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 31, 2017

OR

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

Commission File Number 001-03970

HARSCO CORPORATION
(Exact name of registrant as specified in its charter)

Delaware	**23-1483991**
(State or other jurisdiction of incorporation or organization)	(I.R.S. employer identification number)
350 Poplar Church Road, Camp Hill, Pennsylvania	**17011**
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code **717-763-7064**

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

Title of each class	Name of each exchange on which registered
Common stock, par value $1.25 per share	New York Stock Exchange

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

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

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

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No o

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☒ No o

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See 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 ☒	Accelerated filer o
Non-accelerated filer o (Do not check if a smaller reporting company)	Smaller reporting company o
	Emerging growth company o

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

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

The aggregate market value of the Company's voting stock held by non-affiliates of the Company as of June 30, 2017 was $1,294,742,000

Indicate the number of shares outstanding of each of the registrant's classes of common stock, as of the latest practicable date:

Class	Outstanding at January 31, 2018
Common stock, par value $1.25 per share	80,453,852

DOCUMENTS INCORPORATED BY REFERENCE

Selected portions of the 2018 Proxy Statement are incorporated by reference into Part III of this Report.

HARSCO CORPORATION
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PART I

Item 1. Business.

(a) General Development of Business

Harsco Corporation (the "Company") is a diversified, multinational provider of industrial services and engineered products serving global industries that are fundamental to worldwide economic growth and infrastructure development. The Company's operations consist of three reportable segments: Harsco Metals & Minerals, Harsco Industrial and Harsco Rail. The Company has locations in approximately 30 countries, including the U.S. The Company was incorporated in 1956.

The Company's executive offices are located at 350 Poplar Church Road, Camp Hill, Pennsylvania 17011 and the Company's main telephone number is (717) 763-7064. The public may read and copy any material the Company files with the Securities and Exchange Commission ("SEC") at their Public Reference Room at 100 F Street, NE, Washington, DC 20549. The public may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The Company's Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and any amendments to such reports filed with or furnished to the SEC under Sections 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, are available free of charge on the SEC's Internet website at www.sec.gov and on the Company's Internet website at www.harsco.com as soon as reasonably practicable after such reports are electronically filed with the SEC. The information posted on the Company's website is not incorporated into the Company's SEC filings.

The Company's principal lines of business and related principal business drivers are as follows:

Principal Lines of Business	Principal Business Drivers
• Global expertise in providing on-site services for material logistics, product quality improvement and resource recovery from iron, steel and metals manufacturing; as well as value added environmental solutions for industrial co-products	• Global metals production and capacity utilization • Outsourcing of services by metals producers • Demand for high-value specialty steel and ferro alloys • Demand for environmental solutions for metals and minerals waste streams • Demand for industrial and infrastructure surface preparation and restoration • Demand for residential roofing shingles • Demand for road making materials
• Air-cooled heat exchangers	• Investment in natural gas production capabilities and distribution • Demand in the natural gas and related downstream refined and derivative products
• Industrial grating and high-security fencing products	• Industrial plant and warehouse construction and expansion • Off-shore drilling and new rig construction • Security fencing requirements to protect major facilities and infrastructure
• Heat transfer products	• Demand for commercial and institutional boilers and water heaters
• Railway track maintenance services and equipment	• Global railway track maintenance-of-way capital spending • Outsourcing of track maintenance and new track construction by railroads • Increased market attention on safety, including collision avoidance and warning systems • Measurement and inspection technologies to monitor track conditions and plan maintenance practices

The Company reports segment information using the "management approach," based on the way management organizes and reports the segments within the enterprise for making operating decisions and assessing performance. The Company's reportable segments are identified based upon differences in products, services and markets served. These segments and the types of products and services offered are more fully described in section (c) below.

In 2017, 2016 and 2015, sales in the U.S. contributed total revenues of $0.7 billion, $0.6 billion and $0.8 billion, equal to approximately 43%, 42% and 44% of total revenues, respectively. The Company's sales in euro-currency countries contributed total revenues of $0.3 billion, $0.3 billion and $0.3 billion in 2017, 2016 and 2015, equal to approximately 18%, 18% and 16% of total revenues, respectively. Sales in the U.K. contributed total revenues of $0.1 billion, $0.2 billion and $0.2 billion in 2017, 2016 and 2015, equal to approximately 9%, 11% and 13% of total revenues, respectively. There were no significant inter-segment revenues.

(b) Financial Information about Segments
Financial information concerning segments is included in Note 15, Information by Segment and Geographic Area, in Part II, Item 8, "Financial Statements and Supplementary Data," which information is incorporated herein by reference.

(c) Narrative Description of Business
(1) A narrative description of the businesses by reportable segment is as follows:

Harsco Metals & Minerals Segment—63% of consolidated revenues for 2017
The Harsco Metals & Minerals Segment is one of the world's largest providers of on-site services for material logistics, product quality improvement and resource recovery from iron, steel and metals manufacturing.

The Harsco Metals & Minerals Segment extracts high-value metallic content from stainless steel by-products and also specializes in the development of minerals technologies for commercial applications, including agriculture fertilizers. This Segment also produces industrial abrasives and roofing granules from power-plant utility coal slag at a number of locations throughout the U.S. Harsco's BLACK BEAUTY® abrasives are used for industrial surface preparation, such as rust removal and cleaning of bridges, ship hulls and various structures. Roofing granules are sold to residential roofing shingle manufacturers in the U.S., primarily for the replacement roofing market. This business is one of the largest U.S. producers of slag abrasives and residential roofing granules.

As part of the Harsco Metals & Minerals Segment's initiatives to develop new products and services, in particular environmental solutions, the Segment is involved with several initiatives and technology alliances focused on developing greater environmental sustainability through the recovery of resources from production by-products and waste streams.

The Harsco Metals & Minerals Segment operates in approximately 30 countries. In 2017 and 2016, this Segment's revenues were generated in the following regions:

	Percentage of Revenues	
Region	**2017**	**2016**
Western Europe	**37%**	40%
North America	**27%**	26%
Latin America (a)	**16%**	14%
Asia-Pacific	**13%**	12%
Middle East and Africa	**4%**	5%
Eastern Europe	**3%**	3%

(a) Including Mexico.

For 2017, 2016 and 2015, the Harsco Metals & Minerals Segment's percentage of the Company's consolidated revenues were 63%, 67% and 64%, respectively.

Harsco Industrial Segment—19% of consolidated revenues for 2017
The Harsco Industrial Segment includes the Harsco Industrial Air-X-Changers, Harsco Industrial IKG and Harsco Industrial Patterson-Kelley businesses. Approximately 91% of this Segment's revenues originate in North America.

Harsco Industrial Air-X-Changers is a leading supplier of custom-engineered and manufactured air-cooled heat exchangers for the natural gas, natural gas processing and petrochemical industries in the U.S. Harsco Industrial Air-X-Changers' heat exchangers are the primary apparatus used to condition natural gas during recovery, compression and transportation from underground reserves through the major pipeline distribution channels.

Harsco Industrial IKG manufactures a varied line of industrial grating products at several plants in the U.S. and an international plant located in Mexico. These products include a full range of metal bar grating configurations, which are used mainly in industrial flooring, as well as safety and security applications in the energy, paper, chemical, refining and processing industries.

Harsco Industrial Patterson-Kelley is a leading manufacturer of energy-efficient heat transfer products such as boilers and water heaters for commercial and institutional applications.

For 2017, 2016 and 2015, this Segment's percentage of the Company's consolidated revenues were 19%, 17% and 21%, respectively.

Harsco Rail Segment—18% of consolidated revenues for 2017

The Harsco Rail Segment is a global provider of equipment, after-market parts and services for the maintenance, repair and construction of railway track. The Segment's equipment and services support private and government-owned railroads and urban transit systems worldwide. In March 2015, the Company acquired Protran Technology ("Protran"), a U.S. designer and producer of safety systems for transportation and industrial applications; and in April 2015, the Company acquired JK Rail Products, LLC ("JK Rail"), a provider of after-market parts for railroad track maintenance.

The Harsco Rail Segment's products are produced in three countries and products and services are provided worldwide. In 2017, 2016 and 2015, export product sales from the U.S. for the Harsco Rail Segment were $82.7 million, $67.9 million and $67.1 million, respectively.

For 2017, 2016 and 2015, the Harsco Rail Segment's percentage of the Company's consolidated revenues were 18%, 16% and 15%, respectively.

(1)(i) The products and services of the Company are generated through a number of product groups. These product groups are more fully discussed in Note 15, Information by Segment and Geographic Area, in Part II, Item 8, "Financial Statements and Supplementary Data." The product groups that contributed 10% or more as a percentage of consolidated revenues in any of the last three fiscal years are set forth in the following table:

	Percentage of Consolidated Revenues		
Product Group	**2017**	**2016**	**2015**
Outsourced, on-site services of material logistics, product quality improvement and resource recovery for iron, steel and metals manufacturing; as well as value added environmental solutions for industrial co-products	**63%**	67%	64%
Railway track maintenance services and equipment	**18%**	16%	15%
Air-cooled heat exchangers	**9%**	6%	11%

(1)(ii) New products and services are added from time to time; however, in 2017, 2016 and 2015 none required the investment of a material amount of the Company's assets.

(1)(iii) The manufacturing requirements of the Company's operations are such that no unusual sources of supply for raw materials are required. The raw materials used by the Company for its product manufacturing principally include steel and, to a lesser extent, aluminum, which are usually readily available. The profitability of the Company's manufactured products is affected by changing purchase prices of steel and other materials and commodities.

(1)(iv) While the Company has a number of trademarks, patents and patent applications, it does not consider that any material part of its business is dependent upon them.

(1)(v) The Company's Harsco Metals & Minerals Segment provides services which are usually subject to volume reductions at certain points of the year and the Company furnishes products within the Harsco Industrial Segment that are seasonal in nature. As a result, the Company's revenues and results of operations for the first quarter ending March 31 and the fourth quarter ending December 31 may be lower than the second quarter ending June 30 and the third quarter ending September 30. Additionally, the Company has historically generated the majority of its cash flows in the second half of the year. This is a result of normally higher income during the second half of the year.

(1)(vi) The practices of the Company relating to working capital are similar to those of other industrial service providers or manufacturers servicing both domestic and international industrial customers and commercial markets. These practices include the following:

- Standard accounts receivable payment terms of 30 to 60 days, with progress or advance payments required for certain long-lead-time or large orders. Payment terms are slightly longer in certain international markets.
- Standard accounts payable payment terms of 30 to 90 days.
- Inventories are maintained in sufficient quantities to meet forecasted demand. Due to the time required to manufacture certain railway track maintenance equipment to customer specifications, inventory levels of this business tend to increase for an extended period of time during the production phase and decline when the equipment is sold.

(1)(vii) In 2017 and 2016, the Harsco Metals & Minerals Segment had one customer and in 2015 had two customers that each provided in excess of 10% of this Segment's revenues under multiple long-term contracts at several mill sites. The loss of any one of the contracts would not have a material adverse effect upon the Company's financial position or cash flows; however, it could have a significant effect on quarterly or annual results of operations. Additionally, a decline in economic conditions may further impact the ability of the Company's customers to meet their obligations to the Company on a timely basis and could result in bankruptcy or receivership filings by any of such customers. If customers are unable to meet their obligations on a timely basis, or if the Company is unable to collect amounts due from customers for any reason, it could adversely impact the realizability of receivables and inventories, and the recoverability of long-lived assets across the Company's businesses. As part of its credit risk management practices, the Company closely monitors the credit standing and accounts receivable position of its customer base.

The Harsco Industrial Segment had one customer in 2017, no customers in 2016 and two customers in 2015 that provided in excess of 10% of the Segment's revenues. The loss of any of these customers would not have a material adverse impact on the Company's financial positions or cash flows; however, it could have a material effect on quarterly or annual results of operations.

The Harsco Rail Segment had one customer in 2017 and 2016 and two customers in 2015 that provided in excess of 10% of the Segment's revenues. The loss of any of these customers would not have a material adverse impact on the Company's financial positions or cash flows; however, it could have a material effect on quarterly or annual results of operations.

(1)(viii) At December 31, 2017, the Company's metals services contracts had estimated future revenues of $2.8 billion at expected production levels, compared with $2.7 billion at December 31, 2016. This provides the Company with a substantial base of long-term revenues. The increase is primarily due to the timing of contract expirations, new and renewed contracts, and foreign currency translation. Approximately 25% of these revenues are expected to be recognized by December 31, 2018; approximately 40% of these revenues are expected to be recognized between January 1, 2019 and December 31, 2021; approximately 13% of these revenues are expected to be recognized between January 1, 2022 and December 31, 2024; and the remaining revenues are expected to be recognized thereafter. There are no significant metals services contracts for which the estimated costs to complete the contract currently exceed the estimated revenue to be realized included in the estimated future revenues. The estimated future revenues are exclusive of anticipated contract renewals, projected volume increases and ad-hoc services.

At December 31, 2017, the Company had an estimated order backlog of $85.3 million in the Harsco Industrial Segment, compared with $54.4 million at December 31, 2016. This increase is primarily due to fundamental market improvement for the segment's air-cooled heat exchangers businesses for customers primarily in the upstream compression and gas processing markets due to improved oil prices, ultimately driving higher capital spending. There is also moderate growth in the segment's industrial and commercial boilers and hot water heater group. In addition, at December 31, 2017, the Harsco Rail Segment had an estimated order backlog of $260.5 million, compared with $273.0 million at December 31, 2016. This decrease is primarily due to shipments, including those to the federal railway system of Switzerland, which were not replaced due to decreased demand, primarily in the U.S., during 2017. At December 31, 2017, $155.5 million or 45% of the Company's manufactured products order backlog is not expected to be filled in 2018. The remainder of this backlog is expected to be filled in 2019 and 2020. The order backlog is exclusive of long-term metals industry services contracts, roofing granules and industrial abrasives products, and minerals and metal recovery technologies services.

(1)(ix) At December 31, 2017, the Company had no material contracts that were subject to renegotiation of profits or termination at the election of the U.S. Government.

(1)(x) The Company's competitive environment is complex because of the wide diversity of services and products provided and the global breadth and depth of markets served. No single service provider or manufacturer competes with the Company with respect to all services provided or products manufactured and sold. In general, on a global basis, the Company's segments are among the market leaders in their respective sectors and compete with a range of global, regional and local businesses of varying size and scope.

Harsco Metals & Minerals Segment—This Segment provides outsourced on-site services to the global metals industries in approximately 30 countries, with the largest operations focused in the U.S., the U.K., France, China and Brazil. This Segment is one of the world's largest providers of these services. This Segment's key competitive factors are innovative resource recovery solutions, significant industry experience, technology, safety performance, service and value. This Segment competes principally with a number of privately-held businesses for services outsourced by customers. Additionally, due to the nature of this Segment's services, it encounters a certain degree of "competition" from customers' desire to perform similar services themselves instead of using an outsourced solution.

Harsco Industrial Segment—This Segment includes manufacturing businesses located principally in the U.S. Key competitive factors include quality, value, technology and energy-efficiency. Primary competitors are U.S.-based manufacturers of similar products.

Harsco Rail Segment—This Segment manufactures and sells highly-engineered railway track maintenance equipment and collision avoidance and warning systems to support passenger, rail worker and pedestrian safety, produced primarily in the U.S. for customers throughout the world. Additionally, this Segment provides railway track maintenance services principally in the U.S. and the U.K. This Segment's key competitive factors are quality, technology, customer service and value. Primary competitors for both products and services are privately-held global businesses as well as certain regional competitors. In March 2015, the Company acquired Protran, a U.S. designer and producer of safety systems for transportation and industrial applications; and in April 2015, the Company acquired JK Rail, a provider of after-market parts for railroad track maintenance.

(1)(xi) The Company's expense for research and development activities was $4.2 million, $4.3 million and $4.5 million in 2017, 2016 and 2015, respectively. This excludes technology development and engineering costs classified in cost of services and products sold or selling, general and administrative expense. For additional information regarding research and development activities, see Research and Development, in Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations."

(1)(xii) The Company has become subject to, as have others, stringent air and water quality control legislation. In general, the Company has not experienced substantial difficulty complying with these environmental regulations and does not anticipate making any material capital expenditures for environmental control facilities. While the Company expects that environmental regulations may expand, and that expenditures for air and water quality control will continue, the Company cannot predict the effect on its business of such expanded regulations. For additional information regarding environmental matters see Note 11, Commitments and Contingencies, in Part II, Item 8, "Financial Statements and Supplementary Data."

(1)(xiii) At December 31, 2017, the Company had approximately 9,400 employees.

(d) Financial Information about Geographic Areas
Financial information concerning international and domestic operations is included in Note 15, Information by Segment and Geographic Area, in Part II, Item 8, "Financial Statements and Supplementary Data," which information is incorporated herein by reference. Export sales from the U.S. totaled $101.6 million, $86.5 million and $80.8 million in 2017, 2016 and 2015, respectively.

(e) Available Information
Information is provided in Part I, Item 1 (a), "General Development of Business."

Item 1A. Risk Factors.

Set forth below are risks and uncertainties that could materially and adversely affect the Company's results of operations, financial condition, liquidity and cash flows. The risks set forth below are not the only risks faced by the Company. The Company's business operations could also be affected by other factors not presently known to the Company or factors that the Company currently does not consider to be material.

Negative economic conditions may adversely impact demand for the Company's products and services, as well as the ability of the Company's customers to meet their obligations to the Company on a timely basis.
Negative economic conditions, including the tightening of credit in financial markets, can lead businesses to postpone spending, which may impact the Company's customers, causing them to cancel, decrease or delay their existing and future orders with the Company. In addition, economic conditions may further impact the ability of the Company's customers by either causing them to close locations serviced by the Harsco Metals & Minerals Segment, or cause their financial condition to deteriorate to a point where they are unable to meet their obligations to the Company on a timely basis. One or more of these events could adversely impact the Company's operating results and realizability of receivables.

Cyclical industry and economic conditions may adversely affect the Company's businesses.
The Company's businesses are subject to general economic slowdowns and cyclical conditions in each of the industries served. In particular:

- The Harsco Metals & Minerals Segment may be adversely impacted by prolonged slowdowns in steel mill production, excess production capacity, bankruptcy or receivership of steel producers and changes in outsourcing practices in the steel industry;
- The resource recovery technologies business of the Harsco Metals & Minerals Segment can also be adversely impacted by prolonged slowdowns in customer production or a reduction in the selling prices of its materials, which are market-based and vary based upon the current fair value of the components being sold. Therefore, the revenue generated from the sale of such recycled materials varies based upon the fair value of the commodity components being sold;
- The industrial abrasives and roofing granules business of the Harsco Metals & Minerals Segment may be adversely impacted by reduced home resales or economic conditions that slow the rate of residential roof replacement, or by slowdowns in the industrial and infrastructure refurbishment industries;
- Decreasing oil prices may adversely impact purchasing by energy sector customers in the Harsco Industrial Segment;
- The industrial grating products business of the Harsco Industrial Segment may be adversely impacted by slowdowns in non-residential construction and industrial production;
- The Harsco Rail Segment may be adversely impacted by developments in the railroad industry that lead to lower capital spending or reduced track maintenance spending; and
- Capital constraints and increased borrowing costs may also adversely impact the financial position and operations of the Company's customers across all business segments.

Furthermore, realization of deferred tax assets is ultimately dependent on generating sufficient income in future periods to ensure recovery of those assets. The cyclicality of the Company's end markets and adverse economic conditions may negatively impact the future income levels that are necessary for the utilization of deferred tax assets.

The seasonality of the Company's business may cause quarterly results to fluctuate.
The Company has historically generated the majority of its cash flows provided by operations in the second half of the year. This is a result of normally higher income during the second half of the year, as the Company's business tends to follow seasonal patterns. If the Company is unable to successfully manage the cash flow and other effects of seasonality on the business, its results of operations may suffer.

Increased customer concentration and related credit and commercial risks may adversely impact the Company's results of operations, financial condition and cash flows.
For the year ended December 31, 2017, the Company’s top five customers in the Harsco Metals & Minerals Segment accounted for approximately 31% of revenues in that Segment and 20% of the Company’s total revenues.

Certain of the several large customers in the Harsco Metals & Minerals Segment have significant accounts receivable balances. If a large customer were to experience financial difficulty or file for bankruptcy or receivership protection, it could adversely impact the Company's results of operations, cash flows and asset valuations.

Disputes with the Company's largest customers, or customers with long-term contracts, could adversely affect the Company’s financial condition.
The Company routinely enters into multiple contracts with customers, many of which can be long-term contracts. For example, the Company is currently party to multiple contracts in numerous countries with its largest customer, ArcelorMittal, which accounted for approximately 9% of total revenues for the year ended December 31, 2017. These contracts cover a variety of services and vary in contract length. From time to time, the Company may be negotiating the terms of current and potential future services to be rendered due to the scope and complexity of this relationship. Disagreements between the parties can arise as a result of the scope and nature of the relationship and these ongoing negotiations.

In addition, under long-term contracts, the Company may incur capital expenditures or other costs at the beginning of the contract that it expects to recoup through the life of the contract. Some of these contracts provide for advance payments to assist the Company in covering these costs and expenses. A dispute with a customer during the life of a long-term contract could impact the ability of the Company to receive these advance payments or otherwise recoup incurred costs and expenses.

The Company's global presence subjects it to a variety of risks arising from doing business internationally.
The Company operates in approximately 30 countries, generating 57% of its revenues outside of the U.S. (based on location of the facility generating the revenue) for the year ended December 31, 2017. In addition, as of December 31, 2017, approximately 75% of the Company’s property, plant and equipment are located outside of the U.S. The Company's global footprint exposes it to a variety of risks that may adversely affect the Company's results of operations, financial condition, liquidity and cash flows. These include, but may not be limited to, the following:

- periodic economic downturns in the countries in which the Company does business;
- imposition of or increases in currency exchange controls and hard currency shortages;
- customs matters and changes in trade policy or tariff regulations;
- changes in regulatory requirements in the countries in which the Company does business;
- changes in tax regulations, higher tax rates in certain jurisdictions and potentially adverse tax consequences including restrictions on repatriating earnings, adverse tax withholding requirements and "double taxation;"
- longer payment cycles and difficulty in collecting accounts receivable;
- complexities in complying with a variety of U.S. and foreign government laws, controls and regulations;
- political, economic and social instability, civil and political unrest, terrorist actions and armed hostilities in the regions or countries in which the Company does business;
- increasing complex laws and regulations concerning privacy and data security, including the European Union's ("EU") General Data Protection Regulation;
- inflation rates in the countries in which the Company does business;
- complying with complex labor laws in foreign jurisdictions;
- laws in various international jurisdictions that limit the right and ability of subsidiaries to pay dividends and remit earnings to affiliated companies unless specified conditions are met;
- sovereign risk related to international governments, including, but may not be limited to, governments stopping interest payments or repudiating their debt, nationalizing private businesses or altering foreign exchange regulations; and
- uncertainties arising from local business practices, cultural considerations and international political and trade tensions.

The Company has operations in several countries in the Middle East, including Bahrain, Egypt, Saudi Arabia and Oman, as well as India, some of which have experienced armed hostilities and civil unrest. Additionally, these countries are geographically close to other countries that may have a continued high risk of armed hostilities or civil unrest.

If the Company is unable to successfully manage the risks associated with its global business, the Company's results of operations, financial condition, liquidity and cash flows may be negatively impacted.

Due to the international nature of the Company's business, the Company could be adversely affected by violations of certain laws.
The U.S. Foreign Corrupt Practices Act (“FCPA”) and similar anti-bribery laws in non-U.S. jurisdictions generally prohibit companies and their intermediaries from making improper payments to officials for the purpose of obtaining or retaining business. The FCPA also imposes accounting standards and requirements on publicly traded U.S. corporations and their foreign affiliates, which, among other things, are intended to prevent the diversion of corporate funds to the payment of bribes and other improper payments, and to prevent the establishment of “off the books” slush funds from which improper payments can be made. The Company may not always prevent reckless or criminal acts by employees or agents and may be exposed to liability due to pre-acquisition conduct of employees or agents of businesses or operations the Company may acquire. Violations of these laws, or allegations of such violations, could disrupt the Company’s operations, require significant management involvement and have a material adverse effect on the Company’s results of operations, financial condition and cash flows. If the Company is found to be liable for violations of these laws (either due to its own acts, out of inadvertence or due to the acts or inadvertence of others), the Company could also be subject to severe criminal or civil penalties or other sanctions; disgorgement; further changes or enhancements to its procedures, policies and controls; personnel changes and other remedial actions.

Furthermore, the Company is subject to the export controls and economic embargo rules and regulations of the U.S., including the Export Administration Regulations and trade sanctions against embargoed countries, which are administered by the Office of Foreign Asset Control within the Department of Treasury, as well as other laws and regulations administered by the Department of Commerce. These regulations limit the Company’s ability to market, sell, distribute or otherwise transfer its products to prohibited countries or persons. Failure to comply with these rules and regulations may result in substantial civil and criminal penalties, including fines and disgorgement of profits, the imposition of a court-appointed monitor, the denial of export privileges and debarment from participation in U.S. Government contracts.

Exchange rate fluctuations may adversely impact the Company's business.
Fluctuations in foreign exchange rates between the U.S. dollar and the approximately 25 other currencies in which the Company currently conducts business may adversely impact the Company's results of operations in any given fiscal period. The Company's principal foreign currency exposures are in the EU, the U.K. and Brazil. Given the structure of the Company's operations, an increase in the value of the U.S. dollar relative to the foreign currencies in which the Company earns its revenues generally has a negative impact on the translated amounts of the assets and liabilities, results of operations and cash flows. The Company's foreign currency exposures increase the risk of volatility in its financial position, results of operations and cash flows. If currencies in the below regions change materially in relation to the U.S. dollar, the Company's financial position, results of operations, or cash flows may be materially affected.

Compared with the corresponding full-year period in 2016, the average value of major currencies changed as follows in relation to the U.S. dollar during the full-year 2017, impacting the Company's revenues and income:

- British pound sterling weakened by 4%
- euro strengthened by 3%
- Brazilian real strengthened by 8%

Compared with exchange rates at December 31, 2016, the value of major currencies at December 31, 2017 changed as follows:

- British pound sterling strengthened by 9%
- euro strengthened by 14%
- Brazilian real weakened by 2%

To illustrate the effect of foreign exchange rate changes in certain key markets of the Company, in 2017 revenues would have been less than 1% or $8 million lower and operating income would have been approximately less than 1% or less than $1 million higher if the average exchange rates for 2016 were utilized. In a similar comparison for 2016, revenues would have been approximately 4% or $51 million higher and operating income would have been approximately 5% or $3 million lower if the average exchange rates for 2015 were utilized.

Currency changes also result in assets and liabilities denominated in local currencies being translated into U.S. dollars at different amounts than at the prior period end. Generally, if the U.S. dollar weakens in relation to currencies in countries in which the Company does business, the translated amounts of the related assets, liabilities, and therefore stockholders' equity, would increase. Conversely, if the U.S. dollar strengthens in relation to currencies in countries in which the Company does business, the translated amounts of the related assets, liabilities, and therefore stockholders' equity, would decrease.

Although the Company engages in foreign currency exchange forward contracts and other hedging strategies to mitigate foreign exchange transactional risks, hedging strategies may not be successful or may fail to completely offset these risks. In addition, competitive conditions in the Company's manufacturing businesses may limit the Company's ability to increase product prices in the face of adverse currency movement. Sales of products manufactured in the U.S. for the domestic and export markets may be affected by the value of the U.S. dollar relative to other currencies. Any long-term strengthening of the U.S. dollar could depress demand for these products and reduce sales. Conversely, any long-term weakening of the U.S. dollar could improve demand for these products and increase sales.

Economic conditions and regulatory changes following the United Kingdom's referendum on withdrawal from the EU could impact on the Company's business and results of operations.
In June 2016, a majority of voters in the U.K. approved a withdrawal from the EU in a national referendum (often referred to as Brexit). In March 2017 the U.K. invoked Article 50 of the Lisbon Treaty, initiating the withdrawal process, and the U.K. is scheduled to depart from the EU on March 29, 2019. The U.K. and the EU are negotiating their future relationship, including whether there will be a transition period. The scheduled withdrawal of the U.K. from the EU has created significant uncertainty about the future relationship between the U.K. and the EU, including with respect to the laws and regulations that will apply as the U.K. determines which EU laws to replace or replicate in the event of a withdrawal.

The Company's business, particularly the Harsco Metals & Minerals Segment, whose headquarters is in the U.K., could be adversely impacted by the likely exit of the U.K. from the EU. Adverse consequences such as deterioration in economic conditions and volatility in currency exchange rates could have a negative impact on the Company's operations, financial condition and results of operations. In addition, incremental regulatory controls and regulations governing trade between the U.K. and the rest of the EU could have adverse consequences on the steel industry in the U.K. and/or the EU, and could negatively impact the Company's operations and financial condition.

The Company may lose customers or be required to reduce prices as a result of competition.
The industries in which the Company operates are highly competitive:

- The Harsco Metals & Minerals Segment is sustained mainly through contract renewals and new contract signings. The Company may be unable to renew contracts at historical price levels or to obtain additional contracts at historical rates as a result of competition. If the Company is unable to renew its contracts at the historical rates or renewals are made at reduced prices, or if its customers terminate their contracts, revenue and results of operations may decline.
- The Harsco Industrial and Harsco Rail Segments compete with companies that manufacture similar products both internationally and domestically. Certain international competitors export their products into the U.S. and sell them at lower prices, which can be the result of lower labor costs and government subsidies for exports. In addition, certain competitors may from time to time sell their products below their cost of production in an attempt to increase their market share. Such practices may limit the prices the Company can charge for its products and services. Unfavorable foreign exchange rates can also adversely impact the Company's ability to match the prices charged by international competitors. If the Company is unable to match the prices charged by competitors, it may lose customers.

