellux Europe Investment Company Ltd. (60%)

(6) Owned by DENO Investment Company, Inc. (50%)

(7) Owned by Muellux Holding Company II SARL (40%)

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the following Registration Statements:

- 1) Form S-3 No. 333-182906 pertaining to the registration of 20,845,718 shares of Mueller Industries, Inc. common stock,
- 2) Form S-8 No. 333-197609 pertaining to the Mueller Industries, Inc. 2014 Incentive Plan,
- 3) Form S-8 No. 333-160718 pertaining to the Mueller Industries, Inc. 2009 Stock Incentive Plan,
- 4) Form S-8 No. 333-138413 pertaining to the Mueller Industries, Inc. 2002 Stock Option Plan,
- 5) Form S-8 No. 333-91238 pertaining to the Mueller Industries, Inc. 2002 Stock Option Plan,
- 6) Form S-8 No. 33-54705 pertaining to the Mueller Industries, Inc. 1994 Stock Option Plan and the 1994 Non-Employee Director Stock Option Plan;

of our reports dated February 28, 2018, with respect to the consolidated financial statements and schedule of Mueller Industries, Inc. and the effectiveness of internal control over financial reporting of Mueller Industries, Inc., included in this Annual Report (Form 10-K) for the year ended December 30, 2017.

/s/ Ernst & Young LLP

Ernst & Young LLP

Memphis, Tennessee
February 28, 2018

CERTIFICATION

I, Gregory L. Christopher, certify that:

1. I have reviewed this annual report on Form 10-K of Mueller Industries, Inc.;

Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

2. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)), for the registrant and have:

4.
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 28, 2018

/s/ Gregory L. Christopher
 Gregory L. Christopher
 Chief Executive Officer

CERTIFICATION

I, Jeffrey A. Martin, certify that:

1. I have reviewed this annual report on Form 10-K of Mueller Industries, Inc.;

Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

2. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)), for the registrant and have:

4.
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 28, 2018

/s/ Jeffrey A. Martin
 Jeffrey A. Martin
 Chief Financial Officer

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO SECTION 906
OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of Mueller Industries, Inc. (the "Company") on Form 10-K for the period ending December 30, 2017 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Gregory L. Christopher, Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Gregory L. Christopher

Gregory L. Christopher

Chief Executive Officer

Date: February 28, 2018

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO SECTION 906
OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of Mueller Industries, Inc. (the "Company") on Form 10-K for the period ending December 30, 2017 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Jeffrey A. Martin, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Jeffrey A. Martin

Jeffrey A. Martin

Chief Financial Officer

Date: February 28, 2018