Restrictions imposed by the Company's credit facility and other financing arrangements may limit the Company's operating and financial flexibility.
The agreements governing the Company's outstanding financing arrangements impose a number of restrictions. Under the Company's Senior Secured Credit Facility, the Company must comply with certain financial covenants on a quarterly basis. The covenants also place limitations on dividends, acquisitions, investments in joint ventures, unrestricted subsidiaries, indebtedness and the imposition of liens on the Company's assets. In the event of a default, the Company's lenders and the counterparties to the Company's other financing arrangements could terminate their commitments to the Company and declare all amounts borrowed, together with accrued interests and fees, immediately due and payable. If this were to occur, the Company might not be able to pay these amounts, or the Company might be forced to seek an amendment to the Company's financing arrangements which could make the terms of these arrangements more onerous for the Company. In addition, this could also trigger an event of default under the cross-default provisions of the Company's other obligations. As a result, a default under one or more of the existing or future financing arrangements could have significant consequences for the Company.

The Company is exposed to counterparty risk in its derivative financial arrangements.
The Company uses derivative financial instruments, such as interest rate swaps and foreign currency exchange forward contracts, for a variety of purposes. The Company uses interest rate swaps in conjunction with certain debt issuances in order to secure either a fixed or floating interest rate. The Company uses foreign currency exchange forward contracts as part of a worldwide program to minimize foreign currency operating income and balance sheet exposure. In particular, the Company uses foreign currency exchange forward contracts to hedge commitments, such as foreign currency debt, firm purchase commitments and foreign currency cash flows for certain export sales transactions. The unsecured contracts for foreign currency exchange forward contracts outstanding at December 31, 2017 mature at various times through 2018 and are with major financial institutions. The Company may also enter into derivative contracts to hedge commodity exposures.

The failure of one or more counterparties to the Company's derivative financial instruments to fulfill their obligations could adversely affect the Company's results of operations, financial condition, liquidity and cash flows.

The Company's variable rate indebtedness subjects it to interest rate risk, which could cause the Company's debt service obligations to increase significantly.
The Company's total debt at December 31, 2017 was $586.6 million. Of this amount, approximately 99% had variable rates of interest and 1% had fixed rates of interest. The weighted average interest rate of total debt was approximately 4.8%. At debt levels as of December 31, 2017, a one percentage point increase in variable interest rates would increase interest expense by $6 million per year. If the Company is unable to successfully manage its exposure to variable interest rates, including through interest rates swaps that the Company has put into place, its debt service obligations may increase even though the amount borrowed remains the same, and in turn, its results of operations and financial condition may be negatively impacted.

Additionally, whenever the Company refinances fixed rate debt, the new interest rates may negatively impact the Company's results of operations. The interest rates associated with new fixed rate debt are impacted by several factors including, but not limited to, market conditions, term of the borrowings and the financial results and currency.

The Company is subject to taxes in numerous jurisdictions. Legislative, regulatory and legal developments involving income taxes could materially adversely affect the Company's results of operations and cash flows and impact the Company's ability to compete abroad.
The Company is subject to U.S. federal, U.S. state and international income, payroll, property, sales and use, value-added, fuel and other types of taxes in numerous jurisdictions. Significant judgment is required in determining the Company's worldwide provisions for income taxes. Changes in tax rates, enactments of new tax laws, revisions of tax regulations, and claims or litigation with taxing authorities could result in substantially higher taxes, and therefore, could have a significant adverse effect on the Company's results of operations, financial condition and liquidity.

Recently enacted tax reform legislation has made substantial changes to U.S. tax law, including a reduction in the corporate tax rate, a limitation on deductibility of interest expense, a limitation on the use of net operating losses to offset future taxable income, the allowance of immediate expensing of capital expenditures, deemed repatriation of non-U.S. earnings and the change from a worldwide tax system to territorial. The Company expects this legislation to have significant effects on the Company, some of which may be adverse. For example, the reduction in the corporate tax rate is expected to result in a reduction in the value of the Company's existing deferred tax assets and consequently a noncash charge to the Company's earnings. While the Company recorded a provisional charge of $48.7 million in 2017, the magnitude of the net impact remains uncertain at this time and is subject to any other regulatory or administrative developments, including any regulations or other guidance promulgated by the U.S. Internal Revenue Service as well as state governments.

The Company's defined benefit net periodic pension cost ("NPPC") is directly affected by the equity and bond markets. A downward trend in those markets could adversely impact the Company's results of operations, financial condition and cash flows.
In addition to the economic issues that directly affect the Company's businesses, changes in the performance of equity and bond markets, particularly in the U.K. and the U.S., impact actuarial assumptions used in determining annual NPPC, pension liabilities and the valuation of the assets in the Company's defined benefit pension plans. Financial market deterioration would most likely have a negative impact on the Company's NPPC and the pension assets and liabilities. This could result in a decrease to stockholders' equity and an increase in the Company's statutory funding requirements.

In addition to the Company's defined benefit pension plans, the Company also participates in several multiemployer pension plans ("MEPPs") throughout the world. Within the U.S., the Pension Protection Act of 2006 may require additional funding for MEPPs that could cause the Company to be subject to higher cash contributions in the future. Additionally, market conditions and the number of participating employers remaining in each plan may affect the funded status of MEPPs and consequently, any Company withdrawal liability, if applicable.

A negative outcome on personal injury claims against the Company may adversely impact results of operations and financial condition.
The Company has been named as one of many defendants (approximately 90 or more in most cases) in legal actions alleging personal injury from exposure to airborne asbestos over the past several decades. In their suits, the plaintiffs have named as defendants, among others, many manufacturers, distributors and installers of numerous types of equipment or products that allegedly contained asbestos. The majority of the asbestos complaints pending against the Company have been filed in New York. Almost all of the New York complaints contain a standard claim for damages of $20 million or $25 million against the approximately 90 defendants, regardless of the individual plaintiff's alleged medical condition and without specifically identifying any of the Company's products as the source of plaintiff's asbestos exposure. If the Company is found to be liable in any of these actions and the liability exceeds the Company's insurance coverage, results of operations, cash flows and financial condition could be adversely affected.

The nature of the Company's products creates the possibility of significant product liability and warranty claims, which could harm its business.
The Company's customers use some of its products in potentially hazardous applications that can cause injury or loss of life and damage to property, equipment or the environment. In addition, the Company's products are integral to the production process for some end-users and any failure of the Company's products could result in a suspension of operations. Accidents may occur at a location where the Company's equipment and services have been or are being used. Investigations into such accidents, even if the Company and its products are ultimately found not to be the cause of such accidents, require the Company to expend significant time, effort and resources. The Company cannot be certain that its products will be completely free from defects. The Company may be named as a defendant in product liability or other lawsuits asserting potentially large claims. In addition, the Company cannot guarantee that insurance will be available or adequate to cover any or all liabilities incurred. The Company also may not be able to maintain insurance in the future at levels it believes are necessary and at rates it considers reasonable.

Higher than expected claims under insurance policies, under which the Company retains a portion of the risk, could adversely impact results of operations and cash flows.

The Company retains a significant portion of the risk for property, workers' compensation, U.K. employers' liability, automobile and general and product liability losses. Reserves have been recorded that reflect the undiscounted estimated liabilities for ultimate losses, including claims incurred but not reported. Inherent in these estimates are assumptions that are based on the Company's history of claims and losses, a detailed analysis of existing claims with respect to potential value, and current legal and legislative trends. If actual claims are higher than those projected by management, an increase to the Company's insurance reserves may be required and would be recorded as a charge to income in the period the need for the change was determined.

Increases or decreases in purchase prices (or selling prices) or availability of steel or other materials and commodities may affect the Company's profitability.

The profitability of the Company's manufactured products is affected by changing purchase prices of raw material, including steel and other materials and commodities. If raw material costs associated with the Company's manufactured products increase and the costs cannot be transferred to the Company's customers, results of operations would be adversely affected. Additionally, decreased availability of steel or other materials could affect the Company's ability to produce manufactured products in a timely manner. If the Company cannot obtain the necessary raw materials for its manufactured products, then revenues, results of operations and cash flows could be adversely affected.

Certain services performed by the Harsco Metals & Minerals Segment result in the recovery, processing and sale of recovered metals and minerals and other high-value metal by-products to its customers. The selling price of the by-products material is market-based and varies based upon the current fair value of its components. Therefore, the revenue amounts generated from the sale of such by-products material vary based upon the fair value of the commodity components being sold.

The success of the Company's strategic ventures depends on the satisfactory performance by strategic venture partners of their strategic venture obligations.

The Company enters into various strategic ventures as part of its strategic growth initiatives as well as to comply with local laws. Differences in opinions or views between strategic venture partners can result in delayed decision-making or failure to agree on material issues which could adversely affect the business and operations of the venture. From time to time, in order to establish or preserve a relationship, or to better ensure venture success, the Company may accept risks or responsibilities for the strategic venture that are not necessarily proportionate with the reward it expects to receive. The success of these and other strategic ventures also depends, in large part, on the satisfactory performance by the Company's strategic venture partners of their strategic venture obligations, including their obligation to commit working capital, equity or credit support as required by the strategic venture and to support their indemnification and other contractual obligations.

If the Company's strategic venture partners fail to satisfactorily perform their strategic venture obligations as a result of financial or other difficulties, the strategic venture may be unable to adequately perform or deliver its contracted services. Under these circumstances, the Company may be required to make additional investments and provide additional services to ensure the adequate performance and delivery of the contracted services. These additional obligations could result in reduced profits or, in some cases, increased liabilities or significant losses for the Company with respect to the strategic venture. In addition, although the Company generally performs due diligence with regard to potential strategic partners or ventures, a failure by a strategic venture partner to comply with applicable laws, rules or regulations could negatively impact its business and, in the case of government contracts, could result in fines, penalties, suspension or even debarment. Unexpected strategic venture developments could have a material adverse effect on results of operations, financial condition and cash flows.

The Company is subject to various environmental laws, and the success of existing or future environmental claims against it could adversely impact the Company's results of operations and cash flows.

The Company's operations are subject to various federal, state, local and international laws, regulations and ordinances relating to the protection of health, safety and the environment, including those governing discharges to air and water, handling and disposal practices for solid and hazardous wastes, the remediation of contaminated sites and the maintenance of a safe workplace. These laws impose penalties, fines and other sanctions for non-compliance and liability for response costs, property damages and personal injury resulting from past and current spills, disposals or other releases of, or exposure to, hazardous materials. The Company could incur substantial costs as a result of non-compliance with or liability for remediation or other costs or damages under these laws. The Company may be subject to more stringent environmental laws in the future, and compliance with more stringent environmental requirements may require the Company to make material expenditures or subject it to liabilities that the Company currently does not anticipate.

The Company is currently involved in a number of environmental remediation investigations and cleanups and, along with other companies, has been identified as a "potentially responsible party" for certain waste disposal sites under the federal "Superfund" law. At several sites, the Company is currently conducting environmental remediation, and it is probable that the Company will agree to make payments toward funding certain other of these remediation activities. It also is possible that some of these matters will be decided unfavorably to the Company and that other sites requiring remediation will be identified. Each of these matters is subject to various uncertainties, and financial exposure is dependent upon such factors as:

- the continuing evolution of environmental laws and regulatory requirements;
- the availability and application of technology;
- the allocation of cost among potentially responsible parties;
- the years of remedial activity required; and
- the remediation methods selected.

The Company's ongoing operations are subject to extensive laws, regulations, rules and ordinances relating to safety, health and environmental matters that impose significant costs and liabilities on the Company, and future laws and governmental standards could increase these costs and liabilities.
The Company is subject to a variety of international, federal, state and local laws and governmental regulations, rules and ordinances regulating the use of certain materials contained in its products and/or used in its manufacturing processes. Many of these laws and governmental standards provide for extensive obligations that require the Company to incur significant compliance costs, and impose substantial monetary fines and/or criminal sanctions for violations.

Furthermore, such laws and standards are subject to change and may become more stringent. Although it is not possible to predict changes in laws or other governmental standards, the development, proposal or adoption of more stringent laws or governmental standards may require the Company to change its manufacturing processes, for example, by reducing or eliminating use of the regulated component or material in its manufacturing process. The Company may not be able to develop a new manufacturing process to comply with such legal and regulatory changes without investing significant time and resources, if at all. In addition, such legal and regulatory changes may also affect buying decisions by the users of the Company's products that contain regulated materials or that involve the use of such materials in the manufacturing process. If applicable laws and governmental standards become more stringent, the Company's results of operations, liquidity and financial condition could be materially adversely affected.

The Company maintains a workforce based upon current and anticipated workload. If the Company does not receive future contract awards or if these awards are delayed, significant cost may result that could have a material adverse effect on results of operations, financial condition, liquidity and cash flows.
The Company's estimates of future performance depend on, among other matters, whether and when the Company will receive certain new contract awards, including the extent to which the Company utilizes its workforce. The rate at which the Company utilizes its workforce is impacted by a variety of factors, including:

- the ability to manage attrition;
- the ability to forecast the need for services, which allows the Company to maintain an appropriately sized workforce;
- the ability to transition employees from completed projects to new projects or between segments; and
- the need to devote resources to non-revenue generating activities such as training or business development.

While the Company's estimates are based upon good faith judgment, these estimates can be unreliable and may frequently change based on newly available information. In the case of large-scale domestic and international projects where timing is often uncertain, it is particularly difficult to predict whether and when the Company will receive a contract award. The uncertainty of contract award timing can present difficulties in matching the Company's workforce size with contract needs. If an expected contract award is delayed or not received, the Company could incur cost resulting from reductions in staff or redundancy of facilities or equipment that could have a material adverse effect on results of operations, financial condition, liquidity and cash flows.

Increased information technology security threats and more sophisticated computer crime pose a risk to the Company's systems, networks, products and services.
The Company relies upon information technology systems and networks in connection with a variety of business activities, some of which are managed by third parties. Additionally, the Company collects and stores data that is of a sensitive nature. The secure operation of these information technology systems and networks, and the processing and maintenance of this data is critical to the Company's business operations and strategy. Information technology security threats - from user error to attacks designed to gain unauthorized access to the Company's systems, networks and data - are increasing in frequency and sophistication. Attacks may range from random attempts to coordinated and targeted attacks, including sophisticated computer crime and advanced persistent threats. These threats pose a risk to the security of the Company's systems and networks and the confidentiality, availability and integrity of the Company's data. Should an attack on the Company's information technology systems and networks succeed, it could expose the Company and the Company's employees, customers, dealers and suppliers

to misuse of information or systems, the compromising of confidential information, manipulation and destruction of data, production downtimes and operations disruptions. The occurrence of any of these events could adversely affect the Company's reputation, competitive position, business, results of operations and cash flows. In addition, such breaches in security could result in litigation, regulatory action, potential liability and the costs and operational consequences of implementing further data protection measures.

The Company's intellectual property portfolio may not prevent competitors from independently developing similar or duplicative products and services.
The Company's patents and other intellectual property may not prevent competitors from independently developing or selling similar or duplicative products and services, and there can be no assurance that the resources invested by the Company to protect the Company's intellectual property will be sufficient or that the Company's intellectual property portfolio will adequately deter misappropriation or improper use of the Company's technology. The Company could also face competition in some countries where the Company has not invested in an intellectual property portfolio. The Company may also face attempts to gain unauthorized access to the Company's information technology systems or products for the purpose of improperly acquiring trade secrets or confidential business information. The theft or unauthorized use or publication of the Company's trade secrets and other confidential business information as a result of such an incident could adversely affect the Company's competitive position and the value of the Company's investment in research and development. The Company may be unable to secure or retain ownership or rights to use data in certain software analytics or services offerings. In addition, the Company may be the target of aggressive and opportunistic enforcement of patents by third parties, including non-practicing entities. Regardless of the merit of such claims, responding to infringement claims can be expensive and time-consuming. If the Company is found to infringe any third-party rights, the Company could be required to pay substantial damages or could be enjoined from offering some of the Company's products and services. Also, there can be no assurances that the Company will be able to obtain or renew from third parties the licenses needed in the future, and there is no assurance that such licenses can be obtained on reasonable terms.

Union disputes or other labor matters could adversely affect the Company's operations and financial results.
A significant portion of the Company's employees are represented by labor unions in a number of countries under various collective bargaining agreements with varying durations and expiration dates. There can be no assurance that any current or future issues with the Company's employees will be resolved or that the Company will not encounter future strikes, work stoppages or other types of conflicts with labor unions or the Company's employees. The Company may not be able to satisfactorily renegotiate collective bargaining agreements in the U.S. and other countries when they expire. If the Company fails to renegotiate existing collective bargaining agreements, the Company could encounter strikes or work stoppages or other types of conflicts with labor unions. In addition, existing collective bargaining agreements may not prevent a strike or work stoppage at the Company's facilities in the future. The Company may also be subject to general country strikes or work stoppages unrelated to the Company's business or collective bargaining agreements. A work stoppage or other limitations on production at the Company's facilities for any reason could have an adverse effect on the Company's business, results of operations, financial condition and cash flows. In addition, many of the Company's customers and suppliers have unionized work forces. Strikes or work stoppages experienced by the Company's customers or suppliers could have an adverse effect on the Company's business, results of operations and financial condition.

If the Company cannot generate future cash flows at a level sufficient to recover the net book value of any reporting units, the Company may be required to record an impairment charge to earnings.
As of December 31, 2017, the Company had $401.8 million of goodwill. In connection with the Company's goodwill impairment testing, the Company may be required to record future impairment charges to the extent it cannot generate future cash flows at a level sufficient to recover the net book value of any of the Company's reporting units. The Company's estimates of fair value are based on assumptions about the future operating cash flows and growth rates of each reporting unit and discount rates applied to these cash flows. Based on the uncertainty of future growth rates and other assumptions used to estimate goodwill recoverability, future reductions in the Company's expected cash flows could cause a material non-cash goodwill impairment charge, which could have a material adverse effect on the Company's results of operations and financial condition.

Item 1B. Unresolved Staff Comments.

None.

Item 2. Properties.

Operations of Harsco Corporation and its subsidiaries are conducted at both owned and leased properties in domestic and international locations. The Company's executive offices are located at 350 Poplar Church Road, Camp Hill, Pennsylvania 17011 and are owned. The following table describes the location and principal use of the Company's more significant properties.

Location	Principal Products	Interest
Harsco Metals & Minerals Segment		
Taiyuan City, China	Minerals and Resource Recovery Technologies	Leased
Tangshan, China	Minerals and Resource Recovery Technologies	Leased
Rotherham, UK	Minerals and Resource Recovery Technologies	Owned
Drakesboro, Kentucky, U.S.	Roofing Granules/Abrasives	Owned
Sarver, Pennsylvania, U.S.	Minerals and Resource Recovery Technologies	Owned
Harsco Rail Segment		
Columbia, South Carolina, U.S.	Rail Maintenance Equipment	Owned
Ludington, Michigan, U.S.	Rail Maintenance Equipment	Owned
Harsco Industrial Segment		
Broken Arrow, Oklahoma, U.S.	Heat Exchangers	Leased
East Stroudsburg, Pennsylvania, U.S.	Heat Transfer Products	Owned
Channelview, Texas, U.S.	Industrial Grating Products	Owned
Garrett, Indiana, U.S.	Industrial Grating Products	Leased
Leeds, Alabama, U.S.	Industrial Grating Products	Owned
Queretaro, Mexico	Industrial Grating Products	Leased

The Harsco Metals business, which is part of the Harsco Metals & Minerals Segment, principally operates on customer-owned sites and has administrative offices throughout the world, including Camp Hill, Pennsylvania and Leatherhead, U.K. The above table includes the principal properties owned or leased by the Company. The Company also operates from a number of other smaller plants, warehouses and offices in addition to the above. The Company considers all of its properties at which operations are currently performed to be in satisfactory condition and suitable for their intended use.

Item 3. Legal Proceedings.

Information regarding legal proceedings is included in Note 11, in Part II, Item 8, "Financial Statements and Supplementary Data."

Item 4. Mine Safety Disclosures.

Not applicable.

Supplementary Item. Executive Officers of the Registrant.

Set forth below, at February 22, 2018, are the executive officers of the Company and certain information with respect to each of them. There are no family relationships among any of the executive officers.

Name	Age	Position with the Company
Executive Officers:		
F. Nicholas Grasberger, III	54	President and Chief Executive Officer
Peter F. Minan	56	Senior Vice President and Chief Financial Officer
Scott H. Gerson	47	Senior Vice President and Group President - Harsco Industrial
Jeswant Gill	55	Senior Vice President and Group President - Harsco Rail
Russell C. Hochman	53	Senior Vice President and General Counsel, Chief Compliance Officer & Corporate Secretary
Tracey L. McKenzie	50	Senior Vice President and Chief Human Resources Officer

F. Nicholas Grasberger, III - President and Chief Executive Officer since August 1, 2014, and became a member of the Board of Directors on April 29, 2014. Served as Senior Vice President and Chief Financial Officer from April 2013 to November 2014, and President and Chief Operating Officer from April 2014 to August 2014. Prior to joining the Company, Mr. Grasberger was Managing Director of Fenner Plc’s Precision Polymer division from March 2011 to April 2013. From April 2009 to November 2009 he served as Executive Vice President and Chief Executive Officer of Armstrong Building Products. From January 2005 to March 2009 he served as Senior Vice President and Chief Financial Officer of Armstrong World Industries, Inc. Prior to his employment with Armstrong, Mr. Grasberger served as Vice President and Chief Financial Officer of Kennametal Inc. and before that as Corporate Treasurer and Director of the corporate planning process at H.J. Heinz Company. He started his career with USX Corporation.

Peter F. Minan - Senior Vice President and Chief Financial Officer since November 11, 2014. Mr. Minan has an extensive background in global financial management acquired through a nearly 30-year career with KPMG from 1983 to 2012. He became a partner at KPMG in 1993 and served as global lead partner for several multi-national Fortune 500 industrial and consumer audits. His roles included National Managing Partner, U.S. Audit practice, and Partner in Charge, Washington/Baltimore Audit practice. His most recent role was with Computer Sciences Corporation, where he served as Vice President of Enterprise Risk Management and Internal Audit from 2012 to 2013.

Scott H. Gerson - Senior Vice President and Group President–Harsco Industrial since April 29, 2015. Served as Vice President and Group President– Harsco Industrial from July 2010 to April 2015. Served as Chief Information Officer from April 2005 to January 2011. Prior to joining the Company in April 2005, Mr. Gerson was with Kulicke & Soffa Industries, Inc., where he served as IT director of their worldwide application services. He has also served in IT management capacities with Compaq Computers and TRW Inc.

Jeswant Gill - Senior Vice President and Group President - Harsco Rail since November 2016. Prior to joining the Company, Mr. Gill served as Senior Executive/Managing Director, Global Solutions of The Arcadia Group International, LLC from October 2015 to November 2016. From June 2014 to September 2015 Mr. Gill served as Vice President and Executive Vice President, Industrial Segment of Kennametal, Inc. From January 2008 to May 2014 Mr. Gill worked for Ingersoll Rand Company Limited, acting as Vice President of Global Services, Industrial Technologies from January 2011 to May 2014, and as President of Security Technologies, Asia Pacific from January 2008 until December 2010. Prior to his employment with Ingersoll Rand Company Limited, Mr. Gill worked for Invensys, Johnson Controls Inc. and Schlumberger. Mr. Gill holds a B.S. in engineering physics and an MBA, both from Queen's University in Ontario, Canada.

Russell C. Hochman - Senior Vice President and General Counsel, Chief Compliance Officer and Corporate Secretary since May 2015. Served as Vice President, Interim General Counsel, Chief Compliance Officer and Corporate Secretary from March 2015 to May 2015. Served as Deputy General Counsel from July 2013 to March 2015. Prior to joining Harsco in 2013, Mr. Hochman served in senior legal roles with Pitney Bowes Inc. and leading law firms based in New York. Mr. Hochman holds a J.D. from Albany Law School of Union University and a B.A. from Cornell University.

Tracey L. McKenzie - Senior Vice President and Chief Human Resources Officer since September 2014. Prior to joining the Company, Ms. McKenzie served as Global HR Vice President for JLG Industries, a leader in the manufacturing sector for advanced aerial lift systems. Ms. McKenzie previously held executive level HR positions in her native Australia, and worked at Pacific Scientific Aerospace (a division of Danaher). She moved to the U.S. in 2003, and holds an MBA from the University of New England and a bachelor's in business administration from Royal Melbourne Institute of Technology (RMIT).

PART II

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

Harsco Corporation common stock is listed on the New York Stock Exchange. At December 31, 2017, there were 80,453,852 shares outstanding. In 2017, the Company's common stock traded in a range of $11.40 to $22.00 and closed at $18.65 at year-end. At December 31, 2017, there were approximately 18,900 stockholders. For additional information regarding the Company's equity compensation plans see Note 13, Stock-Based Compensation, in Part II, Item 8, "Financial Statements and Supplementary Data," and Part III, Item 11, "Executive Compensation."

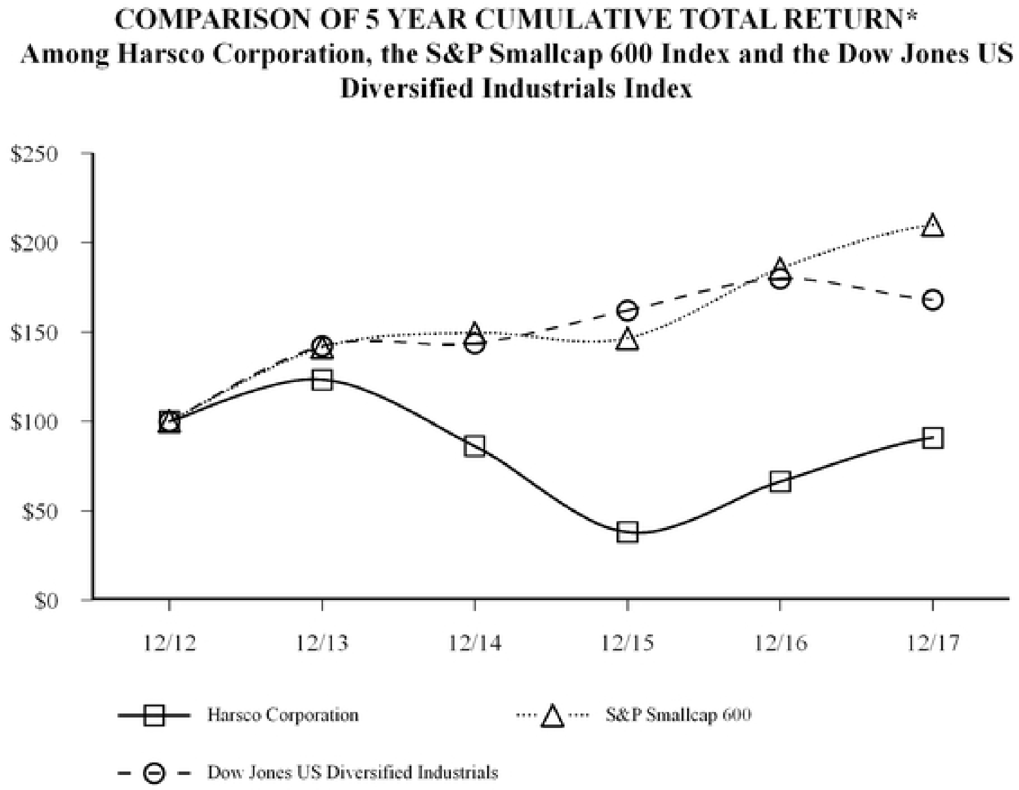
The following table sets forth, for the periods indicated, the high and low sales prices of the Company's common stock, reported by the New York Stock Exchange.

	Market Price Per Share	
	High	**Low**
2017		
First quarter	**$ 14.80**	**$ 11.75**
Second quarter	**17.08**	**11.40**
Third quarter	**21.10**	**15.05**
Fourth quarter	**22.00**	**16.10**
2016		
First quarter	$ 7.75	$ 3.55
Second quarter	7.56	5.00
Third quarter	11.18	6.55
Fourth quarter	15.25	9.05

Dividend Action

The Company's Senior Secured Credit Facilities contain limitations on the payment of dividends. For additional information regarding Harsco Corporation's limitations on the payment of dividends, see Liquidity and Capital Resources, in Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations" and Note 7, Debt and Credit Agreements, in Part II, Item 8, "Financial Statements and Supplementary Data." The Company has not declared any dividends during the two most recent fiscal years. The Board normally reviews the dividend policy and the dividend rate on a quarterly basis.

Stock Performance Graph



*$100 invested on December 31, 2012 in stock or index, including reinvestment of dividends. Fiscal year ending December31.

	December 2012	December 2013	December 2014	December 2015	December 2016	December 2017
Harsco Corporation	**100.00**	**123.31**	**86.08**	**38.07**	**66.25**	**90.85**
S&P Smallcap 600	**100.00**	**141.31**	**149.45**	**146.50**	**185.40**	**209.94**
Dow Jones US Diversified Industrials	**100.00**	**142.13**	**143.62**	**162.07**	**179.82**	**167.97**

Item 6. Selected Financial Data.
Five-Year Statistical Summary

(In thousands, except per share, employee information and percentages)	2017		2016		2015		2014		2013 (a)
Statement of operations information									
Revenues from continuing operations	**$ 1,607,062**		$ 1,451,223		$ 1,723,092		$ 2,066,288		$ 2,895,970
Amounts attributable to Harsco Corporation common stockholders									
Income (loss) from continuing operations	**$ 7,626**		$ (86,336)		$ 7,168		$ (22,281)		$ (231,356)
Income (loss) from discontinued operations	**196**		669		(980)		110		(1,492)
Net income (loss)	**7,822**		(85,667)		6,188		(22,171)		(232,848)
Financial position and cash flow information									
Working capital (b)	**$ 117,964**		$ 122,602		$ 120,267		$ 80,036		$ 185,759
Total assets (c)	**1,578,685**		1,581,338		2,051,887		2,263,664		2,439,084
Long-term debt (c)	**566,794**		629,239		845,621		827,428		779,849
Total debt (c)	**586,623**		659,072		900,934		869,364		807,595
Depreciation and amortization	**129,937**		141,486		156,475		176,326		237,041
Capital expenditures	**(98,314)**		(69,340)		(123,552)		(208,859)		(245,551)
Cash provided by operating activities (d)	**176,892**		159,876		121,772		227,442		188,690
Cash provided (used) by investing activities	**(103,325)**		122,887		(130,373)		(229,561)		63,281
Cash provided (used) by financing activities (d)	**(83,715)**		(292,364)		22,189		(22,509)		(249,695)
Ratios									
Return on average equity (e)	**4.1%**		(29.5)%		2.3%		(4.0)%		(30.0)%
Current ratio (b) (f)	**1.2:1**		1.3:1		1.2:1		1.1:1		1.3:1
Per share information attributable to Harsco Corporation common stockholders									
Basic—Income (loss) from continuing operations	**$ 0.09**		$ (1.07)		$ 0.09		$ (0.28)		$ (2.86)
Income (loss) from discontinued operations	**—**		0.01		(0.01)		—		(0.02)
Net income (loss)	**$ 0.10**	(g)	$ (1.07)	(g)	$ 0.08		$ (0.27)	(g)	$ (2.88)
Diluted—Income (loss) from continuing operations	**$ 0.09**		$ (1.07)		$ 0.09		$ (0.28)		$ (2.86)
Income (loss) from discontinued operations	**—**		0.01		(0.01)		—		(0.02)
Net income (loss)	**$ 0.09**	(g)	$ (1.07)	(g)	$ 0.08		$ (0.27)	(g)	$ (2.88)
Other information									
Book value per share (h)	**$ 2.67**		$ 1.72		$ 3.88		$ 4.36		$ 7.41
Cash dividends declared per share	**—**		—		0.666		0.820		0.820
Diluted weighted-average number of shares outstanding	**82,840**		80,333		80,365		80,884		80,755
Number of employees	**9,400**		9,400		10,800		12,200		12,300

(a) Includes impacts of the Infrastructure Transaction consummated on November 26, 2013.
(b) On January 1, 2017, the Company adopted changes issued by the Financial Accounting Standards Board ("FASB") related to the reclassification of current deferred tax assets and liabilities to non-current. As a result of these changes, the Company reclassified its net current deferred tax assets and liabilities to non-current, which reduced Net working capital by $27.1 million, $38.1 million, $37.9 million and $43.8 million at December 31, 2016, 2015, 2014 and 2013, respectively.
(c) On January 1, 2016, the Company adopted changes issued by the FASB related to simplifying the presentation of debt issuance costs. The changes required that debt issuance costs related to a recognized debt liability be presented in the balance sheet as a direct reduction from the carrying amount of that debt liability. The Company reclassified debt issuance costs in the amount of $10.1 million, $2.3 million and $3.3 million at December 31, 2015, 2014 and 2013, respectively.
(d) On January 1, 2017, the Company adopted changes issued by the FASB to the accounting for stock-based compensation. The Company reclassified employee taxes paid on stock compensation in the amount of $0.1 million, $0.3 million, $0.7 million and $1.0 million for the year ended December 31, 2016, 2015, 2014 and 2013, respectively, from Cash provided by operating activities to Cash provided (used by) financing activities on its Consolidated Statement of Cash Flows.
(e) Return on average equity is calculated by dividing income (loss) from continuing operations by average Harsco Corporation stockholders' equity throughout the year.
(f) Current ratio is calculated by dividing total current assets by total current liabilities.
(g) Does not total due to rounding.
(h) Book value per share is calculated by dividing total equity by shares outstanding.

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

The following discussion should be read in conjunction with the Consolidated Financial Statements of Harsco Corporation (the "Company") provided under Part II, Item 8, "Financial Statements and Supplementary Data," of this Annual Report on Form 10-K.

Amounts included in this Item 7 of this Annual Report on Form 10-K are rounded in millions and all percentages are calculated based on actual amounts. As a result, minor differences may exist due to rounding.

Forward-Looking Statements

The nature of the Company's business and the many countries in which it operates subject it to changing economic, competitive, regulatory and technological conditions, risks and uncertainties. In accordance with the "safe harbor" provisions of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, the Company provides the following cautionary remarks regarding important factors that, among others, could cause future results to differ materially from the results contemplated by forward-looking statements, including the expectations and assumptions expressed or implied herein. Forward-looking statements contained herein could include, among other things, statements about management's confidence in and strategies for performance; expectations for new and existing products, technologies and opportunities; and expectations regarding growth, sales, cash flows, and earnings. Forward-looking statements can be identified by the use of such terms as "may," "could," "expect," "anticipate," "intend," "believe," "likely," "estimate," "outlook," "plan" or other comparable terms.

Factors that could cause actual results to differ, perhaps materially, from those implied by forward-looking statements include, but are not limited to: (1) changes in the worldwide business environment in which the Company operates, including general economic conditions; (2) changes in currency exchange rates, interest rates, commodity and fuel costs and capital costs;(3) changes in the performance of equity and bond markets that could affect, among other things, the valuation of the assets in the Company's pension plans and the accounting for pension assets, liabilities and expenses; (4) changes in governmental laws and regulations, including environmental, occupational health and safety, tax and import tariff standards; (5) market and competitive changes, including pricing pressures, market demand and acceptance for new products, services and technologies; (6) the Company's inability or failure to protect its intellectual property rights from infringement in one or more of the many countries in which the Company operates; (7) failure to effectively prevent, detect or recover from breaches in the Company's cybersecurity infrastructure; (8) unforeseen business disruptions in one or more of the many countries in which the Company operates due to political instability, civil disobedience, armed hostilities, public health issues or other calamities; (9) disruptions associated with labor disputes and increased operating costs associated with union organization; (10) the seasonal nature of the Company's business; (11) the Company's ability to successfully enter into new contracts and complete new acquisitions or strategic ventures in the time-frame contemplated, or at all; (12) the integration of the Company's strategic acquisitions; (13) the amount and timing of repurchases of the Company's common stock, if any; (14) the outcome of any disputes with customers, contractors and subcontractors; (15) the financial condition of the Company's customers, including the ability of customers (especially those that may be highly leveraged and those with inadequate liquidity) to maintain their credit availability; (16) implementation of environmental remediation matters; (17) risk and uncertainty associated with intangible assets; and (18) other risk factors listed from time to time in the Company's SEC reports. A further discussion of these, along with other potential risk factors, can be found in Part I, Item 1A, "Risk Factors," of this Annual Report on Form 10-K. The Company cautions that these factors may not be exhaustive and that many of these factors are beyond the Company's ability to control or predict. Accordingly, forward-looking statements should not be relied upon as a prediction of actual results. The Company undertakes no duty to update forward-looking statements except as may be required by law.

Executive Overview

On December 22, 2017, U.S. federal tax legislation, commonly referred to as the Tax Cuts and Jobs Act (the" Act") was signed into law. The Act, among other things, reduces the U.S. corporate income tax rate to 21% starting in 2018 and creates a territorial tax system with a one-time mandatory tax on previously deferred foreign earnings of U.S. subsidiaries. The Company recorded a provisional charge of $48.7 million as a result of revaluing the U.S. ending net deferred tax asset at the lower rate and establishing a valuation allowance on the full amount of foreign tax credit carryforwards. This amount is included in Income tax expense on the Company's Consolidated Statement of Operations. See Note 10, Income Taxes, in Part II, Item 8, "Financial Statements and Supplementary Data" for additional information.

Markets served by the Company's Harsco Metals & Minerals Segment continued to demonstrate improvement during 2017 as increased customer steel production and higher commodity volumes and prices positively affected both revenues and operating income. In addition, results were positively affected by the new contracts, more favorable services mix, operational benefits and discipline achieved in recent years.

As previously disclosed, one of the Company’s customers for the Harsco Metals & Minerals Segment in Australia had entered into the process of voluntary administration under Australian law, the purpose of which was to focus on long-term solvency. The result of this administration process was that the customer’s operation was sold to a new owner in August 2017. In September 2017, the administrators informed the Company that most of the pre-administration accounts receivable balance would not be paid and, as a result, the Company recorded a bad debt expense of $4.6 million during 2017. The Company continues to provide services for the new owner pending formalization of a new contract.

Energy markets also demonstrated some fundamental improvement during 2017. The Harsco Industrial Segment’s air-cooled heat exchangers business has seen steadily improving results. The Harsco Industrial Segment's industrial grating business continues to be impacted by a lack of large-scale projects, delayed capital expenditures, competitive market dynamics and increased material costs. Accordingly, these factors impacted revenue and operating income during 2017 in the Harsco Industrial Segment. In addition, operating income during 2017 was positively affected by a gain on the sale of a property of approximately $4 million.

Results for the Harsco Rail Segment for 2016 included an estimated forward loss provision of $45.1 million related to the Company's contracts with the federal railway system of Switzerland ("SBB"). The estimated loss provision resulted from increased vendor costs, ongoing discussions with the customer, and increased estimates for commissioning, certification and testing costs, as well as expected settlement with respect to the customer. Excluding the impact of the estimated loss provision, the Harsco Rail Segment's operating results during 2017 improved due to higher demand for equipment and after-market parts from international customers and Protran Technology products. The Harsco Rail Segment recognized $42.5 million of revenue under the contracts with SBB in 2017 at zero gross margin.

Revenues by Segment

(Dollars in millions)	2017	2016	Change	%
Harsco Metals & Minerals	**$ 1,011.3**	$ 965.5	$ 45.8	4.7%
Harsco Industrial	**299.6**	247.5	52.1	21.0
Harsco Rail	**296.0**	238.1	57.9	24.3
Corporate	**0.1**	—	0.1	nmf
Total Revenues	**$ 1,607.1**	$ 1,451.2	$ 155.8	10.7%

nmf = not meaningful

Revenues by Region

(Dollars in millions)	2017	2016	Change	%
Western Europe	**$ 448.5**	$ 418.6	$ 29.8	7.1 %
North America	**745.0**	654.3	90.6	13.8
Latin America (a)	**183.3**	164.3	19.0	11.6
Asia-Pacific	**160.7**	136.9	23.8	17.4
Middle East and Africa	**42.7**	46.7	(4.0)	(8.6)
Eastern Europe	**26.9**	30.3	(3.4)	(11.1)
Total Revenues	**$ 1,607.1**	$ 1,451.2	$ 155.8	10.7 %

(a) Includes Mexico.

Revenues for the Company totaled $1.6 billion and $1.5 billion for 2017 and 2016, respectively. The change is primarily related to the effect of higher volumes and commodity prices in the Harsco Metals & Minerals Segment and the Harsco Industrial Segment's air-cooled heat exchangers business and higher equipment sales for the Harsco Rail Segment including deliveries under the contracts with SBB. Foreign currency translation increased revenues by $8.0 million for 2017 in comparison with the prior year.

Operating Income (Loss) and Operating Margins by Segment

(Dollars in millions)	2017	2016	Change	%
Harsco Metals & Minerals	**$ 105.3**	$ 81.6	$ 23.6	28.9 %
Harsco Industrial	**35.2**	23.2	12.0	51.7
Harsco Rail	**32.1**	(17.5)	49.6	283.1
Corporate	**(29.7)**	(23.8)	(5.9)	(24.8)
Total Operating Income	**$ 142.8**	$ 63.5	$ 79.3	125.0 %

	2017	2016
Harsco Metals & Minerals	**10.4%**	8.5 %
Harsco Industrial	**11.7**	9.4
Harsco Rail	**10.8**	(7.4)
Consolidated Operating Margin	**8.9%**	4.4 %

Operating income from continuing operations for 2017 was $142.8 million compared with $63.5 million in 2016. Refer to the segment discussions below for information pertaining to factors positively affecting and negatively impacting operating income.

<u>Harsco Metals & Minerals Segment:</u>

Significant Impacts on Revenues (In millions)	
Revenues—2016	$ 965.5
Net effects of price/volume changes, primarily attributable to volume changes.	55.9
Foreign currency translation.	8.6
Net impact of new contracts and lost contracts (including exited underperforming contracts).	(18.4)
Other.	(0.3)
Revenues—2017	**$ 1,011.3**

Factors Positively Affecting Operating Income:

- Increased global steel production. Overall, steel production by customers under services contracts, including the impact of new and exited contracts, increased by 8% for 2017 compared with the prior year. Excluding the impact of new and exited contracts, steel production by customers under services contracts increased by 5% for 2017 compared with the prior year.
- Increased income attributable to the impact of improved nickel, chrome and scrap prices. Nickel-related prices increased 9% during 2017 compared with the prior year.
- The effect of new contracts, cost improvements and operating discipline for existing contracts, and the overall mix of services continue to improve operating results.
- Severance costs resulting from a site exit of $5.1 million during 2016, which did not repeat in 2017.

Factors Negatively Impacting Operating Income:

- Moderately higher selling, general and administrative costs due to higher compensation costs and professional fees.
- Bad debt expense of $4.6 million related to certain pre-administration accounts receivable balances for one of the Company's customers in Australia for 2017.

Harsco Industrial Segment:

Significant Impacts on Revenues (In millions)		
Revenues—2016	$	247.5
Net effects of price/volume changes, primarily attributable to volume changes.		52.0
Foreign currency translation.		0.1
Revenues—2017	**$**	**299.6**

Factors Positively Affecting Operating Income:
- Increased customer demand and a favorable sales mix in the air-cooled heat exchanger business, resulting in increased operating income during 2017 compared with the prior year.
- Gain on sale of property of approximately $4 million for 2017.

Factors Negatively Impacting Operating Income:
- An unfavorable sales mix in the industrial grating products business for 2017.
- Increased operating expenses including higher commissions due to the increase in volumes in the air-cooled heat exchanger business and higher compensation costs.

Harsco Rail Segment:

Significant Impacts on Revenues (In millions)		
Revenues—2016	$	238.1
Revenues under the contracts with SBB.		42.5
Net effects of price/volume changes (exclusive of revenues under the SBB contracts), primarily attributable to volume changes.		16.4
Foreign currency translation.		(0.7)
Other.		(0.3)
Revenues—2017	**$**	**296.0**

Factors Positively Affecting Operating Income (Loss):
- During 2016, the Harsco Rail Segment recorded an estimated loss provision of $45.1 million related to the Company's contracts with SBB which did not repeat in 2017.
- Higher international machine sales volume in 2017 compared with the prior year.
- Higher international after-market part sales increased operating income during 2017 compared with the prior year.
- Higher sales of the Protran Technology products.

Factors Negatively Impacting Operating Income (Loss):
- Increased selling, general and administrative expenses primarily related to higher compensation costs and professional fees for 2017.

Outlook, Trends and Strategies

There has been gradual and steady underlying improvement in many of the end markets served by the Company. These trends have benefited the Company although some volatility is expected to persist in relevant markets in the future. Given these expectations, the Company believes it is well positioned to execute actions through a disciplined focus on return-based capital allocations and business portfolio strategies. The Company believes these actions will enable it to generate returns above its cost of capital, with a balanced business portfolio, without endangering its financial profile with unreasonable leverage.

These business portfolio strategies will continue to focus on improving the performance of the Harsco Metals & Minerals Segment while pursuing select growth opportunities. For the Harsco Rail and Harsco Industrial Segments, the Company will focus on disciplined growth, organically and through acquisitions, that improve these businesses' competitive positions in core or adjacent markets. The Company will continue to pursue efficiency initiatives, including Continuous Improvement and operational excellence, which have significantly reduced, and are expected to continue to reduce, the Company's cost structure and further enhance its financial strength without diminishing its services and products capabilities. As part of these initiatives, the Company will continue to focus on maintaining an active, lean corporate center that optimizes corporate costs while continuing to develop value added activities to support the Company.

The Company's expansion into targeted growth markets; its diversity of services and products in industries that are fundamental to global growth; its long-term mill services and minerals supply contracts; its differentiated technologies and innovations; its return based capital allocations and business portfolio strategies; and efficiency initiatives, help mitigate the Company's overall long-term exposure to changes in the economic outlook in any single economy or industry. However, deterioration of global economies and industries could still have an adverse impact on the Company's results of operations, financial condition and cash flows.

The following significant items, risks, trends and strategies are expected to affect the Company in 2018 and beyond:

- The Company will assess capital needs in the context of operational trends and strategic initiatives. Management will be selective and disciplined in allocating capital by rigorously analyzing projects and utilizing a return-based capital allocation process.
- The Company expects its operational effective income tax rate to approximate 26% to 28% in 2018.
- The potential consequences related to uncertainty surrounding the United Kingdom's proposed exit from the European Union may have an impact on the Company results of operations, cash flows and asset valuations in any period particularly in the Harsco Metals & Minerals Segment. See Part I, Item 1A, Risk Factors for additional information.

Harsco Metals & Minerals Segment:

- Steel markets have demonstrated some pricing improvement since early 2016 and the Company experienced improvements in demand and certain commodity prices during 2017. The Company expects these trends to continue in the near-term, which along with the effect of new contracts and additional improvement initiatives, to positively affect operating income in 2018 in the Harsco Metals & Minerals Segment.
- The Company will continue to focus on ensuring that forecasted results and other requirements for contracts meet certain established standards and deliver returns above its cost of capital. In connection with this focus, the possibility exists that the Company may take strategic actions that result in exit costs and non-cash asset impairment charges that may have an adverse effect on the Company's results of operations and liquidity.
- During 2017, the Company entered into the following contracts and agreements:
    - In January 2017, the Company announced two multi-year contracts for steel mill services in China and Brazil with projected revenues totaling more than $100 million;
    - In March 2017, the Company announced a joint agreement with Hydro Industries for waste recycling solutions;
    - In April 2017, the Company announced a ten year mill services contract in Egypt with projected revenues totaling approximately $60 million;
    - In May 2017, the Company announced a multi-year contract in India to provide metal recovery and slag sales services with projected revenues totaling more than $25 million, and formation of a joint venture for metal recovery and slag sales services in Turkey;
    - In August 2017, the Company renewed a scrap management contract for five years in Egypt and announced multi-year contracts for scrap handling at two major steelmaking plans in Latin America totaling more than $50 million in projected revenues; and
    - In December 2017, the Company announced the renewal of a multi-year services contract with the SULB Company to provide slag management, raw material and finished product handling, and other services.
- As the Company has previously disclosed, over the past several years the Company has been in discussions with various governmental regulatory agencies and officials in Bahrain ("Bahrain Agencies") with regard to a processing byproduct ("salt cakes") located at Hafeera. The Company previously recorded a charge of $7.0 million, payable over several years, related to the estimated cost of processing and disposal of the salt cakes. The Company's Bahrain operations that produced the salt cakes has ceased operations, and are owned under a strategic venture for which its strategic venture partner has a 35% minority interest. The Company is currently in active discussions with the Bahrain Agencies over the timing and method for the proposed processing and disposal method. If the Bahrain Agencies do not approve the proposed timing or method, or mandate alternative solutions, the Company’s estimated liability could change, and such change could be material in any one period.
- During 2016, one of the Company's customers announced its intention to conduct a strategic review of its steelmaking operations in Europe. As a result the customer has entered into a memorandum of understanding with another major steelmaker which is also a customer of the Company. Depending on the outcome of any potential transactions, there could be a material impact on the Company's results of operations, cash flows and asset valuations in any one period.
- The Company will focus on growing the Harsco Metals & Minerals Segment through the provision of innovative solutions to handle customers' waste and by-products, improving commercial effectiveness and disciplined investments and acquisitions to improve competitive positioning in core and adjacent markets.

Harsco Industrial Segment:

- As energy markets demonstrated fundamental improvement through 2017, the Harsco Industrial Segment’s air-cooled heat exchangers business has seen steadily improving results and bookings due to market dynamics and improved manufacturing efficiencies. Accordingly, these factors are expected to positively affect revenue and operating income in 2018 in the Harsco Industrial Segment.
- The Harsco Industrial Segment's industrial grating business continues to be impacted by a lack of large-scale projects, delayed capital and maintenance expenditures, competitive market dynamics and increased material costs. Some of these pressures abated in 2017. Customer activity remains lower by historical standards, although recent favorable trends should benefit this Segment in 2018. Accordingly, these factors are expected to positively affect revenue and operating income in 2018 in the Harsco Industrial Segment.
- The Harsco Industrial Segment's heat transfer products should experience improved results due to underlying demand trends and the introduction of new product innovations.
- The Company is committed to maintaining recent efficiency gains in the air-cooled heat exchangers and industrial grating products businesses resulting from improvements implemented in response to the recent industry and economic challenges.
- The Company will continue to focus on product innovation and development to drive strategic growth in its businesses. During January 2017, the Company announced the launch of an all-new capability for remote indoor boiler monitoring that can be downloaded directly to wireless and desktop devices.
- The Company will focus on growing the Harsco Industrial Segment through disciplined organic expansion and acquisitions that improve competitive positioning in core markets or adjacent markets.

Harsco Rail Segment:

- The global demand for railway maintenance-of-way equipment, parts and services continues to be generally positive over the long-term, though the North American market has experienced weakness due to reduced capital and operating spending directed to maintenance-of-way by Class I railways. This Segment's results are anticipated to improve primarily due to continued growth and penetration in after-market parts and growing demand for safety systems.
- During January 2017, the Company announced a new order to equip the entire Denver, Colorado regional railway fleet with enhanced safety systems. During June 2017, the Company announced a new order in the U.K. for seven Stoneblower track geometry machines with deliveries occurring over a two year period starting in late 2019. During September 2017, the Company announced new orders from the regional transit districts serving Washington, D.C. and Sacramento, CA to install enhanced safety systems that alert railway track workings on the ground before trains enter their work zones.
- In prior years, the Company secured two contract awards with initial contract values totaling approximately $200 million from SBB. The majority of deliveries under these contracts are anticipated to occur during late 2017 through 2020 with approximately $42 million of deliveries under the first contract made during 2017. The Harsco Rail Segment recorded an estimated forward loss provision of $45.1 million in 2016 which resulted from increased vendor costs, ongoing discussions with SBB, and increased estimates for commissioning, certification and testing costs, as well as expected settlements with SBB. It is possible that the Company's overall estimate of costs to complete these contracts may increase which would result in an additional estimated forward loss provision at such time.
- The Company will focus on growing the Harsco Rail Segment through disciplined organic expansion and acquisitions that improve competitive positioning in core markets or adjacent markets.

Results of Operations

(In millions, except per share information and percentages)	2017	2016	2015
Total revenues	**$ 1,607.1**	$ 1,451.2	$ 1,723.1
Cost of services and products sold	**1,220.7**	1,170.5	1,356.4
Selling, general and administrative expenses	**234.7**	200.4	242.1
Research and development expenses	**4.2**	4.3	4.5
Loss on disposal of the Harsco Infrastructure Segment and transaction costs	**—**	—	1.0
Other expenses, net	**4.6**	12.6	30.6
Operating income from continuing operations	**142.8**	63.5	88.5
Interest income	**2.5**	2.5	1.6
Interest expense	**(47.6)**	(51.6)	(46.8)
Loss on early extinguishment of debt	**(2.3)**	(35.3)	—
Change in fair value to the unit adjustment liability and loss on dilution and sale of equity method investment	**—**	(58.5)	(8.5)
Income tax expense from continuing operations	**(83.8)**	(6.6)	(27.7)
Equity in income of unconsolidated entities, net	**—**	5.7	0.2
Income (loss) from continuing operations	**11.6**	(80.4)	7.3
Income (loss) from discontinued operations	**0.2**	0.7	(1.0)
Net income (loss)	**11.8**	(79.8)	6.3
Total other comprehensive income (loss)	**63.2**	(93.6)	13.9
Total comprehensive income (loss)	**75.0**	(173.4)	20.3
Diluted income (loss) per common share from continuing operations attributable to Harsco Corporation common stockholders	**0.09**	(1.07)	0.09
Effective income tax rate for continuing operations	**87.8%**	(8.4)%	79.5%

Comparative Analysis of Consolidated Results

Total Revenues

Revenues for 2017 increased $155.8 million or 11% from 2016. This increase was attributable to the following significant items:

Changes in Revenues - 2017 vs. 2016 (In millions)	
Net effect of price/volume changes in the Harsco Metals & Minerals Segment, primarily attributable to volume changes.	$ 55.9
Net effect of price/volume changes in the Harsco Industrial Segment, primarily attributable to volume changes.	52.0
Revenues under the contracts with SBB in the Harsco Rail Segment.	42.5
Net effect of price/volume changes (exclusive of revenues under the SBB contracts), primarily attributable to volume changes in the Harsco Rail Segment.	16.4
Foreign currency translation.	8.0
Net impact of new contracts and lost contracts (including exited underperforming contracts) in the Harsco Metals & Minerals Segment.	(18.4)
Other.	(0.6)
Total change in revenues - 2017 vs. 2016	$ 47.9

Revenues for 2016 decreased $271.9 million or 16% from 2015. This decrease was attributable to the following significant items:

Changes in Revenues - 2016 vs. 2015 (In millions)	
Net impacts of price/volume changes in the Harsco Industrial Segment, primarily attributable to volume changes.	$ (106.4)
Net impact of new contracts and lost contracts (including exited underperforming contracts) in the Harsco Metals & Minerals Segment.	(67.2)
Foreign currency translation.	(51.0)
Net impacts of price/volume changes in the Harsco Metals & Minerals Segment, primarily attributable to volume changes.	(30.1)
Net impacts of price/volume changes, primarily attributable to volume changes in the Harsco Rail Segment.	(17.4)
Other.	0.2
Total change in revenues - 2016 vs. 2015	$ (271.9)

Cost of Services and Products Sold

Cost of services and products sold for 2017 increased $50.3 million or 4% from 2016. This increase was attributable to the following significant items:

Change in Cost of Services and Products Sold - 2017 vs. 2016 (In millions)		
Increased costs due to changes in revenues; and product and service mix (exclusive of foreign currency translation and fluctuations in commodity costs included in selling prices).	$	96.4
Foreign currency translation.		7.5
Decreased costs due to estimated forward loss provision in the Harsco Rail Segment during the prior year (a).		(45.1)
Other.		(8.5)
Total Change in Cost of Services and Products Sold 2017 vs. 2016	$	50.3

Cost of services and products sold for 2016 decreased $185.9 million or 14% from 2015. This decrease was attributable to the following significant items:

Change in Cost of Services and Products Sold - 2016 vs. 2015 (In millions)		
Decreased costs due to changes in revenues; and product and service mix (exclusive of the effects of foreign currency translation and fluctuations in commodity costs included in selling prices).	$	(165.3)
Foreign currency translation.		(47.2)
Other.		(18.5)
Increased costs due to estimated forward loss provision in the Harsco Rail Segment (a).		45.1
Total Change in Cost of Services and Products Sold 2016 vs. 2015	$	(185.9)

(a) See Note 3, Accounts Receivable and Inventories, in Part II, Item 8, "Financial Statements and Supplementary Data" for additional information.

Selling, General and Administrative Expenses

Selling, general and administrative expenses for 2017 increased $34.3 million or 17% from 2016. This increase was primarily related to higher compensation expense related to the timing of stock-based compensation issuances and higher incentive compensation earned; higher bad debt expense in the Metals & Minerals Segment; increased commissions in the Harsco Industrial Segment; and increased professional fees.

Selling, general and administrative expenses for 2016 decreased $41.7 million or 17% from 2015. This decrease was primarily related to the impact of reduced bad debt expense in the Harsco Metals & Minerals Segment; decreased agent and broker commissions in the Harsco Industrial Segment due to lower volume; and foreign currency translation. Additionally, results for 2016 were also impacted by lower pension expense, professional fees and compensation costs associated with Project Orion in the Harsco Metals & Minerals Segment and travel costs.

Other Expenses, Net

This income statement classification includes: certain foreign currency gains, net gains on disposal of non-core assets, employee termination benefit costs and costs to exit activities. Additional information on Other expenses, net is included in Note 16, Other Expenses, Net in Part II, Item 8, “Financial Statements and Supplementary Data." During 2017, 2016 and 2015, the Company recorded pre-tax Other expenses, net of $4.6 million, $12.6 million and $30.6 million, respectively. The major components of this income statement caption are as follows:

	Other (Income) Expenses		
(In thousands)	**2017**	**2016**	**2015**
Net gains	**$ (5,136)**	$ (1,764)	$ (10,613)
Employee termination benefits costs	**7,350**	10,777	14,914
Other costs to exit activities	**1,633**	440	13,451
Impaired asset write-downs	**1,025**	399	8,170
Foreign currency gains related to Harsco Rail Segment advances on contracts	**—**	—	(10,940)
Harsco Metals & Minerals Segment separation costs	**—**	3,235	9,922
Subcontractor settlement	**—**	—	4,220
Other expense	**(231)**	(467)	1,449
Total	**$ 4,641**	$ 12,620	$ 30,573

Interest Expense
Interest expense in 2017 was $47.6 million, a decrease of $4.0 million or 8% compared with 2016. The decrease primarily relates to the Company's overall reduction in debt levels, partially offset by an increase in interest rates associated with the Company's debt. See Note 7, Debt and Credit Agreements, in Part II, Item 8, "Financial Statements and Supplementary Data" for additional information.

Interest expense in 2016 was $51.6 million, an increase of $4.8 million or 10% compared with 2015. The increase primarily relates to $1.1 million of deferred financing costs expensed by the Company during the third quarter of 2016 related to payments for the Term Loan Facility and increased interest rates associated with the Company's borrowings, as well as other financing costs partially offset by lower debt levels. See Note 7, Debt and Credit Agreements, in Part II, Item 8, "Financial Statements and Supplementary Data" for additional information.

Loss on Early Extinguishment of Debt
In December 2017, the Company amended the existing Senior Secured Credit Facility in order to, among other things, reduce the interest rate applicable to the Term Loan Facility, improve certain covenants and extend the maturity date by a year until December 2024. As a result, a charge of $2.3 million was recorded during the fourth quarter of 2017 consisting principally of fees associated with the transaction and the write-off of unamortized deferred financing costs. See Note 7, Debt and Credit Agreements, in Part II, Item 8, "Financial Statements and Supplementary Data" for additional information.

In November 2016, the Company entered into a New Credit Facility, consisting of a $400 million revolving credit facility and a $550 million term loan facility. Upon closing of the New Credit Facility, the Company has amended and extended the existing Revolving Credit Facility, repaid the existing Term Loan Facility and has redeemed, satisfied and discharged the 5.75% Senior Notes due 2018 (the "Notes") in accordance with the indenture governing the Notes. As a result, a charge of $35.3 million was recorded during the fourth quarter of 2016 consisting principally of the cost of early extinguishment of the Notes and the write-off of unamortized deferred financing costs associated with the Company's existing Senior Secured Credit Facilities and the Notes. See Note 7, Debt and Credit Agreements, in Part II, Item 8, "Financial Statements and Supplementary Data" for additional information.

Change in Fair Value to the Unit Adjustment Liability and Loss on Dilution and Sale of Equity Method Investment
The Change in fair value to the unit adjustment liability and loss on dilution and sale of equity method investment during 2016 increased $50.0 million compared with 2015. The increase relates to the loss associated with Company's first quarter of 2016 election not to make the quarterly cash payments to the Company's partner in the Infrastructure strategic venture for the remainder of 2016 and the Company's third quarter of 2016 sale of its remaining equity interest in the Infrastructure strategic venture. See Note 4, Equity Method Investments and Note 14, Financial Instruments, in Part II, Item 8, "Financial Statements and Supplementary Data" for additional information.

Income Tax Expense from Continuing Operations
Income tax expense from continuing operations in 2017 was $83.8 million, an increase of $77.2 million compared with 2016. The effective income tax rate relating to continued operations for 2017 was 87.8% versus (8.4)% for 2016. The increase in income tax expense and the change in the effective income tax rate related to continuing operations was primarily due to the impact of the Act as well as an increase in income. The Company recognized a provisional charge of $48.7 million as a result of revaluing the U.S. ending net deferred tax asset from 35% to the newly enacted U.S. corporate income tax rate of 21% and establishing a valuation allowance on the full amount of foreign tax credit carryforwards of $27.3 million.

Income tax expense from continuing operations in 2016 was $6.6 million, a decrease of $21.0 million compared with 2015. The effective income tax rate relating to continued operations for 2016 was (8.4)% versus 79.5% for 2015. The decrease in income tax expense and the change in the effective income tax rate related to continuing operations was primarily due to the change in the mix in earnings between international jurisdictions and the non-recurring loss on early extinguishment of debt. Additionally, there was no income tax benefit realized from the loss on the sale of the Company's equity interest in Brand, as a valuation allowance of $16.1 million was established to offset the deferred tax assets on the resulting capital loss carryforward. There was also no income tax benefit realized from the estimated forward loss provisions related to the SBB contracts, as a valuation allowance of $13.5 million was established to offset the deferred tax assets on the resulting loss carryforward, because the Company determined that it is not more likely than not that these benefits will be realized in the future.

See Note 10, Income Taxes, in Part II, Item 8, “Financial Statements and Supplementary Data" for additional information.

Total Other Comprehensive Income (Loss)

Total other comprehensive income was $63.2 million in 2017, compared with total other comprehensive loss of $93.6 million in 2016. The major drivers for this change were pension liability adjustments and foreign currency translation adjustments. The pension liability adjustments were favorably impacted by actual returns on plan assets that were significantly higher than expected returns, partially offset by lower discount rates for the U.S. and U.K. defined benefit plans. The foreign currency translation adjustments were positively impacted by the weakening of the U.S. dollar, particularly against the Euro and British Pound Sterling.

Total other comprehensive loss was $93.6 million in 2016, compared with total other comprehensive income of $13.9 million in 2015. The major drivers for this change were pension liability adjustments and foreign currency translation adjustments. The pension liability adjustments were the result of lower global weighted average discount rates, principally for the U.K. plan, which decreased from 3.9% to 3.1% during the year. This was partially offset by actual returns on plan assets that were higher than expected returns. Foreign currency translation adjustments were negatively impacted by the continued strengthening of the U.S. dollar.

Liquidity and Capital Resources

Overview

In December 2017, the Company amended its existing Senior Secured Credit Facility in order to, among other things, reduce the interest rate applicable to the $546 million of term loans outstanding, improve certain covenants and extend the maturity date by a year until December 2024. As a result of this amendment, a charge of $2.3 million was recorded during the fourth quarter of 2017 consisting principally of fees associated with the transaction and the write-off of unamortized deferred financing costs. See Note 7, Debt and Credit Agreements, in Part II, Item 8, "Financial Statements and Supplementary Data" for additional information.

The Company has sufficient financial liquidity and borrowing capacity to support the strategies within each of its businesses. The Company currently expects operational and business needs to be met by cash provided by operations supplemented with borrowings from time to time due to historical patterns of seasonal cash flow and for the funding of various projects. The Company regularly assesses its capital needs in the context of operational trends and strategic initiatives.

The Company continues to implement and perform capital efficiency initiatives to enhance liquidity and working capital efficiency. These initiatives have included: prudent allocation of capital spending to those projects where the highest results can be achieved; optimization of worldwide cash positions; reductions in discretionary spending; frequent evaluation of customer and business-partner credit risk; and Continuous Improvement initiatives aimed at improving the effective and efficient use of working capital, particularly in accounts receivable and inventories.

During 2017, the Company generated $176.9 million in operating cash flow, an increase from the $159.9 million generated in 2016.

In 2017, the Company invested $98.3 million in capital expenditures, mostly for the Harsco Metals & Minerals Segment, compared with $69.3 million in 2016. The Company generated $13.4 million in cash flow from asset sales in 2017 compared with $9.3 million in 2016. Asset sales have been a normal part of the Company's business model, primarily for the Harsco Metals & Minerals Segment.

In September 2016, the Company received approximately $145 million in cash, net, from the sale of its remaining 26% equity interest in Brand. In 2016, the Company received proceeds from the termination of cross-currency interest rate swaps ("CCIRs") of $16.6 million in 2016. The Company paid $4.1 million in dividends to stockholders in 2016. In 2016, the Company suspended the quarterly dividend to preserve financial flexibility. The Board of Directors (the "Board") will continue to evaluate the Company's dividend policy each quarter.

Net cash outflows related to the Company's borrowings were $75.2 million in 2017 principally due to the utilization of operating cash flows to reduce debt. There were net cash outflows of $261.2 million in 2016 related to the Company's borrowings principally due to proceeds from the sale of the Company's equity interest in Brand, utilization of operating cash flows and proceeds from the termination of CCIRs. The Company’s consolidated net debt to consolidated adjusted earnings before interest, tax, depreciation and amortization ("EBITDA") ratio, as defined by the Credit Agreement, was 1.9 to 1.0 at December 31, 2017 compared with 2.3 to 1.0 at December 31, 2016.

Cash Requirements

The following summarizes the Company's expected future payments related to contractual obligations and commercial commitments at December 31, 2017:

Contractual Obligations and Commercial Commitments at December 31, 2017 (a)

(In millions)	Total	Payments Due by Period Less than 1 year	1-3 years	3-5 years	After 5 years
Short-term borrowings	$ 8.6	$ 8.6	$ —	$ —	$ —
Long-term debt (including current maturities and capital leases)	593.7	11.2	11.9	52.0	518.6
Projected interest payments on long-term debt (b)	177.1	26.8	53.5	51.1	45.7
Purchase obligations (c)	147.7	86.5	32.8	28.4	—
Operating leases (non-cancellable)	57.4	12.8	17.9	10.5	16.2
Pension obligations (d)	29.1	29.1	—	—	—
Foreign currency exchange forward contracts (e)	1.9	1.9	—	—	—
Total contractual obligations (f)	$ 1,015.5	$ 176.9	$ 116.1	$ 142.0	$ 580.5

(a) See Note 7, Debt and Credit Agreements; Note 8, Operating Leases; Note 9, Employee Benefit Plans; Note 10, Income Taxes; and Note 14, Financial Instruments, in Part II, Item 8, "Financial Statements and Supplementary Data," for additional information on short-term borrowings and long-term debt (including capital leases); operating leases; employee benefit plans; income taxes and foreign currency exchange forward contracts, respectively.

(b) The total projected interest payments on long-term debt are based upon borrowings, interest rates and foreign currency exchange rates at December 31, 2017, including interest rate swaps currently in effect. The interest rates on variable-rate debt and the foreign currency exchange rates are subject to changes beyond the Company's control and may result in actual interest expense and payments differing from the amounts projected above.

(c) Purchase obligations represent legally binding obligations to purchase property, plant and equipment, inventory and other commitments made in the normal course of business to meet operations requirements.

(d) Amounts represent expected employer contributions to defined benefit pension plans for the next year.

(e) Amounts represent the fair value of the foreign currency exchange contracts outstanding at December 31, 2017. Due to the nature of these contracts, based on fair values at December 31, 2017 there will be net cash payable of $1.9 million comprised of cash payments of $671.9 million and cash receipts of $670.0 million. The foreign currency exchange contracts are recorded on the Consolidated Balance sheets at fair value.

(f) At December 31, 2017, in addition to the above contractual obligations, the Company had $4.7 million of potential long-term tax liabilities, including interest and penalties, related to uncertain tax positions. Because of the high degree of uncertainty regarding the future cash flows associated with these potential long-term tax liabilities, the Company is unable to estimate the years in which settlement will occur with the respective taxing authorities.

Off-Balance Sheet Arrangements

The following table summarizes the Company's contingent commercial commitments at December 31, 2017. These amounts are not included on the Consolidated Balance Sheets since there are no current circumstances known to management indicating that the Company will be required to make payments on these contingent commercial commitments.

Commercial Commitments at December 31, 2017

(In millions)	Total	Amount of Commercial Commitment Expiration Per Period Less than 1 Year	1-3 Years	3-5 Years	Over 5 Years	Indefinite Expiration
Performance bonds	$ 132.2	$ 127.3	$ 3.2	$ —	$ —	$ 1.7
Standby letters of credit	70.2	63.4	6.8	—	—	—
Guarantees	78.9	10.5	2.9	4.6	—	60.9
Other commercial commitments	11.1	—	—	—	—	11.1
Total commercial commitments	$ 292.4	$ 201.2	$ 12.9	$ 4.6	$ —	$ 73.7

Certain commercial commitments that are of a continuous nature do not have an expiration date and are therefore considered to be indefinite in nature. See Note 14, Financial Instruments, in Part II, Item 8, "Financial Statements and Supplementary Data," for additional information.

Sources and Uses of Cash

The Company’s principal sources of liquidity are cash provided by operations and borrowings under its Senior Secured Credit Facility, augmented by cash proceeds from asset sales. The primary drivers of the Company’s cash flow from operations are the Company’s revenues and income. Cash returns on capital investments made in the prior years, for which limited cash is currently required, are a significant source of cash provided by operations. Depreciation expense related to these investments is a non-cash charge.

The Company plans to redeploy discretionary cash for potential growth opportunities, such as disciplined organic growth, higher-return service contract opportunities, disciplined investments and possible acquisitions to improve competitive positioning in core and adjacent markets for the Harsco Metals & Minerals Segment and strategic investments or possible acquisitions in the Harsco Rail and Harsco Industrial Segments that improve competitive positioning in core markets or adjacent markets.

Resources Available for Cash Requirements for Operational and Growth Initiatives
In addition to utilizing cash provided by operations and cash proceeds from asset sales, the Company has bank credit facilities available throughout the world. The Company also utilizes capital leases to finance the acquisition of certain equipment when appropriate, which allows the Company to minimize capital expenditures. The Company expects to continue to utilize all these sources to meet future cash requirements for operations and growth initiatives.

In December 2017, the Company amended its Senior Secured Credit Facility, originally entered into by the Company in November 2016, in order to, among other things, reduce the interest rate applicable to the $546 million of term loans outstanding, improve certain covenants and extend the maturity date by a year until December 2024. See Note 7, Debt and Credit Agreements, in Part II, Item 8, "Financial Statements and Supplementary Data" for additional information.

Borrowings under the $400 million Revolving Credit Facility bear interest at a rate per annum ranging from 87.5 to 200 basis points over the base rate or 187.5 to 300 basis points over the adjusted London Interbank Offered Rate ("LIBOR") as defined in the credit agreement governing the Senior Secured Credit Facility (the "Credit Agreement"). Any principal amount outstanding under the Revolving Credit Facility is due and payable on the maturity of the Revolving Credit Facility. The Revolving Credit Facility matures on November 2, 2021.

Borrowings under the $546 million Term Loan Facility bear interest at a rate per annum of 200 basis points over the base rate or 300 basis points over the adjusted LIBOR rate, subject to a 1% floor, as defined in the Credit Agreement. The Term Loan Facility requires scheduled quarterly payments, each equal to 0.25% of the original principal amount of the loans under the Term Loan Facility. These payments are reduced by the application of any prepayments and any remaining balance is due and payable on the maturity of the Term Loan Facility. The Term Loan Facility matures on December 8, 2024.

The Senior Secured Credit Facility imposes certain restrictions including, but not limited to, restrictions as to types and amounts of debt and liens that may be incurred by the Company; limitations on increases in dividend payments and limitations on certain acquisitions by the Company.

The obligations of the Company are guaranteed by substantially all of the Company's current and future wholly-owned domestic subsidiaries ("Guarantors"). All obligations under the Senior Credit Facility, and the guarantees of those obligations, are secured, subject to certain exceptions, by substantially all of the Company's assets and the assets of the Guarantors.

In January 2017, the Company entered into a series of fixed-floating interest rate swaps that cover the period from 2018 through 2021, and had the effect of converting $300 million of the Term Loan Facility from floating-rate to fixed-rate. The fixed rates provided by the swaps replace the adjusted LIBOR rate in the interest calculation, range from 1.65% for 2018 to 2.71% for 2021.

The following table illustrates available credit at December 31, 2017:

(In millions)	Facility Limit	Outstanding Balance	Outstanding Letters of Credit	Available Credit
Multi-year revolving credit facility	$ 400.0	$ 41.0	$ 31.4	$ 327.6

At December 31, 2017, the Company had $586.9 million of borrowings under the Senior Secured Credit Facility consisting of $545.9 million under the Term Loan Facility and $41.0 million under the Revolving Credit Facility. At December 31, 2017, of this balance, $581.4 million was classified as long-term debt and $5.5 million was classified as current maturities of long-term debt on the Consolidated Balance Sheet. At December 31, 2016, the Company had $648.0 million of borrowings under the Senior Secured Credit Facilities consisting of $550.0 million under the term loan A facility and $98.0 million under the Revolving Credit Facility. At December 31, 2016, of this balance, $642.5 million was classified as long-term debt and $5.5 million was classified as current maturities of long-term debt on the Consolidated Balance Sheets. See Note 7, Debt and Credit Agreements, in Part II, Item 8, "Financial Statements and Supplementary Data," for additional information on the Company's Credit Agreement.

Working Capital Position

Changes in the Company's working capital are reflected in the following table:

(Dollars in millions)	December 31 2017	December 31 2016	Increase (Decrease)
Current Assets			
Cash and cash equivalents	**$ 62.1**	$ 69.8	$ (7.7)
Restricted cash	**4.1**	2.0	2.1
Trade accounts receivable, net	**288.0**	236.6	51.5
Other receivables, net	**20.2**	21.1	(0.8)
Inventories	**178.3**	187.7	(9.4)
Other current assets	**39.3**	33.1	6.2
Total current assets	**592.1**	550.3	41.8
Current Liabilities			
Short-term borrowings and current maturities	**19.8**	29.8	(10.0)
Accounts payable	**126.2**	108.0	18.3
Accrued compensation	**60.5**	46.7	13.8
Income taxes payable	**5.1**	4.3	0.8
Advances on contracts and other customer advances	**118.0**	117.3	0.6
Other current liabilities	**144.5**	121.6	22.9
Total current liabilities	**474.1**	427.7	46.5
Working Capital	**$ 118.0**	$ 122.6	$ (4.6)
Current Ratio (g)	**1.2:1**	1.3:1	

(g) Calculated as Current assets / Current liabilities

Working capital decreased $4.6 million or 3.8% in 2017 due primarily to the following factors:

- Working capital was negatively impacted by an increase in Other current liabilities of $22.9 million, primarily due to the timing of settlement of the Company's foreign currency exchange forward contracts, foreign currency translation and timing of non-income tax payments;
- Working capital was negatively impacted by an increase in Accounts payable of $18.3 million, primarily due to the timing of payments and the impact of foreign currency translation; and
- Working capital was negatively impacted by an increase in Accrued compensation of $13.8 million, primarily due to higher incentive compensation earned in 2017.

These working capital decreases were partially offset by the following factors:

- Working capital was positively affected by an increase in Trade accounts receivable, net of $51.5 million, primarily due to increased sales and the timing of sales and collections in all segments, as well as foreign currency translation; and
- Working capital was positively affected by a decrease in Short-term borrowings and current maturities of $10.0 million, primarily due to debt repayments.

Certainty of Cash Flows

The Company has historically generated the majority of its cash flows in the second half of the year. The certainty of the Company's future cash flows is underpinned by the long-term nature of the Company's metals services contracts, the order backlog for the Company's railway track maintenance services and equipment and overall discretionary cash flows (operating cash flows plus cash from asset sales in excess of the amounts necessary for capital expenditures to maintain current revenue levels) generated by the Company. Historically, the Company has utilized these discretionary cash flows for growth-related capital expenditures, strategic acquisitions, debt repayment and dividend payments.

The types of products and services that the Company provides are not subject to rapid technological change, which increases the stability of related cash flows. Additionally, the Company believes each business in its portfolio is a leader in the industries and major markets the Company serves. Due to these factors, the Company is confident in the Company's future ability to generate positive cash flows from operations.

Cash Flow Summary
The Company's cash flows from operating, investing and financing activities, as reflected on the Consolidated Statements of Cash Flows, are summarized in the following table:

(In millions)	2017	2016	2015
Net cash provided (used) by:			
Operating activities	**$ 176.9**	$ 159.9	$ 121.8
Investing activities	**(103.3)**	122.9	(130.4)
Financing activities	**(83.7)**	(292.4)	22.2
Impact of exchange rate changes on cash	**4.5**	1.7	3.3
Net change in cash and cash equivalents	**$ (5.7)**	$ (7.9)	$ 16.9

Cash provided by operating activities **—** Net cash provided by operating activities in 2017 was $176.9 million, an increase of $17.0 million from 2016. The increase is primarily attributable to the timing of accounts payable, lower inventories and an increase in cash net income. This increase was partially offset by timing of sales and collections of accounts receivable and a net decrease in advances on contracts and other customer advances received and utilized. Net cash provided by operating activities in 2016 was $159.9 million, an increase of $38.1 million from 2015. The increase is primarily attributable to timing in inventory purchases, increases in accrued compensation and increases on advances on contracts; partially offset by the timing of accounts receivable invoicing and collections and the timing of accounts payable.

Included in the Cash flows from operating activities section of the Consolidated Statement of Cash Flows is the caption, Other, net. In 2015, this caption included the Harsco Rail Segment foreign exchange gain which is reflected in the Effect of exchange rate changes on cash.

Also included in the Cash flows from operating activities section of the Consolidated Statements of Cash Flows is the caption, Other assets and liabilities. For the year ended December 31, 2017, the increase in this caption was $3.4 million and for the years ended 2016 and 2015, the decreases in this caption were $13.3 million and $6.7 million, respectively. A summary of the major components of this caption for the periods presented is as follows:

(In millions)	2017	2016	2015
Net cash provided by (used in):			
Change in prepaid expenses	**$ (3.7)**	**$ 6.7**	$ —
Change in non-current insurance accruals	**(3.0)**	**(5.0)**	(5.0)
Other (h)	**10.1**	**(15.0)**	(1.7)
Total	**$ 3.4**	$ (13.3)	$ (6.7)

(h) Other relates primarily to other accruals that are individually not significant.

Cash provided (used) by investing activities — Net cash used by investing activities in 2017 was $103.3 million, a decrease of $226.2 million from 2016. The decrease was primarily due to the gross proceeds received from the sale of the Company's investment in Brand which occurred in September 2016 and an increase in capital expenditures, primarily in the Company's Harsco Metals & Minerals Segment, in 2017, compared with 2016 and higher net foreign currency hedge settlement payments. In 2016, net cash provided by investing activities was $122.9 million, an increase of $253.3 million from 2015. The increase is primarily due to the gross proceeds received from the sale of the Company's remaining 26% equity interest in Brand; a lower level of capital expenditures in the Harsco Metals & Minerals Segment, no payments for the unit adjustment liability; and an increase related to foreign currency hedge settlement proceeds.

Cash provided (used) by financing activities — Net cash used by financing activities in 2017 was $83.7 million, a decrease of $208.6 million from 2016. The change was primarily due to lower repayments of the Company's borrowings in 2017; a deferred pension underfunding payment related to the Company's equity interest in Brand and payment of deferred financing costs which occurred in 2016 and did not repeat in 2017. This increase was partially offset by proceeds from the termination of CCIRs which occurred in 2016 but did not repeat in 2017. In 2016, net cash provided by financing activities was $292.4 million, an increase of $314.6 million from 2015. The change was primarily due to net cash payments on debt of $261.2 million in 2016 compared with $47.3 million in 2015; reduction in proceeds from the termination of CCIRs and a deferred pension underfunding payment related to the Company's equity interest in Brand; partially offset by lower dividends paid and no repurchases of the Company's common stock in 2016.

Debt Covenants
The Credit Agreement contains a consolidated net debt to consolidated adjusted EBITDA ratio covenant, which is not to exceed 3.75 to 1.0 and a minimum consolidated adjusted EBITDA to consolidated interest charges ratio covenant, which is not to be less than 3.0 to 1.0. The consolidated net debt to consolidated adjusted EBITDA ratio covenant is reduced to 3.5 to 1.0 after December 31, 2018. At December 31, 2017, the Company was in compliance with these covenants as the net leverage ratio was 1.9 to 1.0 and interest coverage ratio was 6.0 to 1.0. Based on balances and covenants in effect at December 31, 2017, the Company could increase net debt by $537.9 million and still be in compliance with these debt covenants. Alternatively, keeping all other factors constant, the Company's adjusted EBITDA could decrease by $143.4 million and the Company would still be within these debt covenants. The Company expects to continue to be in compliance with these debt covenants for at least the next twelve months.

Cash Management
The Company has various cash management systems throughout the world that centralize cash in various bank accounts where it is economically justifiable and legally permissible to do so. These centralized cash balances are then redeployed to other operations to reduce short-term borrowings and to finance working capital needs or capital expenditures. Due to the transitory nature of cash balances, they are normally invested in bank deposits that can be withdrawn at will or in very liquid short-term bank time deposits and government obligations. The Company's policy is to use the largest banks in the various countries in which the Company operates. The Company monitors the creditworthiness of banks and, when appropriate, will adjust banking operations to reduce or eliminate exposure to less creditworthy banks. The Company plans to continue the strategy of targeted, prudent investing for strategic purposes for the foreseeable future and to make more efficient use of existing investments.

At December 31, 2017, the Company's consolidated cash and cash equivalents included $60.8 million held by non-U.S. subsidiaries. At December 31, 2017, approximately 1.2% of the Company's consolidated cash and cash equivalents had regulatory restrictions that would preclude the transfer of funds with and among subsidiaries. Non-U.S. subsidiaries also held $18.9 million of cash and cash equivalents in consolidated strategic ventures. The strategic venture agreements may require strategic venture partner approval to transfer funds with and among subsidiaries. While the Company's remaining non-U.S. cash and cash equivalents can be transferred with and among subsidiaries, the majority of these non-U.S. cash balances will be used to support the ongoing working capital needs and continued growth of the Company's non-U.S. operations.

The Company's financial position and debt capacity should enable it to meet current and future requirements. The Company continues to assess its capital needs in the context of operational trends, capital market conditions and strategic initiatives.

Application of Critical Accounting Policies

The Company's discussion and analysis of its financial condition and results of operations are based upon the consolidated financial statements, which have been prepared in accordance with generally accepted accounting principles in the U.S. ("U.S. GAAP"). The preparation of these consolidated financial statements requires the Company to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses. On an ongoing basis, the Company evaluates the estimates, including those related to defined benefit pension benefits, notes and accounts receivable, goodwill, long-lived asset impairment, inventories, revenue recognition long-term contracts, insurance reserves and income taxes. The impact of changes in these estimates, as necessary, is reflected in the respective segment's results of operations in the period of the change. The Company bases estimates on historical experience and various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different outcomes, assumptions or conditions.

The Company believes the following critical accounting policies are affected by the Company's more significant judgments and estimates used in the preparation of the consolidated financial statements. Management has discussed the development and selection of the critical accounting estimates described below with the Audit Committee of the Board and they have reviewed the Company's disclosures relating to these estimates in this Management's Discussion and Analysis of Financial Condition and Results of Operations. These items should be read in conjunction with Note 1, Summary of Significant Accounting Policies, in Part II, Item 8, "Financial Statements and Supplementary Data."

Defined Benefit Pension Benefits
The Company has defined benefit pension plans in several countries. The largest of these plans are in the U.K. and the U.S. The Company's funding policy for these plans is to contribute amounts sufficient to meet the minimum funding pursuant to U.K. and U.S. statutory requirements, plus any additional amounts that the Company may determine to be appropriate.

Changes in the discount rate assumption and the actual performance of plan assets compared with the expected long-term rate of return on plan assets are the primary drivers in the change in funded status of the Company's defined benefit pension plans. These factors are components of actuarial loss (gain) and impact the amount recognized in Other comprehensive income (loss), as such actuarial changes are not reflected directly on the Consolidated Statements of Operations, but amortized over time in accordance with U.S. GAAP.

Critical Estimate—Defined Benefit Pension Benefits
Accounting for defined benefit pension plans requires the use of actuarial assumptions. The principal assumptions used include the discount rate and the expected long-term rate of return on plan assets. Each assumption is reviewed annually and represents management's best estimate at that time. The assumptions are selected to represent the average expected experience over time and may differ, in any one year, from actual experience due to changes in capital markets and the overall economy. These differences will impact the amount of unfunded benefit obligation and the expense recognized.

The discount rates used in calculating the Company's projected benefit obligations at the December 31, 2017 measurement date for the U.K. and U.S. defined benefit pension plans were 2.5% and 3.5%, respectively, and the global weighted-average discount rate was 2.8%. The discount rates selected represent level-equivalent rates using the yield curve spot rates on a year-by-year expected cash flow basis, using yield curves of high-quality corporate bonds. Annual net periodic pension cost ("NPPC") is determined using the discount rates at the beginning of the year. The discount rates for 2017 expense were 2.7% for the U.K. plan, 4.0% for the U.S. plans and 3.1% for the global weighted-average of plans.

The expected long-term rate of return on plan assets is determined by evaluating the asset return expectations with the Company's advisors as well as actual, long-term, historical results of asset returns for the pension plans. Generally the NPPC increases as the expected long-term rate of return on assets decreases. For 2018 and 2017, the global weighted-average expected long-term rate of return on asset assumption is 6.0% and 6.2%, respectively. This rate was determined based on a model of expected asset returns for an actively managed portfolio.

Changes in NPPC may occur in the future due to changes in actuarial assumptions and due to changes in returns on plan assets resulting from financial market conditions. Holding all other assumptions constant, using December 31, 2017 plan data, a one-quarter percent increase or decrease in the discount rate and the expected long-term rate of return on plan assets would increase or decrease annual 2017 pre-tax defined benefit NPPC as follows:

Approximate Changes in Pre-tax Defined Benefit Net Periodic Pension Cost

	U.S. Plans	U.K. Plan
Discount rate		
One-quarter percent increase	Increase of $0.1 million	Decrease of $0.3 million
One-quarter percent decrease	Decrease of $0.1 million	Increase of $0.2 million
Expected long-term rate of return on plan assets		
One-quarter percent increase	Decrease of $0.6 million	Decrease of $2.0 million
One-quarter percent decrease	Increase of $0.6 million	Increase of $2.0 million

Increases or decreases to the net pension obligations may be required should circumstances that affect these estimates change. Additionally, certain events could result in the pension obligation changing at a time other than the annual measurement date. This would occur when a benefit plan is amended or when plan curtailments or settlements occur.

The Company has changed the method utilized to estimate the service cost and interest cost components of NPPC for defined benefit pension plans for 2016 and later. The more precise application of discount rates for measuring both service costs and interest costs employs yield curve spot rates on a year-by-year expected cash flow basis, using the same yield curves that the Company has previously used. This change in method represented a change in accounting estimate and was accounted for in the period of change.

See Note 9, Employee Benefit Plans, in Part II, Item 8, "Financial Statements and Supplementary Data," for additional information.

Notes and Accounts Receivable
Notes and accounts receivable are stated at net realizable value through the use of an allowance for doubtful accounts. The allowance for doubtful accounts is maintained for estimated losses resulting from the inability or unwillingness of customers to make required payments. The Company has policies and procedures in place requiring customers to be evaluated for creditworthiness prior to the execution of new service contracts or shipments of products. These reviews are structured to minimize the Company's risk related to realizability of receivables. Despite these policies and procedures, the Company may at times still experience collection problems and potential bad debts due to economic conditions within certain industries (e.g., steel industry), countries or regions in which the Company operates. At December 31, 2017 and 2016, trade accounts receivable of $288.0 million and $236.6 million, respectively, were net of reserves of $4.7 million and $11.8 million, respectively.

Critical Estimate—Notes and Accounts Receivable
A considerable amount of judgment is required to assess the realizability of receivables, including the current creditworthiness of each customer, related aging of past due balances and the facts and circumstances surrounding any non-payment. The Company's provisions for bad debts during 2017 and 2015 were $5.3 million and $13.0 million, respectively. The Company did not make any significant provisions for bad debts during 2016.

On a monthly basis, customer accounts are analyzed for collectability. Reserves are established based upon a specific-identification method as well as historical collection experience, as appropriate. The Company also evaluates specific accounts when it becomes aware of a situation in which a customer may not be able to meet its financial obligations due to a deterioration in financial condition, credit ratings, bankruptcy or receivership. The reserves are based on the facts available to the Company and are re-evaluated and adjusted as additional information becomes available. Reserves are also determined by using percentages (based upon experience) applied to certain aged receivable categories. Specific issues are discussed with corporate management and any significant changes in reserve amounts or the write-off of balances must be approved by specifically designated corporate personnel. All approved items are monitored to ensure they are recorded in the proper period. Additionally, any significant changes in reserve balances are reviewed to ensure the proper corporate approval has occurred.

If the financial condition of the Company's customers were to deteriorate, resulting in their inability to make payments, additional allowances may be required. Conversely, an improvement in a customer's ability to make payments could result in a decrease of the allowance for doubtful accounts. Changes in the allowance for doubtful accounts related to both of these situations would be recorded through Operating income from continuing operations in the period the change was determined. As previously disclosed, one of the Company's customers for the Harsco Metals & Minerals Segment in Australia had entered into the process of voluntary administration under Australian law, the purpose of which was to focus on long-term solvency. The result of this administration process was that the customer's operations were sold to a new owner in August 2017. In September 2017, the administrators informed the Company that most of the pre-administration accounts receivable balance would not be paid, and as a result the Company recorded a bad debt expense of $4.6 million during the third quarter of 2017. The Company continues to provide services for the new owner pending a formalization of a new contract. As previously disclosed during 2015, one of the Company's steel mill customers in Europe ceased operations and began a formal process of liquidation in late 2015. The Company had recorded bad debt reserves of approximately $13 million related to this customer during 2015.

The Company has not materially changed the methodology for calculating allowances for doubtful accounts for the years presented. See Note 3, Accounts Receivable and Inventories, in Part II, Item 8, "Financial Statements and Supplementary Data," for additional information.

Goodwill
The Company's goodwill balances were $401.8 million and $382.3 million at December 31, 2017 and 2016, respectively. The Company performs the annual goodwill impairment test as of October 1. The Company has five reporting units (only three of which have goodwill associated with them as of December 31, 2017). The Company's reporting units with goodwill are the Harsco Metals & Minerals Segment, the Harsco Rail Segment and the air-cooled heat exchanger business of the Harsco Industrial Segment. Almost all of the Company's goodwill is allocated to the Harsco Metals & Minerals Segment.

Critical Estimate—Goodwill
In accordance with U.S. GAAP, goodwill is not amortized and is tested for impairment at least annually or more frequently if indicators of impairment exist or if a decision is made to dispose of a business. Goodwill is allocated among and evaluated for impairment at the reporting unit level, which is defined as an operating segment or one level below an operating segment for which discrete financial information is available. A significant amount of judgment is involved in determining if an indicator of impairment has occurred. Such indicators may include declining cash flows or operating losses at the reporting unit level, a significant adverse change in legal factors or in the business climate, an adverse action or assessment by a regulator, unanticipated competition, a loss of key personnel or a more likely than not expectation that a reporting unit or a significant portion of a reporting unit will be sold or otherwise disposed of, among others.

The evaluation of potential goodwill impairment involves comparing the current fair value of each reporting unit to the net book value, including goodwill. The Company uses a discounted cash flow model ("DCF model") to estimate the current fair value of reporting units, as management believes forecasted operating cash flows are the best indicator of current fair value. A number of significant assumptions and estimates are involved in the preparation of DCF models, including future revenues and operating margin growth, the weighted-average cost of capital ("WACC"), tax rates, capital spending, pension funding, the impact of strategic business initiatives and working capital projections. These assumptions and estimates may vary significantly among reporting units. DCF models are based on approved long-range plans for the early years and historical relationships and projections for later years. WACC rates are derived from internal and external factors including, but not limited to, the average market price of the Company's stock, shares outstanding, book value of the Company's debt, the long-term risk free interest rate, and both market and size-specific risk premiums. Due to the many variables noted above and the relative size of the Company's goodwill, differences in assumptions may have a material impact on the results of the Company's annual goodwill impairment testing. If the net book value of a reporting unit were to exceed the current fair value, the second step of the goodwill impairment test would currently be required to determine if an impairment existed and the amount of goodwill impairment to record, if any. The second step of the goodwill impairment test compares the net book value of a reporting unit's goodwill with the implied fair value of that goodwill. The implied fair value of goodwill represents the excess of fair value of the reporting unit over the fair value amounts assigned to all of the assets and liabilities of the reporting unit if it were to be acquired in a hypothetical business combination and the current fair value of the reporting unit represented the purchase price. The second step of the goodwill impairment test may require the utilization of valuation experts.

The performance of the Company's 2017 annual impairment tests did not result in any impairment of the Company's goodwill.
For the Company's 2017 annual goodwill impairment test, the average annual revenue growth rates over the duration of the DCF models ranged from 1.6% to 4.5%. The WACCs used in the 2017 annual goodwill impairment test ranged from 8.75% to 11.50%.

See Note 1, Summary of Significant Accounting Policies and Note 6, Goodwill and Other Intangible Assets, in Part II, Item 8, "Financial Statements and Supplementary Data," for additional information.

Long-lived Asset Impairment
Long-lived assets are reviewed for impairment when events and circumstances indicate that the book value of an asset may be impaired. The amounts charged against pre-tax income from continuing operations related to impaired long-lived assets included in Other expenses, net on the Consolidated Statements of Operations were $1.0 million, $0.4 million and $8.2 million in 2017, 2016 and 2015, respectively. The increased level in long-lived asset impairments in 2015 was due primarily to site exits in the Harsco Metals & Minerals Segment associated with actions related to Project Orion.

Critical Estimate—Asset Impairment
The determination of a long-lived asset impairment involves significant judgments based upon short-term and long-term projections of future asset performance. If the undiscounted cash flows associated with an asset (or asset group) do not exceed the asset's book value, impairment loss estimates would be based upon the difference between the book value and fair value of the asset. The fair value is generally based upon the Company's estimate of the amount that the assets could be bought or sold for in a transaction between willing parties. If quoted market prices for the asset or similar assets are unavailable, the fair value estimate is generally calculated using a DCF model. Should circumstances change that affect these estimates, additional impairment charges may be required and would be recorded through income in the period the change was determined.

The Company has not materially changed the methodology for calculating long-lived asset impairments for the years presented. U.S. GAAP requires consideration of all valuation techniques for which market participant inputs can be obtained without undue cost and effort. The use of a DCF model continues to be an appropriate method for determining fair value; however, methodologies such as quoted market prices must also be evaluated. See Note 16, Other Expenses, Net in Part II, Item 8, "Financial Statements and Supplementary Data," for additional information.

Inventories
Inventories are stated at the lower of cost or market for those inventories accounted for using the last-in, first-out ("LIFO") method and at the lower of cost or net realizable value for all other inventory balances. Inventory balances are adjusted for estimated obsolete or unmarketable inventory equal to the difference between the cost of inventory and its net realiazble value or estimated market value, as applicable. At December 31, 2017 and 2016, inventories of $178.3 million and $187.7 million, respectively, are net of reserves of $14.1 million and $10.6 million, respectively.

Certain contracts within the Harsco Rail Segment, which meet specific criteria established in U.S. GAAP, are accounted for as long-term contracts. Inventories related to these contracts are considered Contracts-in-process and represent a separate component of Inventories. At December 31, 2017 and 2016, Contracts-in-process of $45.6 million and $54.0 million, respectively, were included in Inventories. Contracts-in-process at December 31, 2017 and 2016 were net of estimated forward loss-provisions related to these contacts of $28.1 and $36.2 million, respectively.

Critical Estimate—Inventories
In assessing the realization of inventory balances, the Company is required to make judgments as to future demand and compare these with current or committed inventory levels. If actual market conditions are determined to be less favorable than those projected by management, additional inventory write-downs may be required and would be recorded through Operating income from continuing operations in the period the determination is made. Additionally, the Company records reserves to adjust a substantial portion of its U.S. inventory balances to the LIFO method of inventory valuation. In adjusting these reserves throughout the year, the Company estimates its year-end inventory costs and quantities. At December 31 of each year, the reserves are adjusted to reflect actual year-end inventory costs and quantities. During periods of inflation, LIFO expense usually increases and during periods of deflation it decreases. These year-end adjustments resulted in pre-tax income of $2.0 million in 2017 and $1.2 million in 2016 and pre-tax expense of $0.1 million in 2015.

The Company has not materially changed the methodology for calculating inventory reserves for the years presented. See Note 3, Accounts Receivable and Inventories, in Part II, Item 8, "Financial Statements and Supplementary Data," for additional information.

Revenue Recognition - Long-term Contracts
Certain contracts within the Harsco Rail Segment, which meet specific criteria established in U.S. GAAP, are accounted for as long-term contracts, under the percentage-of-completion (units-of-delivery) method of accounting.

Critical Estimate—Revenue Recognition - Long-term Contracts
Accounting for contracts using the percentage-of-completion method requires significant judgment relative to assessing risks, estimating contract revenues and costs (including estimating any liquidating damages or penalties related to performance) and making assumptions for schedule and technical items. Due to the number of years it may take to complete these contracts and the scope and nature of the work required to be performed on those contracts, estimating total sales and costs at completion is inherently complicated and subject to many variables. Accordingly, estimates are subject to change as experience is gained and as more information is obtained, even though the scope of the work under the contract may not have changed. When adjustments in estimated total contract sales or estimated total costs are required, any changes from prior estimates are recognized in the current period for the inception-to-date effect of such changes. When estimates of total costs to be incurred on a contract using the percentage-of-completion method exceed estimates of total sales to be earned, a provision for the entire loss on the contract is recorded in the period in which the loss is determined.

During 2016, as a result of increased vendor costs, ongoing discussions with SBB, and increased estimates for commissioning, certification and testing costs, as well as expected settlements with SBB, the Company concluded it will have a loss on the contracts with SBB. The Company recognized an estimated forward loss provision related to the SBB contracts of
$45.1 million for the year ended December 31, 2016 in Costs of products sold on the Consolidated Statements of Operations. No incremental provision was recorded for the year ended December 31, 2017 and the company made deliveries under the contract for which some of the provision was utilized. The remaining estimated forward loss provision of $31.1 million at December 31, 2017 represents the Company's best estimate based on currently available information. It is possible that the Company's overall estimate of costs to complete these contracts may change which would result in an adjustment to the estimated forward loss provision at such time, but the Company is unable to estimate any further possible loss or range of loss at December 31, 2017.

Insurance Reserves
The Company retains a significant portion of the risk for U.S. workers' compensation, U.K. employers' liability, automobile, general and product liability losses. At December 31, 2017 and 2016, the Company recorded liabilities of $33.6 million and $37.1 million, respectively, related to both asserted and unasserted insurance claims. At December 31, 2017 and 2016,
$4.1 million and $3.5 million, respectively, was included in insurance liabilities related to claims covered by insurance carriers for which a corresponding receivable has been recorded.

Critical Estimate—Insurance Reserves
Insurance reserves have been recorded based upon actuarial calculations that reflect the undiscounted estimated liabilities for ultimate losses, including claims incurred but not reported. Inherent in these estimates are assumptions that are based on the Company's history of claims and losses, a detailed analysis of existing claims with respect to potential value, and current legal and legislative trends. If actual claims differ from those projected by management, changes (either increases or decreases) to insurance reserves may be required and would be recorded through Operating income from continuing operations in the period the change was determined. During 2017, 2016 and 2015, the Company recorded a retrospective insurance reserve adjustment that decreased pre-tax insurance expense from continuing operations for self-insured programs by $2.6 million,
$5.4 million and $8.5 million, respectively. The Company has programs in place to improve claims experience, such as disciplined claim and insurance litigation management and a focused approach to workplace safety.

The Company has not materially changed the methodology for calculating insurance reserves for the years presented. There are currently no known trends, demands, commitments, events or uncertainties that are reasonably likely to occur that would materially affect the methodology or assumptions described above. See Note 1, Summary of Significant Accounting Policies, in Part II, Item 8, "Financial Statements and Supplementary Data," for additional information.

Income Taxes
The Company's income tax expense, deferred tax assets and liabilities and reserves for uncertain tax positions reflect management's best estimate of taxes to be paid. The Company is subject to various international, federal, state and local income taxes in jurisdictions where the Company operates. In determining income tax expense, the Company makes its best estimate of the annual effective income tax rate at the end of each quarter and applies that rate to year-to-date income (loss) before income taxes to arrive at the year-to-date income tax provision (exclusive of loss jurisdictions for which no tax benefit is realizable with any discrete tax items recorded separately). At December 31, 2017, 2016 and 2015, the Company's annual effective income tax rate on income from continuing operations was 87.8%, (8.4)% and 79.5%, respectively.

Critical Estimate—Income Taxes
Annual effective income tax rates are estimated by giving recognition to currently enacted tax rates, tax holidays, tax credits, capital losses and tax deductions as well as certain exempt income and non-deductible expenses for all jurisdictions where the Company operates. Quarterly income tax provisions incorporate any change in the year-to-date provision from the previous quarterly periods.

The Company records deferred tax assets to the extent the Company believes these assets will more likely than not be realized. In making such determinations, the Company considers all available evidence, including future reversals of existing deferred tax liabilities, projected future taxable income, feasible and prudent tax planning strategies and recent financial operating results. In the event the Company was to determine that it would be able to realize deferred tax assets in the future in excess of their net recorded amount, an adjustment to the valuation allowance would be made that would reduce the provision for income taxes.

The Act significantly changes how the U.S. taxes corporations. The Act requires complex computations to be performed that were not previously required in U.S. tax law, significant judgments to be made in interpretation of the provisions of the Act and significant estimates in calculations and the preparation and analysis of information not previously relevant or regularly produced. The U.S. Treasury Department, the IRS and other standard-setting bodies could interpret or issue guidance on how provisions of the Act will be applied or otherwise administered that differs from the Company's interpretation. As the Company completes the analysis of the Act, collects and prepares necessary data, and interprets any additional guidance, it may be necessary to make adjustments to provisional amounts previously recorded that may materially impact the Company's provision for income taxes in the period in which the adjustments are made.

Valuation allowances of $174.2 million and $146.1 million at December 31, 2017 and 2016, respectively, related principally to deferred tax assets for U.K. pension liabilities, net operating loss carryforwards, foreign tax credit carryforwards, capital loss carryforwards and currency translation that are uncertain as to realizability. In 2017, the Company recorded a valuation allowance of $27.3 million related to foreign tax credit carryforwards due to the impact of the Act, an increase from foreign currency translation in the amount of $10.1 million and a net increase of $6.9 million related to losses in certain jurisdictions where the Company determined that it is more likely than not that these assets will not be realized. This was partially offset by a reduction related to current year pension adjustments recorded through Accumulated other comprehensive loss and a decrease related to U.S., Argentina and Belgium tax rate changes. In 2016, the Company recorded a valuation allowance of $16.1 million related to loss on sale of the Company's equity interest in Brand, $13.5 million related to estimated forward loss provisions related to the SBB contracts and current year pension adjustments of $19.2 million recorded through Accumulated other comprehensive loss. This was partially offset by the reduction from the effects of foreign currency translation adjustments and the decrease related to U.K. and France tax rate changes.

A tax benefit from an uncertain tax position may be recognized when it is more likely than not that the position will be sustained upon examination, including resolutions of any related appeals or litigation processes, based on its technical merits. The unrecognized tax benefits at December 31, 2017 and 2016 were $3.6 million and $4.6 million, respectively, excluding accrued interest and penalties. The unrecognized tax benefit may decrease as a result of the lapse of statute of limitations or as a result of final settlement and resolution of outstanding tax matters in various state and international jurisdictions.

Based on an analysis of the earnings and profits ("E&P") for the Company's foreign subsidiaries, no toll charge has been recorded in 2017 related to the Act. Given the complexities of the E&P calculations and the guidance provided by the SEC Staff Accounting Bulletin 118 ("SAB 118"), which addresses the application of U.S. GAAP in situations when a registrant does not have the necessary information available, prepared, or analyzed (including computations) in reasonable detail to complete the accounting for certain income tax effects of the Act, the Company will continue to analyze this provisional amount until the Company's 2017 U.S. tax return is filed in 2018. The Company does not anticipate a change in the indefinite reinvestment assertion, as a result of the Act. However, the Company considers the indefinite reinvestment assertion to be provisional and will continue to analyze the impact of the Act on this assertion during the SAB 118 measurement period.

The Company has not materially changed the methodology for calculating income tax expense, deferred tax assets and liabilities and reserves for uncertain tax positions for the years presented or for quarterly periods.

See Note 10, Income Taxes, in Part II, Item 8, "Financial Statements and Supplementary Data," for additional information.

Research and Development

Internal funding for research and development was as follows:

	Research and Development Expenses		
(In millions)	**2017**	**2016**	**2015**
Harsco Metals & Minerals	**$ 1.3**	$ 0.9	$ 0.9
Harsco Industrial	**1.5**	1.5	1.7
Harsco Rail	**1.4**	1.9	1.9
Total Research and Development	**$ 4.2**	$ 4.3	$ 4.5

The amounts shown exclude technology development and engineering costs classified in cost of services sold; cost of products sold; or selling, general and administrative expenses.

Recently Adopted and Recently Issued Accounting Standards

Information on recently adopted and recently issued accounting standards is included in Note 2, Recently Adopted and Recently Issued Accounting Standards, in Part II, Item 8, "Financial Statements and Supplementary Data."

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

See Part I, Item 1A, "Risk Factors," for quantitative and qualitative disclosures about market risk.

Item 8. Financial Statements and Supplementary Data.

Index to Consolidated Financial Statements and Supplementary Data

Management's Report on Internal Control Over Financial Reporting

Management of Harsco Corporation, together with its consolidated subsidiaries (the "Company"), is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Securities Exchange Act Rule 13a-15(f) or 15d-15(e). The Company's internal control over financial reporting is a process designed under the supervision of the Company's principal executive and principal financial officers to provide reasonable assurance regarding the reliability of financial reporting and the preparation of the Company's consolidated financial statements for external reporting purposes in accordance with accounting principles generally accepted in the United States of America.

The Company's internal control over financial reporting includes policies and procedures that:

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

Management has assessed the effectiveness of its internal control over financial reporting at December 31, 2017 based on the framework established in *Internal Control—Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this assessment, management has determined that the Company's internal control over financial reporting was effective at December 31, 2017.

The effectiveness of the Company's internal control over financial reporting at December 31, 2017 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report appearing in this Annual Report on Form 10-K, which expresses an unqualified opinion on the effectiveness of the Company's internal control over financial reporting at December 31, 2017.

/s/ F. NICHOLAS GRASBERGER, III	/s/ PETER F. MINAN
F. Nicholas Grasberger, III *President and Chief Executive Officer*	Peter F. Minan *Senior Vice President and Chief Financial Officer*
February 22, 2018	February 22, 2018

Report of Independent Registered Public Accounting Firm

To the Stockholders of Harsco Corporation:

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Harsco Corporation as of December 31, 2017 and December 31, 2016, and the related consolidated statements of operations, consolidated statements of comprehensive income (loss), consolidated statements of cash flows, and consolidated statements of changes in equity for each of the three years in the period ended December 31, 2017, including the related notes and schedule of valuation and qualifying accounts for each of the three years in the period ended December 31, 2017 appearing under Item 15(a)(2) (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and December 31, 2016**,** and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2017 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Change in Accounting Principle

As discussed in Note 2 to the consolidated financial statements, the Company changed the manner in which it accounts for the presentation and classification of deferred tax assets and liabilities due to the adoption of ASU 2015-17, Income Taxes (Topic 740) in 2017.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, 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 opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("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 audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated 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 consolidated 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 consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

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 (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (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 company are being made only in accordance with authorizations of management and directors of the company; 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.

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

/s/ PricewaterhouseCoopers LLP

Philadelphia, Pennsylvania
February 22, 2018

We have served as the Company's auditor since at least 1933. We have not determined the specific year we began serving as the auditor of the Company.

HARSCO CORPORATION
CONSOLIDATED BALANCE SHEETS

(In thousands, except share amounts)	December 31 2017	December 31 2016
ASSETS		
Current assets:		
Cash and cash equivalents	**$ 62,098**	$ 69,831
Restricted cash	**4,111**	2,048
Trade accounts receivable, net	**288,034**	236,554
Other receivables	**20,224**	21,053
Inventories	**178,293**	187,681
Other current assets	**39,332**	33,108
Total current assets	**592,092**	550,275
Property, plant and equipment, net	**479,747**	490,255
Goodwill	**401,758**	382,251
Intangible assets, net	**38,251**	41,567
Deferred income tax assets	**51,574**	106,311
Other assets	**15,263**	10,679
Total assets	**$ 1,578,685**	$ 1,581,338
LIABILITIES		
Current liabilities:		
Short-term borrowings	**$ 8,621**	$ 4,259
Current maturities of long-term debt	**11,208**	25,574
Accounts payable	**126,249**	107,954
Accrued compensation	**60,451**	46,658
Income taxes payable	**5,106**	4,301
Insurance liabilities	**11,167**	11,850
Advances on contracts and other customer advances	**117,958**	117,329
Other current liabilities	**133,368**	109,748
Total current liabilities	**474,128**	427,673
Long-term debt	**566,794**	629,239
Insurance liabilities	**22,385**	25,265
Retirement plan liabilities	**259,367**	319,597
Other liabilities	**40,846**	42,001
Total liabilities	**1,363,520**	1,443,775
COMMITMENTS AND CONTINGENCIES		
HARSCO CORPORATION STOCKHOLDERS' EQUITY		
Preferred stock, Series A junior participating cumulative preferred stock	**—**	—
Common stock, par value $1.25 (issued 112,888,126 and 112,499,874 shares at December 31, 2017 and 2016, respectively)	**141,110**	140,625
Additional paid-in capital	**180,201**	172,101
Accumulated other comprehensive loss	**(546,582)**	(606,722)
Retained earnings	**1,157,801**	1,150,688
Treasury stock, at cost (32,434,274 and 32,324,911 shares at December 31, 2017 and 2016, respectively)	**(762,079)**	(760,391)
Total Harsco Corporation stockholders' equity	**170,451**	96,301
Noncontrolling interests	**44,714**	41,262
Total equity	**215,165**	137,563
Total liabilities and equity	**$ 1,578,685**	$ 1,581,338

See accompanying notes to consolidated financial statements.

HARSCO CORPORATION
CONSOLIDATED STATEMENTS OF OPERATIONS

(In thousands, except per share amounts)	**Years ended December 31** **2017**	**2016**	**2015**
Revenues from continuing operations:			
Service revenues	**$ 981,672**	$ 939,129	$ 1,092,725
Product revenues	**625,390**	512,094	630,367
Total revenues	**1,607,062**	1,451,223	1,723,092
Costs and expenses from continuing operations:			
Cost of services sold	**767,081**	759,120	909,995
Cost of products sold	**453,641**	411,343	446,366
Selling, general and administrative expenses	**234,673**	200,391	242,112
Research and development expenses	**4,227**	4,280	4,510
Loss on disposal of the Harsco Infrastructure Segment and transaction costs	**—**	—	1,000
Other expenses, net	**4,641**	12,620	30,573
Total costs and expenses	**1,464,263**	1,387,754	1,634,556
Operating income from continuing operations	**142,799**	63,469	88,536
Interest income	**2,469**	2,475	1,574
Interest expense	**(47,552)**	(51,584)	(46,804)
Loss on early extinguishment of debt	**(2,265)**	(35,337)	—
Change in fair value to the unit adjustment liability and loss on dilution and sale of equity method investment	**—**	(58,494)	(8,491)
Income (loss) from continuing operations before income taxes and equity income	**95,451**	(79,471)	34,815
Income tax expense	**(83,803)**	(6,637)	(27,678)
Equity in income of unconsolidated entities, net	**—**	5,686	175
Income (loss) from continuing operations	**11,648**	(80,422)	7,312
Discontinued operations:			
Income (loss) on disposal of discontinued business	**306**	1,061	(1,553)
Income tax (expense) benefit related to discontinued business	**(110)**	(392)	573
Income (loss) from discontinued operations	**196**	669	(980)
Net income (loss)	**11,844**	(79,753)	6,332
Less: Net income attributable to noncontrolling interests	**(4,022)**	(5,914)	(144)
Net income (loss) attributable to Harsco Corporation	**$ 7,822**	$ (85,667)	$ 6,188
Amounts attributable to Harsco Corporation common stockholders:			
Income (loss) from continuing operations, net of tax	**$ 7,626**	$ (86,336)	$ 7,168
Income (loss) from discontinued operations, net of tax	**196**	669	(980)
Net income (loss) attributable to Harsco Corporation common stockholders	**$ 7,822**	$ (85,667)	$ 6,188
Weighted average shares of common stock outstanding	**80,553**	80,333	80,234
Basic earnings (loss) per share attributable to Harsco Corporation common stockholders:			
Continuing operations	**$ 0.09**	$ (1.07)	$ 0.09
Discontinued operations	**—**	0.01	(0.01)
Basic earnings (loss) per share attributable to Harsco Corporation common stockholders	**$ 0.10 (a)**	$ (1.07) (a)	$ 0.08
Diluted weighted average shares of common stock outstanding	**82,840**	80,333	80,365
Diluted earnings (loss) per share attributable to Harsco Corporation common stockholders:			
Continuing operations	**$ 0.09**	$ (1.07)	$ 0.09
Discontinued operations	**—**	0.01	(0.01)
Diluted earnings (loss) per share attributable to Harsco Corporation common stockholders	**$ 0.09**	$ (1.07) (a)	$ 0.08

(a) Does not total due to rounding.

See accompanying notes to consolidated financial statements.

HARSCO CORPORATION
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

	Years ended December 31		
(In thousands)	**2017**	**2016**	**2015**
Net income (loss)	**$ 11,844**	$ (79,753)	$ 6,332
Other comprehensive income (loss):			
Foreign currency translation adjustments, net of deferred income taxes of $3,471, $(13,670) and $(2,314) in 2017, 2016 and 2015, respectively	**36,011**	(21,560)	(88,255)
Net gain (loss) on cash flow hedging instruments, net of deferred income taxes of $(759), $(544) and $(975) in 2017, 2016 and 2015, respectively	**1,897**	(682)	8,617
Pension liability adjustments, net of deferred income taxes of $(4,084), $34 and $1,443 in 2017, 2016 and 2015, respectively	**25,254**	(71,398)	93,582
Unrealized gain (loss) on marketable securities, net of deferred income taxes of $(12), $(16) and $10 in 2017, 2016 and 2015, respectively	**22**	26	(16)
Total other comprehensive income (loss)	**63,184**	(93,614)	13,928
Total comprehensive income (loss)	**75,028**	(173,367)	20,260
Less: Comprehensive (income) loss attributable to noncontrolling interests	**(7,068)**	(3,334)	2,496
Comprehensive income (loss) attributable to Harsco Corporation	**$ 67,960**	$ (176,701)	$ 22,756

See accompanying notes to consolidated financial statements.

HARSCO CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Years ended December 31		
(In thousands)	**2017**	**2016**	**2015**
Cash flows from operating activities:			
Net income (loss)	$ **11,844**	$ (79,753)	$ 6,332
Adjustments to reconcile net income (loss) to net cash provided by operating activities:			
Depreciation	**121,839**	129,083	144,652
Amortization	**8,098**	12,403	11,823
Change in fair value to the unit adjustment liability and loss on dilution and sale of equity method investment	**—**	58,494	8,491
Contract estimated forward loss provision for Harsco Rail Segment	**—**	45,050	—
Loss on early extinguishment of debt	**—**	35,337	—
Deferred income tax expense (benefit)	**57,349**	(7,654)	5,174
Equity income of unconsolidated entities, net	**—**	(5,686)	(175)
Dividends from unconsolidated entities	**93**	16	28
Other, net	**749**	2,633	(5,740)
Changes in assets and liabilities, net of acquisitions and dispositions of businesses:			
Accounts receivable	**(32,012)**	16,041	41,650
Inventories	**19,557**	(12,313)	(44,806)
Accounts payable	**12,554**	(20,194)	(136)
Accrued interest payable	**438**	(3,197)	(2,753)
Accrued compensation	**11,126**	8,865	(10,319)
Advances on contracts and other customer advances	**(16,811)**	14,485	(795)
Harsco 2011/2012 Restructuring Program accrual	**—**	—	(398)
Retirement plan liabilities, net	**(21,300)**	(20,420)	(24,593)
Other assets and liabilities	**3,368**	(13,314)	(6,663)
Net cash provided by operating activities	**176,892**	159,876	121,772
Cash flows from investing activities:			
Purchases of property, plant and equipment	**(98,314)**	(69,340)	(123,552)
Proceeds from sales of assets	**13,418**	9,305	25,966
Purchase of businesses, net of cash acquired*	**—**	(26)	(7,788)
Payment of unit adjustment liability	**—**	—	(22,320)
Proceeds from sale of equity investment	**—**	165,640	—
Net proceeds (payments) from settlement of foreign currency forward exchange contracts	**(18,429)**	17,238	(3,161)
Other investing activities, net	**—**	70	482
Net cash provided (used) by investing activities	**(103,325)**	122,887	(130,373)
Cash flows from financing activities:			
Short-term borrowings, net	**5,061**	(2,350)	18,875
Current maturities and long-term debt:			
Additions	**27,985**	720,727	427,996
Reductions	**(108,280)**	(979,567)	(399,533)
Cash dividends paid on common stock	**—**	(4,105)	(65,730)
Dividends paid to noncontrolling interests	**(2,445)**	(1,702)	(4,498)
Purchase of noncontrolling interests	**(3,412)**	(4,731)	(395)
Stock-based compensation - Employee taxes paid	**(1,688)**	(91)	(265)
Common stock acquired for treasury	**—**	—	(12,143)
Proceeds from cross-currency interest rate swap termination	**—**	16,625	75,057
Deferred pension underfunding payment to unconsolidated affiliate	**—**	(20,640)	(7,688)
Deferred financing costs	**(42)**	(16,530)	(9,487)
Other investing activities, net	**(894)**	—	—
Net cash provided (used) by financing activities	**(83,715)**	(292,364)	22,189
Effect of exchange rate changes on cash, including restricted cash	**4,478**	1,724	3,325
Net increase (decrease) in cash and cash equivalents, including restricted cash	**(5,670)**	(7,877)	16,913
Cash and cash equivalents, including restricted cash, at beginning of period	**71,879**	79,756	62,843
Cash and cash equivalents, including restricted cash, at end of period	$ **66,209**	$ 71,879	$ 79,756

HARSCO CORPORATION

CONSOLIDATED STATEMENTS OF CASH FLOWS (Continued)

	Years ended December 31		
(In thousands)	**2017**	**2016**	**2015**
***Purchase of businesses, net of cash acquired**			
Working capital	$ —	$ —	$ (560)
Property, plant and equipment	—	—	(72)
Goodwill	—	—	(3,490)
Intangible Assets	—	—	(4,078)
Other noncurrent assets and liabilities, net	—	(26)	412
Net cash used to acquire businesses	$ —	$ (26)	$ (7,788)

See accompanying notes to consolidated financial statements.

HARSCO CORPORATION
CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

(In thousands, except share and per share amounts)	Common Stock Issued	Common Stock Treasury	Additional Paid-in Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Noncontrolling Interests	Total
Balances, January 1, 2015	$ 140,444	$ (749,815)	$ 165,666	$ 1,283,549	$ (532,256)	$ 44,322	$ 351,910
Net income				6,188		144	6,332
Cash dividends declared:							
Common @ $0.666 per share (a)				(53,382)			(53,382)
Noncontrolling interests						(4,498)	(4,498)
Total other comprehensive income (loss), net of deferred income taxes of $(1,836)					16,568	(2,640)	13,928
Contributions from noncontrolling interests						2,100	2,100
Purchase of subsidiary shares from noncontrolling interest			(3)			(395)	(398)
Sale of investment in consolidated subsidiary						200	200
Vesting of restricted stock units and other stock grants, net 31,147 shares	59	(264)	(99)				(304)
Treasury shares repurchased, 596,632 shares		(10,220)					(10,220)
Amortization of unearned stock-based, compensation, net of forfeitures			5,135				5,135
Balances, December 31, 2015	140,503	(760,299)	170,699	1,236,355	(515,688)	39,233	310,803
Net income (loss)				(85,667)		5,914	(79,753)
Cash dividends declared:							
Noncontrolling interests						(1,702)	(1,702)
Total other comprehensive loss, net of deferred income taxes of $(14,196)					(91,034)	(2,580)	(93,614)
Purchase of subsidiary shares from noncontrolling interest			(5,128)			397	(4,731)
Vesting of restricted stock units and other stock grants, net 80,598 shares	122	(92)	(1,194)				(1,164)
Amortization of unearned stock-based compensation, net of forfeitures			7,724				7,724
Balances, December 31, 2016	140,625	(760,391)	172,101	1,150,688	(606,722)	41,262	137,563
Adoption of new accounting standard (See Note 2)			1,106	(709)			397
Net income				7,822		4,022	11,844
Cash dividends declared:							
Noncontrolling interests						(2,445)	(2,445)
Total other comprehensive income, net of deferred income taxes of $(1,384)					60,140	3,044	63,184
Purchase of subsidiary shares from noncontrolling interest			(2,242)			(1,194)	(3,436)
Sale of investment in consolidated subsidiary						25	25
Stock Appreciation Rights exercised, net 8,965 shares	16	(63)	(16)				(63)
Vesting of restricted stock units and other stock grants, net 269,924 shares	469	(1,625)	(469)				(1,625)
Amortization of unearned stock-based compensation, net of forfeitures			9,721				9,721
Balances, December 31, 2017	**$ 141,110**	**$ (762,079)**	**$ 180,201**	**$ 1,157,801**	**$ (546,582)**	**$ 44,714**	**$ 215,165**

(a) In November 2015, the Company reduced the quarterly dividend to $0.051 per share.

See accompanying notes to consolidated financial statements.

HARSCO CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Summary of Significant Accounting Policies

Consolidation
The consolidated financial statements include all accounts of Harsco Corporation (the "Company"), all entities in which the Company has a controlling voting interest and variable interest entities required to be consolidated in accordance with generally accepted accounting principles in the U.S. ("U.S. GAAP"). Intercompany accounts and transactions have been eliminated among consolidated entities.

The Company's management has evaluated all activity of the Company and concluded that subsequent events are properly reflected in the Company's consolidated financial statements and notes as required by U.S. GAAP.

Reclassifications
Certain reclassifications have been made to prior year amounts to conform with current year classifications.

Cash and Cash Equivalents
Cash and cash equivalents include cash on hand, demand deposits and short-term investments that are highly liquid in nature and have an original maturity of three months or less.

Restricted Cash
The Company had restricted cash of $4.1 million and $2.0 million at December 31, 2017 and December 31, 2016, respectively, and the restrictions are primarily related to collateral provided for certain guarantees of the Company’s performance.

Inventories
Inventories in the U.S. are principally accounted for using the last-in, first-out ("LIFO") method and are stated at the lower of cost or market. The Company's remaining inventories are accounted for using the first-in, first-out ("FIFO") or average cost methods and are stated at the lower of cost and net realizable value. See Note 3, Accounts Receivable and Inventories, for additional information.

Depreciation
Property, plant and equipment is recorded at cost and depreciated over the estimated useful lives of the assets using, principally, the straight-line method. When property, plant and equipment is retired from service, the cost of the retirement is charged to the allowance for depreciation to the extent of the accumulated depreciation and the balance is charged to income. Long-lived assets to be disposed of by sale are not depreciated while they are classified as held-for-sale.

Leases
The Company leases certain property and equipment under noncancelable lease agreements. All lease agreements are evaluated and classified as either an operating or capital lease in accordance with U.S. GAAP. A lease is classified as a capital lease if any of the following criteria are met: transfer of ownership to the Company by the end of the lease term; the lease contains a bargain purchase option; the lease term is equal to or greater than 75% of the asset's economic life; or the present value of future minimum lease payments is equal to or greater than 90% of the asset's fair market value. Operating lease expense is recognized ratably over the lease term, including rent abatement periods and rent holidays. See Note 5, Property, Plant and Equipment and Note 7, Debt and Credit Agreements, for additional information on capital leases and Note 8, Operating Leases, for additional information on operating leases.

Goodwill and Other Intangible Assets
In accordance with U.S. GAAP, goodwill is not amortized and is tested for impairment annually, or more frequently if indicators of impairment exist, or if a decision is made to dispose of a business. Goodwill is allocated among and evaluated for impairment at the reporting unit level, which is defined as an operating segment or one level below for which discrete financial information is available. A significant amount of judgment is involved in determining if an indicator of impairment has occurred. Such indicators may include declining cash flows or operating losses at the reporting unit level, a significant adverse change in legal factors or business climate, an adverse action or assessment by a regulator, unanticipated competition, a loss of key personnel, or a more likely than not expectation that a reporting unit or a significant portion of a reporting unit will be sold or otherwise disposed of, among others.

The Company performs the annual goodwill impairment test as of October 1. The Company has five reporting units, only three of which have goodwill associated with them as of December 31, 2017. Almost all of the Company's goodwill is included in the Harsco Metals & Minerals Segment.

The evaluation of potential goodwill impairment involves comparing the current fair value of each reporting unit to the net book value, including goodwill. The Company uses a discounted cash flow model (“DCF model”) to estimate the current fair value of reporting units, as management believes forecasted operating cash flows are the best indicator of current fair value. A number of significant assumptions and estimates are involved in the preparation of DCF models including future revenues and operating margin growth, the weighted-average cost of capital (“WACC”), tax rates, capital spending, pension funding, the impact of business initiatives and working capital projections. These assumptions and estimates may vary significantly among reporting units. DCF models are based on approved long-range plans for the early years and historical relationships and projections for later years. WACC rates are derived from internal and external factors including, but not limited to, the average market price of the Company's stock, shares outstanding, book value of the Company's debt, the long-term risk free interest rate, and both market and size-specific risk premiums. Due to the many variables noted above and the relative size of the Company's goodwill, differences in assumptions may have a material impact on the results of the Company's annual goodwill impairment testing. If the net book value of a reporting unit were to exceed the current fair value, the second step of the goodwill impairment test would currently be required to determine if an impairment existed and the amount of goodwill impairment to record, if any. The second step of the goodwill impairment test compares the net book value of a reporting unit's goodwill with the implied fair value of that goodwill. The implied fair value of goodwill represents the excess of fair value of the reporting unit over the fair value amounts assigned to all of the assets and liabilities of the reporting unit if it were to be acquired in a hypothetical business combination and the current fair value of the reporting unit represented the purchase price. As necessary, the Company may use valuation experts to assist with the second step of the goodwill impairment test. See Note 6, Goodwill and Other Intangible Assets, for additional information.

Impairment of Long-Lived Assets (Other than Goodwill)
Long-lived assets are reviewed for impairment when events and circumstances indicate that the carrying amount of an asset may not be recoverable. Long-lived assets are reviewed for impairment when events and circumstances indicate the book value of an asset may be impaired. The Company's policy is to determine if an impairment loss exists when it is determined that the carrying amount of the asset exceeds the sum of the expected undiscounted future cash flows resulting from use of the asset and its eventual disposition. Impairment losses are measured as the amount by which the carrying amount of the asset exceeds its fair value, normally as determined in either open market transactions or through the use of a DCF model. Long-lived assets to be disposed of are reported at the lower of the carrying amount or fair value less cost to sell. See Note 16, Other Expenses, Net for additional information.

Deferred Financing Costs
The Company has incurred debt issuance costs which are recognized as a reduction of Long-term debt on the Consolidated Balance Sheets. Debt issuance costs are amortized and recognized as interest expense over the contractual term of the related indebtedness or shorter period if appropriate based upon contractual terms. Whenever indebtedness is modified from its original terms, an evaluation is made whether an accounting modification or extinguishment has occurred in order to determine the accounting treatment for debt issuance costs related to the debt modification.

Revenue Recognition
Service revenues and product revenues are recognized when they are realized or realizable and when earned. Revenue is realized or realizable and earned when all of the following criteria are met: persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the Company's price to the buyer is fixed or determinable and collectability is reasonably assured. Service revenues include the service components of the Harsco Metals & Minerals and Harsco Rail Segments. Product revenues include the Harsco Industrial Segment and the product revenues of the Harsco Metals & Minerals and Harsco Rail Segments.

Harsco Metals & Minerals Segment—This Segment provides services predominantly on a long-term, volume-of-production contract basis. Contracts may include both fixed monthly fees as well as variable fees based upon specific services provided to the customer. The fixed-fee portion is recognized periodically as earned (normally monthly) over the contractual period. The variable-fee portion is recognized as services are performed and differs from period to period based upon the actual provision of services. This Segment also sells industrial abrasives and roofing granule products. Product revenues are recognized generally when title and risk of loss transfer and when all revenue recognition criteria have been met. Title and risk of loss for domestic shipments generally transfer to the customer at the point of shipment. For export sales, title and risk of loss transfer in accordance with the international commercial terms included in the specific customer contract.

Harsco Industrial Segment—This Segment sells industrial grating products, high-security fencing, heat exchangers and heat transfer products. Product revenues are generally recognized when title and risk of loss transfer and when all of the revenue recognition criteria have been met. Title and risk of loss for domestic shipments generally transfer to the customer at the point of shipment. For export sales, title and risk of loss transfer in accordance with the international commercial terms included in the specific customer contract or purchase order.

Harsco Rail Segment—This Segment sells railway track maintenance equipment, after-market parts and provides railway track maintenance services. Product revenue is recognized generally when title and risk of loss transfer and when all of the revenue recognition criteria have been met. Title and risk of loss for domestic shipments generally transfer to the customer at the point of shipment. For export sales, title and risk of loss transfer in accordance with the international commercial terms included in the specific customer contract. Revenue may be recognized subsequent to the transfer of title and risk of loss for certain product sales, if the specific sales contract includes a customer acceptance clause that provides for different timing. In those situations, revenue is recognized after transfer of title and risk of loss and after customer acceptance.

Certain contracts within the Harsco Rail Segment, which meet specific criteria established in U.S. GAAP, are accounted for as long-term contracts. The Company recognizes revenues on two contracts from the federal railway system of Switzerland ("SBB") based on the percentage-of-completion (units-of-delivery) method of accounting, whereby revenues and estimated average costs of the units to be produced under the contracts are recognized as deliveries are made or accepted. Contract revenues and cost estimates are reviewed and revised, at a minimum quarterly, and adjustments are reflected in the accounting period as such amounts are determined. The Company recognized $42.5 million, $0.2 million and $1.9 million of revenue for the contracts with SBB for the years ended December 31, 2017, 2016 and 2015, respectively, under the percentage-of-completion (units-of-delivery) method. For 2017, product revenue gross margins would have been 200 basis points higher excluding the revenue recognized under the SBB contract. These revenues did not have a material impact on the Company's product revenue gross margins for 2016 and 2015. The Company is approximately 45% complete on its first contract and 0% completed on the second contract with SBB as of December 31, 2017 based on the amount of revenue recognized. See Note 3, Accounts Receivable and Inventories, for additional information.

Accounting for contracts using the percentage-of-completion method requires judgment relative to assessing risks, estimating contract revenues and costs (including estimating any liquidating damages or penalties related to performance) and making assumptions for schedule and technical items. Due to the number of years it may take to complete these contracts and the scope and nature of the work required to be performed on those contracts, estimating total sales and costs at completion is inherently complicated and subject to many variables and, accordingly estimates are subject to change. When adjustments in estimated total contract sales or estimated total costs are required, any changes from prior estimates are recognized in the current period for the inception-to-date effect of such changes. When estimates of total costs to be incurred on a contract, using the percentage-of-completion method, exceed estimates of total sales to be earned, a provision for the entire loss on the contract is recorded in the period in which the loss is determined.

Services are predominantly on a long-term, time-and-materials contract basis. Revenue is recognized when earned as services are performed within the long-term contracts.

Income Taxes

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

The Company records deferred tax assets to the extent that the Company believes that these assets will more likely than not be realized. In making such determinations, the Company considers all available positive and negative evidence, including future reversals of existing deferred tax liabilities, projected future taxable income, tax planning strategies and recent financial results. In the event the Company was to determine that it would be able to realize deferred income tax assets in the future in excess of their net recorded amount, an adjustment to the valuation allowance would be made that would reduce the provision for income taxes.

On December 22, 2017, U.S. federal tax legislation, commonly referred to as the Tax Cuts and Jobs Act (the" Act") was signed into law. The Act, among other things, reduces the U.S. corporate income tax rate to 21% starting in 2018 and creates a territorial tax system with a one-time mandatory tax on previously deferred foreign earnings of U.S. subsidiaries. The Securities and Exchange Commission ("SEC") staff issued Staff Accounting Bulletin No. 118 ("SAB 118") to address the application of U.S. GAAP in situations when a registrant does not have the necessary information available, prepared, or analyzed (including computations) in reasonable detail to complete the accounting for certain income tax effects of the Act. The Company has recognized the provisional tax impacts related to the revaluation of deferred tax assets and liabilities and included these amounts in the consolidated financial statements for the year ended December 31, 2017. The ultimate impact may differ from these provisional amounts, possibly materially, due to, among other things, additional analysis, changes in interpretations and assumptions the Company has made, additional regulatory guidance that may be issued and actions the Company may take as a result of the Act.

The Company prepares and files tax returns based on interpretation of tax laws and regulations and records its provision for income taxes based on these interpretations. Uncertainties may exist in estimating the Company's tax provisions and in filing tax returns in the many jurisdictions in which the Company operates, and as a result these interpretations may give rise to an uncertain tax position. The tax benefit from an uncertain tax position is recognized when it is more likely than not that the position will be sustained upon examination, including resolutions of any related appeals or litigation processes, based on its technical merits. Each subsequent period the Company determines if existing or new uncertain tax positions meet a more likely than not recognition threshold and adjust accordingly.

The Company recognizes interest and penalties related to unrecognized tax benefits within Income tax expense in the accompanying Consolidated Statements of Operations. Accrued interest and penalties are included in Other liabilities on the Consolidated Balance Sheets.

Based on an analysis of the earnings and profits ("E&P") for the Company's foreign subsidiaries, no toll charge has been recorded in 2017 related to the Act. Given the complexities of the E&P calculations and the guidance provided by SAB 118, the Company will continue to analyze this provisional amount until the Company's U.S. tax return is filed in 2018. The Company does not anticipate a change in the indefinite reinvestment assertion, as a result of the Act. However, the Company considers the indefinite reinvestment assertion to be provisional and will continue to analyze the impact of the Act on this assertion during the SAB 118 measurement period.

The significant assumptions and estimates described in the preceding paragraphs are important contributors to the effective tax rate each year.

See Note 10, Income Taxes, for additional information.

Accrued Insurance and Loss Reserves

The Company retains a significant portion of the risk for U.S. workers' compensation, U.K. employers' liability, automobile, general and product liability losses. During 2017, 2016 and 2015, the Company recorded insurance expense from continuing operations related to these lines of coverage of $16.4 million, $15.0 million and $13.6 million, respectively. Reserves have been recorded that reflect the undiscounted estimated liabilities including claims incurred but not reported. When a recognized liability is covered by third-party insurance, the Company records an insurance claim receivable to reflect the covered liability. Changes in the estimates of the reserves are included in net income (loss) in the period determined. During 2017, 2016 and 2015, the Company recorded retrospective insurance reserve adjustments that decreased pre-tax insurance expense from continuing operations for self-insured programs by $2.6 million, $5.4 million and $8.5 million, respectively. At December 31, 2017 and 2016, the Company has recorded liabilities of $33.6 million and $37.1 million, respectively, related to both asserted as well as unasserted insurance claims. Included in the balances at December 31, 2017 and 2016 were $4.1 million and $3.5 million, respectively, of recognized liabilities covered by insurance carriers. Amounts estimated to be paid within one year have been included in current caption, Insurance liabilities, with the remainder included in non-current caption, Insurance liabilities, on the Consolidated Balance Sheets.

Warranties
The Company has recorded product warranty reserves of $6.0 million, $6.3 million and $7.8 million at December 31, 2017, 2016 and 2015, respectively. The Company provides for warranties of certain products as they are sold. The following table summarizes the warranty activity for 2017, 2016 and 2015:

(In thousands)	2017	2016	2015
Warranty reserves, beginning of the year	**$ 6,281**	$ 7,844	$ 8,886
Accruals for warranties issued during the year	**5,528**	6,439	3,656
Reductions related to pre-existing warranties	**(3,792)**	(5,611)	(3,042)
Warranties paid	**(2,078)**	(2,372)	(1,629)
Other (principally foreign currency translation)	**17**	(19)	(27)
Warranty reserves, end of the year	**$ 5,956**	$ 6,281	$ 7,844

Warranty expense and payments are incurred principally in the Harsco Industrial and Harsco Rail Segments. Warranty activity may vary from year to year depending upon the mix of revenues and contractual terms related to product warranties.

Foreign Currency Translation
The financial statements of the Company's subsidiaries outside the U.S., except for those subsidiaries located in highly inflationary economies and those entities for which the U.S. dollar is the currency of the primary economic environment in which the entity operates, are measured using the local currency as the functional currency. Assets and liabilities of these subsidiaries are translated at the exchange rates at the balance sheet date. Resulting translation adjustments are recorded in the cumulative translation adjustment account, a separate component of Accumulated other comprehensive loss on the Consolidated Balance Sheets. Income and expense items are translated at average monthly exchange rates. Gains and losses from foreign currency transactions are included in Operating income from continuing operations. For subsidiaries operating in highly inflationary economies, and those entities for which the U.S. dollar is the currency of the primary economic environment in which the entity operates, gains and losses on foreign currency transactions and balance sheet translation adjustments are included in Operating income from continuing operations.

Financial Instruments and Hedging
The Company has operations throughout the world that are exposed to fluctuations in related foreign currencies in the normal course of business. The Company seeks to reduce exposure to foreign currency fluctuations through the use of forward exchange contracts. The Company does not hold or issue financial instruments for trading purposes and it is the Company's policy to prohibit the use of derivatives for speculative purposes. The Company has a Foreign Currency Risk Management Committee that meets periodically to monitor foreign currency risks.

The Company executes foreign currency exchange forward contracts to hedge transactions for firm purchase commitments, to hedge variable cash flows of forecasted transactions and for export sales denominated in foreign currencies. These contracts are generally for 90 days or less; however, where appropriate, longer-term contracts may be utilized. For those contracts that are designated as qualified cash flow hedges, gains or losses are recorded in Accumulated other comprehensive loss on the Consolidated Balance Sheets.

The Company uses interest rate swaps in conjunction with certain debt issuances in order to secure a fixed interest rate. The interest rate swaps are recorded on the Consolidated Balance Sheets at fair value, with changes in value attributed to the effect of the swaps’ interest spread and changes in the credit worthiness of the counter-parties recorded in Accumulated other comprehensive loss.

Amounts recorded in Accumulated other comprehensive loss on the Consolidated Balance Sheets are reclassified into operations in the same period or periods during which the hedged forecasted transaction affects income. The cash flows from these contracts are classified consistent with the cash flows from the transaction being hedged (e.g., the cash flows related to contracts to hedge the purchase of fixed assets are included in cash flows from investing activities, etc.). The Company also enters into certain forward exchange contracts that are not designated as hedges. Gains and losses on these contracts are recognized in operations based on changes in fair market value. For fair value hedges of a firm commitment, the gain or loss on the derivative and the offsetting gain or loss on the hedged firm commitment are recognized currently in operations.

See Note 14, Financial Instruments, for additional information.

Earnings Per Share
Basic earnings per share are calculated using the weighted-average shares of common stock outstanding, while diluted earnings per share reflect the dilutive effects of stock-based compensation. Dilutive securities are not included in the computation of loss per share when the Company reports a net loss from continuing operations as the impact would be anti-dilutive. All share and per share amounts are restated for any stock splits and stock dividends that occur prior to the issuance of the financial statements.

See Note 12, Capital Stock, for additional information.

Use of Estimates in the Preparation of Financial Statements
The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses. Actual results could differ from those estimates.

2. Recently Adopted and Recently Issued Accounting Standards

The following accounting standards have been adopted in 2017:

On January 1, 2017, the Company adopted changes issued by the Financial Accounting Standards Board ("FASB") related to the simplification of the measurement of inventory. The changes required entities to measure most inventory at the lower of cost and net realizable value, thereby simplifying the previous guidance under which an entity must measure inventory at the lower of cost or market. The changes did not apply to inventories that are measured using either the last-in, first-out method or the retail inventory method. The adoption of these changes did not have an impact on the Company's consolidated financial statements.

On January 1, 2017, the Company adopted changes issued by the FASB that required deferred tax assets and liabilities to be classified as non-current in a classified statement of financial position. The changes applied to all entities that present a classified statement of financial position. The requirement that deferred tax assets and liabilities of a tax-paying component of an entity be offset and presented as a single amount was not affected. The adoption of these changes resulted in the Company reclassifying approximately $27 million from reported current assets to Deferred income tax assets based on balances at December 31, 2016.

On January 1, 2017, the Company adopted changes issued by the FASB amending the accounting for stock-based compensation and requiring excess tax benefits and shortfalls to be recognized as a component of income tax expense rather than equity. These changes also required excess tax benefits and shortfalls to be presented as an operating activity on the Consolidated Statement of Cash Flows and allowed an entity to make an accounting policy election to either estimate expected forfeitures or to account for them as they occur. These changes resulted in the Company recording the cumulative impact of approximately $1 million pre-tax on January 1, 2017 to retained earnings, related to the Company electing to not estimate forfeitures on stock compensation plans but rather recognize forfeitures as they occur. The inclusion of excess tax benefits and shortfalls as a component of the Company’s income tax expense will increase volatility within the provision for income taxes as the amount of excess tax benefits or deficiencies from stock-based compensation awards are dependent on the Company's stock price at the date an award vests. The impact to income tax expense resulting from this change was tax benefit of $0.4 million for the year ended December 31, 2017.

During the second quarter of 2017, the Company early-adopted changes issued by the FASB that added and clarified guidance related to the classification, presentation and disclosure of restricted cash in the statement of cash flows. The adoption of these changes did not have an impact on the Company's consolidated statement of cash flows for the current and prior periods.

The following accounting standards have been issued and become effective for the Company at a future date:

In May 2014, the FASB issued changes, with subsequent amendments, related to the recognition of revenue from contracts with customers. The changes clarify the principles for recognizing revenue and develop a common revenue standard. The core principle of the changes is that an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The changes also require additional disclosures related to revenue recognition. These changes become effective for the Company on January 1, 2018. The Company will adopt the standard using the modified retrospective method of implementation with the cumulative effect of initially applying the changes recognized in retained earnings at the date of initial application. Management has determined that the most significant impact will be with regard to the timing of revenue recognition associated with the air-cooled heat exchanger business of the Harsco Industrial Segment and certain equipment sales in the Harsco Rail Segment. The Company currently recognizes revenues on such arrangements upon the completion of the efforts associated with these arrangements. However, as a result of these changes, revenue from these arrangements will be recognized over time, increasing revenue in earlier periods, creating a new caption on the balance sheet related to Contract assets and reducing both Inventories and Advances on contracts and other customer advances. The cumulative effect to retained earnings upon adoption is not expected to be material. Management has determined that there will not be any significant impact with regard to the timing of revenue recognition associated with the Harsco Metals & Minerals Segment or the industrial grating and fencing or heat transfer businesses of the Harsco Industrial Segment. The Company does not expect any impact on the timing of operating cash flows. Management is currently finalizing the impact of these changes, including the impact of income taxes, internal controls over financial reporting, and the new disclosure requirements; and the expected impact upon adoption may change based on this evaluation.

In February 2016, the FASB issued changes in accounting for leases. The changes introduce a lessee model that brings most leases onto the balance sheet. The changes also align many of the underlying principles of the new lessor model with those in the FASB’s new revenue recognition standard. Furthermore, the changes address other concerns related to the current leases model such as eliminating the requirement in current guidance for an entity to use bright-line tests in determining lease classification. The changes also require lessors to increase the transparency of their exposure to changes in value of their residual assets and how they manage that exposure. The changes become effective for the Company on January 1, 2019. Management is currently evaluating the impact of these changes on its consolidated financial statements.

In January 2017, the FASB issued changes that remove the second step of the annual goodwill impairment test, which requires a hypothetical purchase price allocation. The changes provide that the amount of goodwill impairment will be equal to the amount by which a reporting unit’s carrying value exceeds its fair value, not to exceed the carrying amount of goodwill. All other goodwill impairment guidance remains largely unchanged. The same one-step impairment test will be applied to goodwill at all reporting units, even those with zero or negative carrying amounts. Entities will be required to disclose the amount of goodwill at reporting units with zero or negative carrying amounts. The changes become effective for the Company on January 1, 2020. Management has determined that these changes will not have a material impact on the Company's consolidated financial statements. However, should the Company be required to record a goodwill impairment charge in future periods, the amount recorded may differ compared to any amounts that might be recorded under current practice.

In March 2017, the FASB issued changes to how employers that sponsor defined benefit pension plans and other postretirement plans present the net periodic pension cost ("NPPC") in the statement of operations. An employer will be required to report the service cost component in the same line item or items as other compensation costs arising from services rendered by the pertinent employees during the period. Other components of NPPC are required to be presented in the statement of operations separately from the service cost component and outside of the subtotal of income from operations. The changes also allow only the service cost component to be eligible for capitalization. The changes become effective for the Company on January 1, 2018. There would be no change to Income from continuing operations before income taxes and equity income.

In May 2017, the FASB issued changes to clarify when revisions to the terms or conditions of a share-based payment award require an entity to apply modification accounting. The changes require modification accounting only in circumstances when the terms or conditions result in changes to the fair value, vesting conditions or classification of the award as an equity instrument or a liability. The changes become effective for the Company on January 1, 2018. Management does not believe these changes will impact its consolidated financial statements.

In August 2017, the FASB issued changes which expand and refine hedge accounting for both financial and non-financial risk components, aligns the recognition and presentation of the effects of hedging instruments and hedged items in the financial statements and includes certain targeted improvements to ease the application of current guidance related to the assessment of hedge effectiveness. The amendments in this update should be applied to hedging relationships existing on the date of adoption, which includes a cumulative-effect adjustment to eliminate any ineffectiveness recorded to accumulated other comprehensive income or loss with a corresponding adjustment to the opening balance of retained earnings as of the beginning of the fiscal year in which adoption occurred. Presentation and disclosure amendments are required to be applied prospectively. The changes become effective for the Company on January 1, 2019. Management is currently evaluating the impact of these changes on its consolidated financial statements.

3. Accounts Receivable and Inventories

Accounts receivable consist of the following:

(In thousands)	December 31 2017	December 31 2016
Trade accounts receivable	**$ 292,765**	$ 248,354
Less: Allowance for doubtful accounts	**(4,731)**	(11,800)
Trade accounts receivable, net	**$ 288,034**	$ 236,554
Other receivables (a)	**$ 20,224**	$ 21,053

(a) Other receivables include insurance claim receivables, employee receivables, tax claim receivables and other miscellaneous receivables not included in Trade accounts receivable, net

The decrease in Allowance for doubtful accounts in 2017 is due to the write-off of previously reserved accounts receivable balances.

The provision for doubtful accounts related to trade accounts receivable was as follows:

	Years Ended December 31		
(In thousands)	2017	2016	2015
Provision for doubtful accounts related to trade accounts receivable	**$ 5,346**	$ (38)	$ 13,047

The increase in the provision for doubtful accounts for the year ended 2017 is due principally to the write-off of certain pre-administration receivable balances for one of the Company's customers in Australia.

Inventories consist of the following:

(In thousands)	December 31 2017	December 31 2016
Finished goods	**$ 26,415**	$ 26,464
Work-in-process	**24,367**	22,815
Contracts-in-process	**45,599**	54,044
Raw materials and purchased parts	**58,943**	61,450
Stores and supplies	**22,969**	22,908
Total inventories	**$ 178,293**	$ 187,681
Valued at lower of cost or market:		
LIFO basis	**$ 80,644**	$ 79,933
FIFO basis	**52,832**	64,742
Average cost basis	**44,817**	43,006
Total inventories	**$ 178,293**	$ 187,681

Inventories valued on the LIFO basis at both December 31, 2017 and 2016 were approximately $33 million less than the amounts of such inventories valued at current costs. During 2017 and 2016, as a result of reducing certain inventory quantities valued on a LIFO basis, net income (loss) decreased from that which would have been recorded under the FIFO basis of valuation by $0.4 million and $1.3 million, respectively. During 2015, there was no significant impact on net income (loss) as a result of reducing certain inventory quantities valued on a LIFO basis.

Contracts-in-process consist of the following:

(In thousands)	December 31 2017		December 31 2016	
Contract costs accumulated to date	$	**73,740**	$	90,276
Estimated forward loss provisions for contracts-in-process (b)		**(28,141)**		(36,232)
Contracts-in-process (c)	$	**45,599**	$	54,044

(b) To the extent that the estimated forward loss provision exceeds accumulated contract costs it is included in the caption Other current liabilities on the Consolidated Balance Sheets. At December 31, 2017 and December 31, 2016, this amount totaled $3.0 million and $6.7 million, respectively.

(c) At December 31, 2017 and December 31, 2016, the Company has $97.9 million and $101.1 million, respectively, of customer advances related to contracts-in-process. These amounts are included in Advances on contracts and other customer advances on the Consolidated Balance Sheets.

During 2016, as a result of increased vendor costs, ongoing discussions with SBB, and increased estimates for commissioning, certification and testing costs, as well as expected settlements with SBB, the Company concluded it will have a loss on the contracts with SBB. The Company recognized an estimated forward loss provision related to the SBB contracts of
$45.1 million for the year ended December 31, 2016 in Costs of products sold on the Consolidated Statements of Operations. There was no estimated forward loss provision recognized for the years ended December 31, 2017 or 2015. The estimated forward loss provision represents the Company's best estimate best on currently available information. It is possible that the Company's overall estimate of costs to complete these contracts may increase which would result in an additional estimated forward loss provision at such time, but the Company is unable to estimate any further possible loss or range of loss at December 31, 2017.

4. Equity Method Investments

In November 2013, the Company sold the Company's Harsco Infrastructure Segment into a strategic venture with Clayton, Dubilier & Rice ("CD&R") as part of a transaction that combined the Harsco Infrastructure Segment with Brand Energy & Infrastructure Services, Inc., which CD&R simultaneously acquired (the "Infrastructure Transaction"). As a result of the Infrastructure Transaction, the Company retained an equity interest in Brand Energy & Infrastructure Service, Inc. and Subsidiaries ("Brand" or the "Infrastructure strategic venture") which was accounted for as an equity method investment in accordance with U.S. GAAP.

As part of the Infrastructure Transaction, the Company was required to make a quarterly payment to the Company's partner in the Infrastructure strategic venture, either (at the Company's election) (i) in cash, with total payments to equal approximately $22 million per year on a pre-tax basis (approximately $15 million per year after-tax), or (ii) in kind, through the transfer of approximately 3% of the Company's ownership interest in the Infrastructure strategic venture on an annual basis (the "unit adjustment liability"). The Company recognized the change in fair value to the unit adjustment liability each period until the Company was no longer required to make these payments or chose not to make these payments. The change in fair value to the unit adjustment liability was a non-cash expense.

In March 2016, the Company elected not to make the quarterly cash payments to the Company's partner in the Infrastructure strategic venture for the remainder of 2016. Instead, the Company transferred approximately 3% of its ownership interest in satisfaction of the Company's 2016 obligation related to the unit adjustment liability. As a result of not making the quarterly cash payments for 2016, the Company's ownership interest in the Infrastructure strategic venture decreased by approximately 3% and the value of the unit adjustment liability was updated to reflect this change. Accordingly, the book value of the Company's equity method investment in Brand decreased by $29.4 million and the unit adjustment liability decreased by
$19.1 million. The resulting net loss of $10.3 million was recognized in Change in fair value to the unit adjustment liability and loss on dilution and sale of equity method investment on the Consolidated Statement of Operations. This net loss was a non-cash expense.

In September 2016, the Company entered into an Omnibus Agreement with CDR Bullseye Holdings, L.P., Bullseye G.P., LLC, Bullseye Partnership, L.P., Bullseye Holdings, L.P. and Brand Energy & Infrastructure Holdings, Inc. (the “Brand Entities”), pursuant to which the Brand Entities repurchased the Company's remaining approximate 26% interest in Brand.

In exchange for the Company's interest, (i) the Company received $145 million in cash, net, and (ii) the requirement for the Company to fund certain obligations to Brand through 2018 were satisfied, the present value of which equaled $20.6 million. In addition, the Company received $1.4 million in accrued but unpaid fees, rent and expenses from the Brand Entities. As a result of the sale, the Company’s obligation to make quarterly payments related to the unit adjustment liability under the terms of a limited partnership agreement that governed the operation of the strategic venture terminated. The Company recognized a loss on the sale of its equity interest in Brand in the amount of $43.5 million which was reflected in Change in fair value to unit adjustment liability and loss on dilution and sale of equity method investment on the Consolidated Statement of Operations.

The Company's proportionate share of Brand's net income or loss is recorded one quarter in arrears. Brand's summarized balance sheet information at June 30, 2016 and summarized statement of operations information for the period from October 1, 2015 through June 30, 2016 and the year ended September 30, 2015 are summarized as follows:

(In thousands)	June 30 2016
Summarized Balance Sheet Information of Brand:	
Current assets	$ 896,933
Property and equipment , net	884,979
Other noncurrent assets	1,454,951
Total assets	$ 3,236,863
Short-term borrowings, including current portion of long-term debt	$ 14,402
Other current liabilities	341,979
Long-term debt	1,857,162
Other noncurrent liabilities	351,714
Total liabilities	2,565,257
Equity	671,606
Total liabilities and equity	$ 3,236,863

(In thousands)	Period From October 1, 2015 Through June 30 2016 (a)	Year Ended September 30 2015
Summarized Statement of Operations Information of Brand:		
Net revenues	$ 2,333,561	$ 2,976,471
Gross profit	499,005	649,596
Net income attributable to Brand Energy & Infrastructure Services, Inc. and Subsidiaries	20,756	605
Harsco's equity in income of Brand	5,686	175

(a) The Company's equity method investment in Brand was sold in September 2016; accordingly equity income was recorded for the period from October 1, 2015 through June 30, 2016.

There was no change in fair value to the unit adjustment liability for the year ended 2017 due to the sale of the interest in Brand. For the years ended 2016 and 2015, the Company recognized $4.7 million and $8.5 million, respectively, of change in fair value to the unit adjustment liability, exclusive of the fair value adjustment resulting from the decision not to make the quarterly payments in 2016 and the loss related to the sale of the Company's interest, in Change in fair value to the unit adjustment liability and loss on dilution and sale of equity method investment on the Consolidated Statement of Operations. As a result of the sale of the Company's equity interest in Brand, there were no remaining balances related to the unit adjustment liability at December 31, 2017 and 2016. A reconciliation of beginning and ending balances related to the unit adjustment liability is included in Note 13, Financial Instruments.

5. Property, Plant and Equipment

Property, plant and equipment consist of the following:

(In thousands)	Estimated Useful Lives	December 31 2017	December 31 2016
Land	—	**$ 10,840**	$ 10,606
Land improvements	5-20 years	**14,996**	15,032
Buildings and improvements (a)	5-40 years	**198,582**	185,657
Machinery and equipment	3-20 years	**1,599,713**	1,525,156
Uncompleted construction	—	**24,387**	21,035
Gross property, plant and equipment		**1,848,518**	1,757,486
Less: Accumulated depreciation		**(1,368,771)**	(1,267,231)
Property, plant and equipment, net		**$ 479,747**	$ 490,255

(a) Buildings and improvements include leasehold improvements that are amortized over the shorter of their useful lives or the initial term of the lease.

Included in the amounts are $5.5 million and $8.7 million of property, plant and equipment under capital leases at December 31, 2017 and 2016, respectively.

6. Goodwill and Other Intangible Assets

Goodwill by Segment

The following table reflects the changes in carrying amounts of goodwill by segment for the years ended December 31, 2017 and 2016:

(In thousands)	Harsco Metals & Minerals Segment	Harsco Industrial Segment	Harsco Rail Segment	Consolidated Totals
Balance at December 31, 2015	$ 380,761	$ 6,806	$ 12,800	$ 400,367
Changes to goodwill	—	33	226	259
Foreign currency translation	(18,375)	—	—	(18,375)
Balance at December 31, 2016	362,386	6,839	13,026	382,251
Foreign currency translation	19,507	—	—	19,507
Balance at December 31, 2017	**$ 381,893**	**$ 6,839**	**$ 13,026**	**$ 401,758**

The Company's methodology for determining reporting unit fair value is described in Note 1, Summary of Significant Accounting Policies. Performance of the Company's 2017 annual impairment test did not result in impairment of any of the Company's reporting units.

Intangible Assets

Intangible assets totaled $38.3 million, net of accumulated amortization of $163.9 million at December 31, 2017 and $41.6 million, net of accumulated amortization of $153.5 million at December 31, 2016. The following table reflects these intangible assets by major category:

	December 31, 2017		December 31, 2016	
(In thousands)	Gross Carrying Amount	Accumulated Amortization	Gross Carrying Amount	Accumulated Amortization
Customer related	**$ 153,014**	**$ 121,385**	$ 146,840	$ 112,610
Patents	**5,825**	**5,700**	5,729	5,534
Technology related	**26,131**	**26,131**	25,687	25,634
Trade names	**8,317**	**4,845**	8,306	4,529
Other	**8,875**	**5,850**	8,512	5,200
Total	**$ 202,162**	**$ 163,911**	$ 195,074	$ 153,507

Amortization expense for intangible assets was $5.1 million, $7.9 million and $8.8 million for 2017, 2016 and 2015, respectively. The following table shows the estimated amortization expense for the next five fiscal years based on current intangible assets.

(In thousands)	2018	2019	2020	2021	2022
Estimated amortization expense (a)	$ 5,000	$ 4,750	$ 4,500	$ 4,250	$ 4,000

(a) These estimated amortization expense amounts do not reflect the potential effect of future foreign currency exchange rate fluctuations.

7. Debt and Credit Agreements

The Company has a multi-year revolving credit facility (the "Revolving Credit Facility") that is available for use throughout the world. The following table illustrates the amount outstanding under the Revolving Credit Facility and available credit at December 31, 2017.

	December 31, 2017			
(In thousands)	Facility Limit	Outstanding Balance	Outstanding Letters of Credit	Available Credit
Revolving Credit Facility (a U.S.-based program)	**$ 400,000**	**$ 41,000**	**$ 31,432**	**$ 327,568**

On December 2, 2015, the Company entered into (i) an amendment and restatement agreement and (ii) a second amended and restated credit agreement (together, the “Financing Agreements”). The Financing Agreements increased the Company's overall borrowing capacity from $500 million to $600 million by (i) amending and restating the Company’s then existing credit agreement, (ii) establishing a term loan A facility in an initial aggregate principal amount of $250 million, by converting a portion of the outstanding balance under the then existing credit agreement on a dollar-for-dollar basis and (iii) reducing the Revolving Credit Facility limit to $350 million.

During September 2016, the Company received approximately $145 million in cash, net, from its sale of its remaining 26% equity interest in the Infrastructure strategic venture. The Company used these proceeds to repay $85.0 million on the term loan A facility and $60.0 million on the Revolving Credit Facility. Related to the repayment of the term loan A facility, the Company expensed $1.1 million of unamortized deferred financing costs.

In November 2016, the Company entered into a senior secured credit facility (the “Senior Secured Credit Facility”), consisting of a $400 million Revolving Credit Facility and a $550 million term loan facility (the "Term Loan Facility"). Upon closing of the Senior Secured Credit Facility, the Company amended and extended the existing Revolving Credit Facility, repaid the existing term loan A facility and redeemed, satisfied and discharged its 5.75% notes (the "Notes") in accordance with the indenture governing the Notes. As a result, a charge of $35.3 million was recorded during the fourth quarter of 2016 consisting principally of the cost of early extinguishment of the Notes and the write-off of unamortized deferred financing costs associated with the Company’s existing Financing Agreements and the Notes and is reflected in the financing activities section of the Consolidated Statements of Cash Flows as a reduction of long-term debt.

In December 2017, the Company amended its existing Senior Secured Credit Facility in order to, among other things, reduce the interest rate applicable to the Term Loan Facility, improve certain covenants and extend the maturity date by a year until December 2024. As a result of this amendment, a charge of $2.3 million was recorded during the fourth quarter of 2017 consisting principally of fees associated with the transaction and the write-off of unamortized deferred financing costs and is reflected in the operating activities section of the Consolidated Statements of Cash Flows as part of Net income.

Borrowings under the $400 million Revolving Credit Facility bear interest at a rate per annum ranging from 87.5 to 200 basis points over the base rate or 187.5 to 300 basis points over the adjusted London Interbank Offered Rate ("LIBOR") as defined in the credit agreement governing the Senior Secured Credit Facility (the "Credit Agreement"). Any principal amount outstanding under the Revolving Credit Facility is due and payable on the maturity of the Revolving Credit Facility. The Revolving Credit Facility matures on November 2, 2021.

Borrowings under the Term Loan Facility bear interest at a rate per annum of 200 basis points over the base rate or 300 basis points over the adjusted LIBOR rate, subject to a 1% floor, as defined in the Credit Agreement. The Term Loan Facility requires scheduled quarterly payments, each equal to 0.25% of the original principal amount of the loans under the Term Loan Facility. These payments are reduced by the application of any prepayments and any remaining balance is due and payable on the maturity of the Term Loan Facility. The Term Loan Facility matures on December 8, 2024.

The Credit Agreement requires certain mandatory prepayments of the Term Loan Facility, subject to certain exceptions, based on net cash proceeds of certain sales or distributions of assets, as well as certain casualty and condemnation events, in some cases subject to reinvestment rights and certain other exceptions; net cash proceeds of any issuance of debt, excluded permitted debt issuances; and a percentage of excess cash flow, as defined by the Credit Agreement, during a fiscal year.

The Senior Secured Credit Facility imposes certain restrictions including, but not limited to, restrictions as to types and amounts of debt of liens that may be incurred by the Company; limitations on increases in dividend payments and limitations on certain acquisitions by the Company.

With respect to the Senior Secured Facility, the obligations of the Company are guaranteed by substantially all of the Company’s current and future wholly-owned domestic subsidiaries (“Guarantors”). All obligations under the Senior Credit Facility, and the guarantees of those obligations, are secured, subject to certain exceptions, by substantially all of the Company’s assets and the assets of the Guarantors.

In January 2017, the Company entered into a series of fixed-floating interest rate swaps that cover the period from 2018 through 2021, and had the effect of converting $300 million of the Term Loan Facility from floating-rate to fixed-rate. The fixed rates provided by the swaps replace the adjusted LIBOR rate in the interest calculation, range from 1.65% for 2018 to 2.71% for 2021.

At December 31, 2017, the Company had $586.9 million of borrowings under the Senior Secured Credit Facility consisting of $545.9 million under the Term Loan Facility and $41.0 million under the Revolving Credit Facility. At December 31, 2017, of these balances $581.4 million was classified as Long-term debt and $5.5 million was classified as Current maturities of long-term debt on the Consolidated Balance Sheets. At December 31, 2016, the Company had $648.0 million of borrowings under the Senior Secured Credit Facility consisting of $550.0 million under the Term Loan Facility and $98.0 million under the Revolving Credit Facility. At December 31, 2016, of these balances $642.5 million was classified as Long-term debt and $5.5 million was classified as Current maturities of long-term debt on the Consolidated Balance Sheets.

Short-term borrowings amounted to $8.6 million and $4.3 million at December 31, 2017 and 2016, respectively. At December 31, 2017 and 2016, Short-term borrowings consist primarily of bank overdrafts and other third party debt. The weighted-average interest rate for short-term borrowings at December 31, 2017 and 2016 was 4.3% and 6.2%, respectively.

Long-term debt consists of the following:

(In thousands)	December 31 2017	December 31 2016
Senior Secured Credit Facilities:		
Term Loan Facility with an interest rate of 4.6% and 6.0% at December 31, 2017 and 2016, respectively	**$ 545,875**	$ 550,000
Revolving Credit Facility with an average interest rate of 4.2% and 3.6% at December 31, 2017 and 2016, respectively	**41,000**	98,000
Other financing payable (including capital leases) in varying amounts due principally through 2017 with a weighted-average interest rate of 5.0% and 5.7% at December 31, 2017 and 2016, respectively	**6,784**	25,410
Total debt obligations	**593,659**	673,410
Less: deferred financing costs	**(15,657)**	(18,597)
Total debt obligations, net of deferred financing costs	**578,002**	654,813
Less: current maturities of long-term debt	**(11,208)**	(25,574)
Long-term debt	**$ 566,794**	**$ 629,239**

The maturities of long-term debt for the four years following December 31, 2018 are as follows:

(In thousands)	
2019	$ 6,274
2020	5,640
2021	46,498
2022	5,459

Cash payments for interest on debt were $44.3 million, $49.6 million and $44.4 million in 2017, 2016 and 2015, respectively.

The Credit Agreement contains a consolidated net debt to consolidated adjusted earnings before interest, tax, depreciation and amortization ("EBITDA") ratio covenant, which is not to exceed 3.75 to 1.0 and a minimum consolidated adjusted EBITDA to consolidated interest charges ratio covenant, which is not to be less than 3.0 to 1.0. The consolidated net debt to consolidated adjusted EBITDA ratio covenant is reduced to 3.5 to 1.0 after December 31, 2018. At December 31, 2017, the Company was in compliance with these and all other covenants.

8. Operating Leases

The Company leases certain property and equipment under noncancelable operating leases. Rental expense under such operating leases was $16.5 million, $16.9 million and $18.9 million in 2017, 2016 and 2015, respectively.

Future minimum payments under operating leases with noncancelable terms are as follows:

(In thousands)	
2018	$ 12,845
2019	9,848
2020	8,021
2021	6,360
2022	4,090
After 2022	16,169

Total minimum rentals to be received in the future under noncancelable subleases at December 31, 2017 are $0.8 million.

9. Employee Benefit Plans

Pension Benefits

The Company has defined benefit pension plans covering a substantial number of employees. The defined benefits for salaried employees generally are based on years of service and the employee's level of compensation during specified periods of employment. Defined benefit pension plans covering hourly employees generally provide benefits of stated amounts for each year of service. The multiemployer pension plans ("MEPPs"), in which the Company participates, provide benefits to certain unionized employees. The Company's funding policy for qualified plans is consistent with statutory regulations and customarily equals the amount deducted for income tax purposes. Periodic voluntary contributions are made, as recommended, by the Company's Pension Committee. The Company's policy is to amortize prior service costs of defined benefit pension plans over the average future service period of active plan participants.

For most U.S. defined benefit pension plans and a majority of international defined benefit pension plans, accrued service is no longer granted. In place of these plans, the Company has established defined contribution plans providing for the Company to contribute a specified matching amount for participating employees' contributions to the plan. For U.S. employees, this match is made on employee contributions up to 4% of eligible compensation. Additionally, the Company may provide a discretionary contribution for eligible employees. There have been no discretionary contributions provided for the years 2017, 2016 and 2015. For non-U.S. employees, this match is up to 6% of eligible compensation with an additional 2% going towards insurance and administrative costs.

NPPC for U.S. and international plans for 2017, 2016 and 2015 is as follows:

	U.S. Plans			International Plans		
(In thousands)	**2017**	**2016**	**2015**	**2017**	**2016**	**2015**
Defined benefit pension plans:						
Service cost	**$ 43**	$ 102	$ 118	**$ 1,724**	$ 1,585	$ 1,648
Interest cost	**9,878**	10,165	12,357	**21,459**	26,822	36,282
Expected return on plan assets	**(10,485)**	(10,721)	(14,041)	**(40,469)**	(42,979)	(50,091)
Recognized prior service costs	**33**	63	81	**186**	189	188
Recognized losses	**5,701**	5,493	4,919	**16,283**	12,002	16,875
Settlement/curtailment loss (gain)	**—**	276	—	**(20)**	79	(23)
Defined benefit pension plan cost (income)	**5,170**	5,378	3,434	**(837)**	(2,302)	4,879
Multiemployer pension plans	**650**	636	853	**1,306**	1,368	1,463
Defined contribution plans	**4,239**	3,833	3,921	**5,905**	5,807	6,765
Net periodic pension cost	**$ 10,059**	$ 9,847	$ 8,208	**$ 6,374**	$ 4,873	$ 13,107

The change in the financial status of the defined benefit pension plans and amounts recognized on the Consolidated Balance Sheets at December 31, 2017 and 2016 are as follows:

	U.S. Plans		International Plans	
(In thousands)	**2017**	**2016**	**2017**	**2016**
Change in benefit obligation:				
Benefit obligation at beginning of year	**$ 305,652**	$ 307,390	**$ 952,360**	$ 900,104
Service cost	**43**	102	**1,724**	1,585
Interest cost	**9,878**	10,165	**21,459**	26,822
Plan participants' contributions	**—**	—	**61**	68
Amendments	**—**	—	**(4,459)**	—
Actuarial (gain) loss	**14,459**	5,550	**(3,613)**	194,469
Settlements/curtailments	**—**	—	**(3,362)**	(1,527)
Benefits paid	**(15,171)**	(17,555)	**(40,379)**	(32,079)
Effect of foreign currency	**—**	—	**91,795**	(137,082)
Benefit obligation at end of year	**$ 314,861**	$ 305,652	**$ 1,015,586**	$ 952,360
Change in plan assets:				
Fair value of plan assets at beginning of year	**$ 205,271**	$ 208,870	**$ 732,743**	$ 755,966
Actual return on plan assets	**33,942**	11,935	**67,136**	105,027
Employer contributions	**5,899**	2,021	**18,187**	17,192
Plan participants' contributions	**—**	—	**61**	68
Settlements/curtailments	**—**	—	**(3,241)**	(1,527)
Benefits paid	**(15,171)**	(17,555)	**(39,800)**	(31,485)
Effect of foreign currency	**—**	—	**67,631**	(112,498)
Fair value of plan assets at end of year	**$ 229,941**	$ 205,271	**$ 842,717**	$ 732,743
Funded status at end of year	**$ (84,920)**	$ (100,381)	**$ (172,869)**	$ (219,617)

Amounts recognized on the Consolidated Balance Sheets for defined benefit pension plans consist of the following at December 31, 2017 and 2016:

	U.S. Plans December 31		International Plans December 31	
(In thousands)	**2017**	**2016**	**2017**	**2016**
Noncurrent assets	**$ 1,860**	$ 668	**$ 1,820**	$ 1,118
Current liabilities	**2,237**	2,278	**625**	505
Noncurrent liabilities	**84,543**	98,771	**174,064**	220,230
Accumulated other comprehensive loss before tax	**146,341**	161,075	**427,127**	434,868

Amounts recognized in Accumulated other comprehensive loss, before tax, for defined benefit pension plans consist of the following at December 31, 2017 and 2016:

	U.S. Plans		International Plans	
(In thousands)	**2017**	**2016**	**2017**	**2016**
Net actuarial loss	**$ 146,340**	$ 161,042	**$ 430,377**	$ 433,626
Prior service cost (credit)	**1**	33	**(3,250)**	1,242
Total	**$ 146,341**	$ 161,075	**$ 427,127**	$ 434,868

The estimated amounts that will be amortized from Accumulated other comprehensive loss into defined benefit pension plan NPPC in 2018 are as follows:

(In thousands)	**U.S. Plans**	**International Plans**
Net actuarial loss	$ 5,203	$ 15,186
Prior service cost (credit)	1	(149)
Total	$ 5,204	$ 15,037

The Company's estimate of expected contributions to be paid in 2018 for the U.S. and international defined benefit plans are $9.9 million and $19.2 million, respectively.

Future Benefit Payments

The expected benefit payments for defined benefit pension plans over the next ten years are as follows:

(In millions)	2018	2019	2020	2021	2022	2023-2027
U.S. Plans	$ 20.2	$ 19.3	$ 19.2	$ 19.2	$ 19.3	$ 94.1
International Plans	40.1	41.2	42.7	44.5	45.2	247.9

Net Periodic Pension Cost and Defined Benefit Pension Obligation Assumptions

The weighted-average actuarial assumptions used to determine the defined benefit pension plan NPPC for 2017, 2016 and 2015 were as follows:

	U.S. Plans December 31			International Plans December 31			Global Weighted-Average December 31		
	2017	2016	2015	2017	2016	2015	2017	2016	2015
Discount rates	**4.0%**	4.2%	3.9%	**2.8%**	3.8%	3.7%	**3.1%**	3.9%	3.7%
Expected long-term rates of return on plan assets	**7.3%**	7.3%	7.5%	**5.9%**	6.5%	6.8%	**6.2%**	6.7%	7.0%

The expected long-term rates of return on defined benefit pension plan assets for the 2018 NPPC are 7.3% for the U.S. plans and 5.6% for the international plans. The expected global long-term rate of return on assets for 2018 is 6.0%.

The weighted-average actuarial assumptions used to determine the defined benefit pension plan obligations at December 31, 2017 and 2016 were as follows:

	U.S. Plans December 31		International Plans December 31		Global Weighted-Average December 31	
	2017	2016	2017	2016	2017	2016
Discount rates	**3.5%**	4.0%	**2.6%**	2.8%	**2.8%**	3.1%

Since accrued service is no longer granted to the U.S. defined benefit plans and the majority of the international defined benefit pension plans, the rate of compensation increase did not have a significant impact on the defined benefit pension obligation at December 31, 2017 and 2016 or the defined benefit pension plan NPPC for the years ended 2017, 2016 and 2015.

The U.S. discount rate was determined using a yield curve that was produced from a universe containing approximately 700 U.S. dollar-denominated, AA-graded corporate bonds, all of which were noncallable (or callable with make-whole provisions), and excluding the 10% of the bonds with the highest yields and the 10% with the lowest yields within each maturity group. The discount rate was then developed as the level-equivalent rate that would produce the same present value as that using spot rates to discount the projected benefit payments. For international plans, the discount rate is aligned to corporate bond yields in the local markets, normally AA-rated corporations. The process and selection seeks to approximate the cash inflows with the timing and amounts of the expected benefit payments.

The Company changed the method utilized to estimate the service cost and interest cost components of NPPC for defined benefit pension plans for 2016 and later. The more precise application of discount rates for measuring both service costs and interest costs employs yield curve spot rates on a year-by-year expected cash flow basis, using the same yield curves that the Company has previously used. This change in method represents a change in accounting estimate and has been accounted for in the period of change. This change in method decreased the Company's NPPC by approximately $7 million for 2016, compared to what NPPC would have been under the prior method.

Accumulated Benefit Obligation

The accumulated benefit obligation for all defined benefit pension plans at December 31, 2017 and 2016 was as follows:

	U.S. Plans December 31		International Plans December 31	
(In millions)	2017	2016	2017	2016
Accumulated benefit obligation	**$ 314.9**	$ 305.7	**$ 1,010.6**	$ 946.3

Defined Benefit Pension Plans with Accumulated Benefit Obligation in Excess of Plan Assets

The projected benefit obligation, accumulated benefit obligation and fair value of plan assets for defined benefit pension plans with accumulated benefit obligations in excess of plan assets at December 31, 2017 and 2016 were as follows:

	U.S. Plans		International Plans	
	December 31		December 31	
(In millions)	2017	2016	2017	2016
Projected benefit obligation	**$ 306.0**	$ 296.7	**$ 986.6**	$ 913.0
Accumulated benefit obligation	**306.0**	296.7	**981.9**	910.0
Fair value of plan assets	**219.2**	195.6	**812.0**	694.9

The asset allocations attributable to the Company's U.S. defined benefit pension plans at December 31, 2017 and 2016, and the long-term target allocation of plan assets, by asset category, are as follows:

		Percentage of Plan Assets December 31	
U.S. Plans Asset Category	Target Long-Term Allocation	2017	2016
Domestic equity securities	34%-44%	**38.6%**	39.7%
International equity securities	19%-29%	**24.5%**	18.5%
Fixed income securities	28%-38%	**30.9%**	30.9%
Cash and cash equivalents	Less than 5%	**1.0%**	1.0%
Other (a)	0%-10%	**5.0%**	9.9%

(a) Investments within this caption include diversified global asset allocation funds.

Defined benefit pension plan assets are allocated among various categories of equities, fixed income securities and cash and cash equivalents with professional investment managers whose performance is actively monitored. The primary investment objective is long-term growth of assets in order to meet present and future benefit obligations. The Company periodically conducts an asset/liability modeling study and accordingly adjusts investments among and within asset categories to ensure the long-term investment strategy is aligned with the profile of benefit obligations.

The Company reviews the long-term expected return on asset assumption on a periodic basis taking into account a variety of factors including the historical investment returns achieved over a long-term period, the targeted allocation of plan assets and future expectations based on a model of asset returns for an actively managed portfolio. The model simulates 1,000 different capital market results over 20 years. For both 2018 and 2017, the expected return-on-asset assumption for U.S. defined benefit pension plans was 7.3%.

The U.S. defined benefit pension plans' assets include 450,000 shares of the Company's common stock at both December 31, 2017 and 2016, valued at $8.4 million and $6.1 million, respectively. These shares represented 3.7% and 3.0% of total U.S. plan assets at December 31, 2017 and 2016, respectively.

The asset allocations attributable to the Company's international defined benefit pension plans at December 31, 2017 and 2016 and the long-term target allocation of plan assets, by asset category, are as follows:

		Percentage of Plan Assets December 31	
International Plans Asset Category	Target Long-Term Allocation	2017	2016
Equity securities	29.0%	**38.9%**	37.1%
Fixed income securities	50.0%	**44.6%**	43.9%
Cash and cash equivalents	—	**0.3%**	0.3%
Other (b)	21.0%	**16.2%**	18.7%

(b) Investments within this caption include diversified growth funds, real estate funds and infrastructure funds.

International defined benefit pension plan assets at December 31, 2017 in the U.K. defined benefit pension plan amounted to approximately 94% of the international defined benefit pension plan assets. The U.K. plan assets are allocated among various categories of equities, fixed income securities and cash and cash equivalents with professional investment managers whose performance is actively monitored. The primary investment objective is long-term growth of assets in order to meet present and future benefit obligations. The Company periodically conducts asset/liability modeling studies and accordingly adjusts investment amounts within asset categories to ensure the long-term investment strategy is aligned with the profile of benefit obligations.

For the international long-term rate of return assumption, the Company considered the current level of expected returns in risk-free investments (primarily government bonds); the historical level of the risk premium associated with other asset classes in which the portfolio is invested; and the expectations for future returns of each asset class and plan expenses. The expected return for each asset class was then weighted based on the target asset allocation to develop the expected long-term rate of return on assets. For 2018, the expected return on asset assumption for the U.K. plan is 5.5% and for 2017 the expected return on asset assumption for the U.K. plan was 5.8%. The remaining international defined benefit pension plans, with plan assets representing approximately 6% of the international defined benefit pension plan assets, are under the guidance of professional investment managers and have similar investment objectives.

The fair values of the Company's U.S. defined benefit pension plans' assets at December 31, 2017 by asset class are as follows:

(In thousands)	Total	Level 1	Level 2
Domestic equities:			
Common stocks	**$ 28,200**	**$ 28,200**	**$ —**
Mutual funds—equities	**60,785**	**11,062**	**49,723**
International equities:			
Common stocks	**1,429**	**1,429**	**—**
Mutual funds—equities	**54,879**	**54,879**	**—**
Fixed income investments:			
U.S. Treasuries and collateralized securities	**18,407**	**—**	**18,407**
Corporate bonds and notes	**10,878**	**10,878**	**—**
Mutual funds—bonds	**41,745**	**12,184**	**29,561**
Other—mutual funds	**11,336**	**11,336**	**—**
Cash and money market accounts	**2,282**	**2,282**	**—**
Total	**$ 229,941**	**$ 132,250**	**$ 97,691**

The fair values of the Company's U.S. defined benefit pension plans' assets at December 31, 2016 by asset class are as follows:

(In thousands)	Total	Level 1	Level 2
Domestic equities:			
Common stocks	$ 27,339	$ 27,339	$ —
Mutual funds—equities	54,102	9,928	44,174
International equities:			
Mutual funds—equities	37,948	37,948	—
Fixed income investments:			
U.S. Treasuries and collateralized securities	14,240	—	14,240
Corporate bonds and notes	11,457	11,457	—
Mutual funds—bonds	37,745	11,927	25,818
Other—mutual funds	20,346	20,346	—
Cash and money market accounts	2,094	2,094	—
Total	$ 205,271	$ 121,039	$ 84,232

The fair values of the Company's international defined benefit pension plans' assets at December 31, 2017 by asset class are as follows:

(In thousands)	Total	Level 1	Level 2
Equity securities:			
Mutual funds—equities	**$ 328,002**	**$ —**	**$ 328,002**
Fixed income investments:			
Mutual funds—bonds	**369,291**	**—**	**369,291**
Insurance contracts	**6,189**	**—**	**6,189**
Other:			
Other mutual funds	**136,843**	**—**	**136,843**
Cash and money market accounts	**2,392**	**2,392**	**—**
Total	**$ 842,717**	**$ 2,392**	**$ 840,325**

The fair values of the Company's international defined benefit pension plans' assets at December 31, 2016 by asset class are as follows:

(In thousands)	Total	Level 1	Level 2
Equity securities:			
Mutual funds—equities	$ 272,070	$ —	$ 272,070
Fixed income investments:			
Mutual funds—bonds	314,098	—	314,098
Insurance contracts	7,657		7,657
Other:			
Real estate funds / limited partnerships	23,714	—	23,714
Other mutual funds	113,345	—	113,345
Cash and money market accounts	1,859	1,859	—
Total	$ 732,743	$ 1,859	$ 730,884

Following is a description of the valuation methodologies used for the defined benefit pension plans' investments measured at fair value:

- Level 1 Fair Value Measurements—Investments in interest-bearing cash are stated at cost, which approximates fair value. The fair values of money market accounts and certain mutual funds are based on quoted net asset values of the shares held by the plan at year-end. The fair values of domestic and international stocks and corporate bonds, notes and convertible debentures are valued at the closing price reported in the active market on which the individual securities are traded.
- Level 2 Fair Value Measurements—The fair values of investments in mutual funds for which quoted net asset values in an active market are not available are valued by the investment advisor based on the current market values of the underlying assets of the mutual fund based on information reported by the investment consistent with audited financial statements of the mutual fund. Further information concerning these mutual funds may be obtained from their separate audited financial statements. Investments in U.S. Treasury notes and collateralized securities are valued based on yields currently available on comparable securities of issuers with similar credit ratings.
- Level 3 Fair Value Measurements—Real estate limited partnership interests are valued by the general partners based on the underlying assets. The limited partnership interests are valued using unobservable inputs and have been classified within Level 3 of the fair value hierarchy.

Multiemployer Pension Plans

The Company, through the Harsco Metals & Minerals Segment, contributes to several MEPPs under the terms of collective-bargaining agreements that cover union-represented employees, many of whom are temporary in nature. The Company's total contributions to MEPPs were $2.0 million, $2.0 million and $2.5 million for the years ended December 31, 2017, 2016 and 2015, respectively.

10. Income Taxes

On December 22, 2017, the Act was signed into law. The Act, among other things, reduces the U.S. corporate income tax rate to 21% starting in 2018 and creates a territorial tax system with a one-time mandatory tax on previously deferred foreign earnings of U.S. subsidiaries.

The Company uses the asset and liability method of accounting for income taxes. Under this method, deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax basis. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to reverse. As a result of the Act, the Company revalued the ending net deferred tax assets and liabilities at December 31, 2017 and recorded a provisional charge of $48.7 million, included in Income tax expense on the Company’s Consolidated Statement of Operations for 2017.

The Act provides for a one-time deemed mandatory repatriation of post-1986 undistributed foreign subsidiary E&P through 2017. Based on an analysis of E&P, no income tax expense was recorded in the Company’s Consolidated Statement of Operations for 2017.

On December 22, 2017, the SEC staff issued SAB 118 to address the application of U.S. GAAP in situations when a registrant does not have the necessary information available, prepared, or analyzed (including computations) in reasonable detail to complete the accounting for certain income tax effects of the Act. The Company has recognized the revaluation of deferred tax assets and liabilities and included these amounts in the consolidated financial statements for 2017. The ultimate impact may differ from these provisional amounts, possibly materially, due to, among other things, additional analysis, changes in interpretations and assumptions the Company has made, additional regulatory guidance that may be issued, and actions the Company may take as a result of the Act. The accounting is expected to be completed when the Company's 2017 U.S. corporate income tax return is filed in 2018.

Income (loss) from continuing operations before income taxes and equity income as reported on the Consolidated Statements of Operations consists of the following:

(In thousands)	2017	2016	2015
U.S.	$ 5,694	$ (99,939)	$ 16,169
International	89,757	20,468	18,646
Total income (loss) from continuing operations before income taxes and equity income	$ 95,451	$ (79,471)	$ 34,815

Income tax expense as reported on the Consolidated Statements of Operations consists of the following:

(In thousands)	2017	2016	2015
Income tax expense (benefit):			
Currently payable:			
U.S. federal	$ 4,107	$ (4,088)	$ 408
U.S. state	372	365	546
International	21,975	18,014	23,095
Total income taxes currently payable	26,454	14,291	24,049
Deferred U.S. federal	46,470	(8,195)	2,651
Deferred U.S. state	1,142	2,238	812
Deferred international	9,737	(1,697)	166
Total income tax expense	$ 83,803	$ 6,637	$ 27,678

Cash payments for income taxes were $24.9 million, $14.6 million and $18.9 million for 2017, 2016 and 2015, respectively.

A reconciliation of the normal expected statutory U.S. federal income tax expense (benefit) to the actual Income tax expense as reported on the Consolidated Statements of Operations is as follows:

(In thousands)	2017	2016	2015
U.S. federal income tax expense (benefit)	$ 33,408	$ (27,815)	$ 12,185
U.S. state income taxes, net of federal income tax benefit	786	(355)	496
U.S. domestic manufacturing deductions and credits	(1,210)	(661)	(2,504)
Capital loss on sale of equity interest in Brand with no realizable tax benefit	—	16,106	—
Difference in effective tax rates on international earnings and remittances	675	2,006	5,095
Uncertain tax position contingencies and settlements	(1,517)	(1,886)	1,416
Changes in realization on beginning of the year deferred tax assets	2,758	1,978	923
Forward Loss Provisions in SBB Contract with no realizable tax benefits	—	15,768	—
Restructuring and impairment charges with no realizable tax benefits	—	—	8,508
U.S. non-deductible expenses	664	724	874
(Income) loss related to the Infrastructure Transaction	—	(644)	580
Impact of U.S. tax reform	48,680	—	—
Cumulative effect of change in statutory tax rates/laws	(153)	(388)	340
Income from unconsolidated entities	—	2,098	62
Other, net	(288)	(294)	(297)
Total income tax expense	$ 83,803	$ 6,637	$ 27,678

At December 31, 2017, 2016 and 2015, the Company's annual effective income tax rate on income from continuing operations was 87.8%, (8.4)% and 79.5%, respectively.

The Company’s international income from continuing operations before income taxes and equity income (loss) was $89.8 million and $20.5 million for 2017 and 2016, respectively. This includes the estimated forward loss provision related to the SBB contracts of $45.1 million in 2016, on which no tax benefit was recognized because the losses occurred in entities where it is not more likely than not that the tax benefit will be realized. In 2017, because of the reduction in the U.S. corporate income tax rate from 35% to 21% under the Act, the Company revalued its ending net deferred tax asset related to the outside basis difference in its international branches and recognized a provisional $6.5 million tax expense in the Company’s Consolidated Statement of Operations for 2017. The increased international income from continuing operations, the additional valuation allowance on the deferred tax assets in certain jurisdictions and the provisional tax expense because of the Act increased the Company’s total international income tax expense to $31.7 million in 2017 from $16.3 million in 2016.

The Company’s differences in effective tax rates for 2017 and 2016 on international earnings and remittances was $0.7 million and $2.0 million, respectively, which included U.S tax on international deemed remittances of $6.4 million and $7.3 million, respectively. This decrease is primarily due to the change in the mix of earnings between jurisdictions.

The Company's income from continuing operations before income taxes and equity income attributable to the U.S. was $5.7 million for 2017 compared to loss from continuing operations before income taxes and equity attributable to the U.S. of $99.9 million for 2016. In 2017, due to the impact of the Act, the Company recognized a $14.9 million provisional tax expense because of revaluing the U.S. ending net deferred tax assets from 35% to the newly enacted U.S. corporate income tax rate of 21%, and established a provisional valuation allowance on the full amount of foreign tax credit carryforward of $27.3 million due to the impact the Act had on future foreign source income. In 2016, a valuation allowance of $16.1 million was established for the deferred tax asset resulting from the capital loss on the sale of the Company's equity interest in Brand, because it is not more likely than not that the benefit will be realized in the future. However, the net operating loss created by the loss on early extinguishment of debt was realized through a carryback to prior years with taxable income.

The tax effects of the temporary differences giving rise to the Company's deferred tax assets and liabilities at December 31, 2017 and 2016 are as follows:

	2017		2016	
(In thousands)	**Asset**	**Liability**	**Asset**	**Liability**
Depreciation and amortization	**$ 6,616**	**$ —**	$ —	$ 10,089
Expense accruals	**17,690**	**—**	23,300	—
Inventories	**4,390**	**—**	6,611	—
Provision for receivables	**649**	**—**	1,015	—
Deferred revenue	**—**	**979**	—	1,852
Operating loss carryforwards	**90,193**	**—**	80,178	—
Foreign tax credit carryforwards	**27,256**	**—**	26,347	—
Capital loss carryforwards	**11,011**	**—**	18,163	—
Pensions	**47,153**	**—**	74,506	—
Currency adjustments	**7,160**	**—**	17,597	—
Deferred financing costs	**—**	**2,135**	—	—
Post-retirement benefits	**403**	**—**	760	—
Stock based compensation	**4,761**	**—**	5,812	—
Other	**7,684**	**—**	7,206	—
Subtotal	**224,966**	**3,114**	261,495	11,941
Valuation allowance	**(174,227)**	**—**	(146,097)	—
Total deferred income taxes	**$ 50,739**	**$ 3,114**	$ 115,398	$ 11,941

The deferred tax asset and liability balances recognized on the Consolidated Balance Sheets at December 31, 2017 and 2016 are as follows:

(In thousands)	**2017**	**2016**
Deferred income tax assets	**$ 51,574**	$ 106,311
Other liabilities	**3,949**	2,854

At December 31, 2017, the tax-effected amount of net operating loss carryforwards ("NOLs") totaled $90.2 million. Tax-effected NOLs from international operations are $73.5 million. Of that amount, $60.5 million can be carried forward indefinitely and $13.0 million will expire at various times between 2018 and 2038. Tax-effected U.S. state NOLs are $16.7 million. Of that amount, $3.9 million expire at various times between 2018 and 2022, $2.9 million expire at various times between 2023 and 2027, $4.3 million expire at various times between 2028 and 2032 and $5.6 million expire at various times between 2033 and 2038. At December 31, 2017, the tax-effected amount of capital loss carryforwards totaled $11.0 million which expire between 2018 and 2021.

Valuation allowances of $174.2 million and $146.1 million at December 31, 2017 and 2016, respectively, related principally to deferred tax assets for pension liabilities, NOLs, foreign tax credit carryforwards, capital loss carryforwards and foreign currency translation that are uncertain as to realizability. In 2017, the Company recorded a valuation allowance of $27.3 million related to foreign tax credit carryforwards due to the impact of the Act, an increase from foreign currency translation in the amount of $10.1 million and a net increase of $6.9 million related to losses in certain jurisdictions where the Company determined that it is more likely than not that these assets will not be realized. This was partially offset by a reduction related to current year pension adjustments recorded through Accumulated other comprehensive loss and a decrease related to U.S., Argentina and Belgium tax rate changes. In 2016, the Company recorded a valuation allowance of $16.1 million related to capital loss on sale of the Company's equity interest in Brand, $13.5 million related to estimated forward loss provisions related to the SBB contracts and current year pension adjustments of $19.2 million recorded through Accumulated other comprehensive loss. This was partially offset by the reduction from the effects of foreign currency translation adjustments and the decrease related to U.K. and France tax rate changes.

Based on an analysis of E&P for the Company's foreign subsidiaries, no toll charge has been recorded in 2017 related to the Act. Given the complexities of the E&P calculations and the guidance provided by SAB 118, the Company will continue to analyze this provisional amount until the Company's U.S. tax return is filed in 2018. The Company does not anticipate a change in the indefinite reinvestment assertion, as a result of the Act. However, the Company considers the indefinite reinvestment assertion to be provisional and will continue to analyze the impact of the Act on this assertion during the SAB 118 measurement period.

The Company recognizes accrued interest and penalty expense related to unrecognized income tax benefits in income tax expense. During 2016, the Company recognized an income tax benefit of $1.7 million, for interest and penalties primarily due to the expiration of statutes of limitation and resolution of examinations. The Company did not recognize any income tax expense or benefit for interest and penalties during 2017 and 2015. The Company has accrued $1.1 million, $1.1 million and $2.8 million for the payment of interest and penalties at December 31, 2017, 2016 and 2015 respectively.

A reconciliation of the change in the unrecognized income tax benefits balance from January 1, 2015 to December 31, 2017 is as follows:

(In thousands)	Unrecognized Income Tax Benefits	Deferred Income Tax Benefits	Unrecognized Income Tax Benefits, Net of Deferred Income Tax Benefits
Balances, January 1, 2015	$ 12,456	$ (112)	$ 12,344
Additions for tax positions related to the current year (includes currency translation adjustment)	(483)	(2)	(485)
Additions for tax positions related to prior years (includes currency translation adjustment)	1,249	(4)	1,245
Other reductions for tax positions related to prior years	(7,846)	—	(7,846)
Statutes of limitation expirations	(173)	59	(114)
Settlements	(42)	15	(27)
Balance at December 31, 2015	5,161	(44)	5,117
Additions for tax positions related to the current year (includes currency translation adjustment)	744	(1)	743
Additions for tax positions related to prior years (includes currency translation adjustment)	358	(14)	344
Other reductions for tax positions related to prior years	(837)	—	(837)
Statutes of limitation expirations	(817)	27	(790)
Settlements	(27)	2	(25)
Balance at December 31, 2016	4,582	(30)	4,552

(In thousands)	Unrecognized Income Tax Benefits	Deferred Income Tax Benefits	Unrecognized Income Tax Benefits, Net of Deferred Income Tax Benefits
Additions for tax positions related to the current year (includes currency translation adjustment)	658	(2)	656
Other reductions for tax positions related to prior years	(321)	—	(321)
Statutes of limitation expirations	(1,296)	1	(1,295)
Total unrecognized income tax benefits that, if recognized, would impact the effective income tax rate at December 31, 2017	**$ 3,623**	**$ (31)**	**$ 3,592**

Included in the other reductions for tax positions related to prior year for 2015 is $7.8 million resulting from the adjustment by a foreign tax authority as a result of tax audit. The unrecognized tax benefit was related to a net operating loss carryforward that carried a full valuation allowance. As a result, the related deferred tax asset was decreased by the same amount.

Within the next twelve months, it is reasonably possible that up to $1.2 million of unrecognized income tax benefits will be recognized upon settlement of tax examinations and the expiration of various statutes of limitations.

The Company files income tax returns as prescribed by the tax laws of the jurisdictions in which it operates. With few exceptions, the Company is no longer subject to U.S and international income tax examinations by tax authorities through 2011.

11. Commitments and Contingencies

Environmental

The Company is involved in a number of environmental remediation investigations and cleanups and, along with other companies, has been identified as a "potentially responsible party" for certain waste disposal sites. While each of these matters is subject to various uncertainties, it is probable that the Company will agree to make payments toward funding certain of these activities and it is possible that some of these matters will be decided unfavorably to the Company. The Company has evaluated its potential liability, and its financial exposure is dependent upon such factors as the continuing evolution of environmental laws and regulatory requirements, the availability and application of technology, the allocation of cost among potentially responsible parties, the years of remedial activity required and the remediation methods selected. The Company did not have any material accruals or record any material expenses related to environmental matters during the periods presented.

The Company evaluates its liability for future environmental remediation costs on a quarterly basis. Although actual costs to be incurred at identified sites in future periods may vary from the estimates (given inherent uncertainties in evaluating environmental exposures), the Company does not expect that any costs that are reasonably possible to be incurred by the Company in connection with environmental matters in excess of the amounts accrued would have a material adverse effect on the Company's financial condition, results of operations or cash flows.

Brazilian Tax Disputes

The Company is involved in a number of tax disputes with federal, state and municipal tax authorities in Brazil. These disputes are at various stages of the legal process, including the administrative review phase and the collection action phase, and include assessments of fixed amounts of principal and penalties, plus interest charges that increase at statutorily determined amounts per month and are assessed on the aggregate amount of the principal and penalties. In addition, the losing party at the collection action or court of appeals phase could be subject to a charge to cover statutorily mandated legal fees, which are generally calculated as a percentage of the total assessed amounts due, inclusive of penalty and interest. A large number of the claims relate to value-added ("ICMS"), services and social security tax disputes. The largest proportion of the assessed amounts relate to ICMS claims filed by the State Revenue Authorities from the State of São Paulo, Brazil (the "SPRA"), encompassing the period from January 2002 to May 2005.

In October 2009, the Company received notification of the SPRA's final administrative decision regarding the levying of ICMS in the State of São Paulo in relation to services provided to a customer in the State between January 2004 and May 2005. As of December 31, 2017, the principal amount of the tax assessment from the SPRA with regard to this case is approximately $2 million, with penalty, interest and fees assessed to date increasing such amount by an additional $24 million. Any change in the aggregate amount since the Company's last Annual Report on Form 10-K is due to an increase in assessed interest and statutorily mandated legal fees for the year, as well as foreign currency translation.

Another ICMS tax case involving the SPRA refers to the tax period from January 2002 to December 2003, and has not yet reached the judicial phase. The aggregate amount assessed by the tax authorities in August 2005 was $7.6 million (the amounts with regard to this claim are valued as of the date of the assessment since it has not yet reached the collection phase), composed of a principal amount of $1.8 million, with penalty and interest assessed through that date increasing such amount by an additional $5.8 million. All such amounts include the effect of foreign currency translation.

The Company continues to believe that it is not probable it will incur a loss for these assessments by the SPRA. The Company also continues to believe that sufficient coverage for these claims exists as a result of the Company's customer's indemnification obligations and such customer's pledge of assets in connection with the October 2009 notice, as required by Brazilian law.

The Company intends to continue its practice of vigorously defending itself against these tax claims under various alternatives, including judicial appeal. The Company will continue to evaluate its potential liability with regard to these claims on a quarterly basis; however, it is not possible to predict the ultimate outcome of these tax-related disputes in Brazil. No loss provision has been recorded in the Company's consolidated financial statements for the disputes described above because the loss contingency is not deemed probable, and the Company does not expect that any costs that are reasonably possible to be incurred by the Company in connection with Brazilian tax disputes would have a material adverse effect on the Company's financial condition, results of operations or cash flows.

Brazilian Labor Disputes

The Company is subject to ongoing collective bargaining and individual labor claims in Brazil through the Harsco Metals & Minerals Segment which allege, among other things, the Company's failure to pay required amounts for overtime and vacation at certain sites. The Company is vigorously defending itself against these claims; however, litigation is inherently unpredictable, particularly in foreign jurisdictions. While the Company does not currently expect that the ultimate resolution of these claims will have a material adverse effect on the Company’s financial condition, results of operations or cash flows, it is not possible to predict the ultimate outcome of these labor-related disputes.

The Company is continuing to evaluate all known labor claims and as of December 31, 2017 and 2016, the Company has established reserves of $9.6 million and $7.9 million, respectively, on the Consolidated Balance Sheets for amounts considered to be probable and estimable. As the Company continues to evaluate these claims and takes actions to address them, the amount of established reserves may be impacted.

Customer Disputes

The Company may, in the normal course of business, become involved in commercial disputes with subcontractors or customers.

During the first quarter of 2015, a rail grinder manufactured by the Company's Harsco Rail Segment and operated by a subcontractor caught fire, causing a customer to incur monetary damages. In August 2017, the Company reached a mutually agreed upon settlement with the customer whereby the Company (1) made a net payment of $5.4 million to the customer; (2) received ownership of the underlying equipment; and (3) was released from all claims and potential claims. Based on the evaluation of the terms of the settlement, this settlement did not have a material impact on the Company’s results of operations.

Although results of operations and cash flows for a given period could be adversely affected by a negative outcome in these or other lawsuits, claims or proceedings, management believes that the ultimate outcome of these matters will not have a material adverse effect on the Company's financial condition, results of operations or cash flows.

Lima Refinery Litigation

On April 8, 2016, Lima Refining Company filed a lawsuit against the Company in the District Court of Harris County, Texas related to a January 2015 explosion at an oil refinery operated by Lima Refining Company. The action seeks approximately more than $106 million in property damages and approximately $289 million in lost profits and business interruption damages. The action alleges the explosion occurred because of a defect in a heat exchange cooler manufactured by Hammco Corporation ("Hammco") in 2009, prior to the Company’s acquisition of Hammco in 2014. The Company is vigorously contesting the allegations against it both as to liability for the accident and the amount of the claimed damages. As a result, the Company believes the situation will not result in a probable loss. The Company has both an indemnity right from the sellers of Hammco and liability insurance coverage under various primary and excess policies that the Company believes will be available, if necessary, to cover substantially all of any such liability that might ultimately be incurred in the above action.

U.K. Health and Safety Executive Matter
In the third quarter of 2016, a subsidiary in the Company’s Harsco Metals & Minerals Segment, along with one of its customers, was named as a co-defendant in an action brought by the U.K. Health and Safety Executive in the U.K. Crown Court Sitting at Kingston-Upon-Hull. In September 2017, the U.K. Health and Safety Executive withdrew its case against the Company, ending the Company’s involvement in these proceedings.

Compliance Matter
As previously disclosed, the Company recently began an internal investigation, with the assistance of outside counsel, after it became aware of allegations involving an employee and an agent of the Harsco Rail subsidiary in China (“Harsco Rail China”). During this investigation, which remains ongoing, the Company learned about certain payments that potentially violate the Foreign Corrupt Practices Act. Revenues attributed to Harsco Rail China were less than approximately 2% of the Company’s consolidated revenues for each of the past three years.

The Company has voluntarily self-reported its findings to the SEC and the U.S. Department of Justice (the “DOJ”) and intends to fully cooperate with these agencies in their review. Based on information known to date, the Company believes the amount of the potential improper payments are not material to the consolidated financial statements. Any determination that the Company's operations or activities were not in compliance with existing laws or regulations could result in the imposition of fines and penalties. No provision with respect to this matter has been made in the Company’s consolidated financial statements. At this time, the Company cannot predict the outcome or impact of the investigation or the reviews by the SEC and the DOJ. However, based on information available at this time, the Company does not believe any potential liability would be material to the Company's consolidated financial position, although an amount recorded, if any, could be material to the results of operations for the period in which it may be recorded.

Other
The Company is named as one of many defendants (approximately 90 or more in most cases) in legal actions in the U.S. alleging personal injury from exposure to airborne asbestos over the past several decades. In their suits, the plaintiffs have named as defendants, among others, many manufacturers, distributors and installers of numerous types of equipment or products that allegedly contained asbestos.

The Company believes that the claims against it are without merit. The Company has never been a producer, manufacturer or processor of asbestos fibers. Any asbestos-containing part of a Company product used in the past was purchased from a supplier and the asbestos encapsulated in other materials such that airborne exposure, if it occurred, was not harmful and is not associated with the types of injuries alleged in the pending actions.

At December 31, 2017, there were 17,144 pending asbestos personal injury actions filed against the Company. Of those actions, 16,742 were filed in the New York Supreme Court (New York County), 110 were filed in other New York State Supreme Court Counties and 292 were filed in courts located in other states.

The complaints in most of those actions generally follow a form that contains a standard damages demand of $20 million or $25 million, regardless of the individual plaintiff's alleged medical condition, and without identifying any specific Company product.

At December 31, 2017, 16,712 of the actions filed in New York Supreme Court (New York County) were on the Deferred/Inactive Docket created by the court in December 2002 for all pending and future asbestos actions filed by persons who cannot demonstrate that they have a malignant condition or discernible physical impairment. The remaining 30 cases in New York County are pending on the Active or In Extremis Docket created for plaintiffs who can demonstrate a malignant condition or physical impairment.

The Company has liability insurance coverage under various primary and excess policies that the Company believes will be available, if necessary, to substantially cover any liability that might ultimately be incurred in the asbestos actions referred to above. The costs and expenses of the asbestos actions will be paid by the Company’s insurers.

In view of the persistence of asbestos litigation in the U.S., the Company expects to continue to receive additional claims in the future. The Company intends to continue its practice of vigorously defending these claims and cases. At December 31, 2017, the Company has obtained dismissal in 27,943 cases by stipulation or summary judgment prior to trial.

It is not possible to predict the ultimate outcome of asbestos-related actions in the U.S. due to the unpredictable nature of this litigation, and no loss provision has been recorded in the Company's consolidated financial statements because a loss contingency is not deemed probable or estimable. Despite this uncertainty, and although results of operations and cash flows for a given period could be adversely affected by asbestos-related actions, the Company does not expect that any costs that are reasonably possible to be incurred by the Company in connection with asbestos litigation would have a material adverse effect on the Company's financial condition, results of operations or cash flows.

The Company is subject to various other claims and legal proceedings covering a wide range of matters that arose in the ordinary course of business. In the opinion of management, all such matters are adequately covered by insurance or by established reserves, and, if not so covered, are without merit or are of such kind, or involve such amounts, as would not have a material adverse effect on the financial position, results of operations or cash flows of the Company.

Insurance liabilities are recorded when it is probable that a liability has been incurred for a particular event and the amount of loss associated with the event can be reasonably estimated. Insurance reserves have been estimated based primarily upon actuarial calculations and reflect the undiscounted estimated liabilities for ultimate losses, including claims incurred but not reported. Inherent in these estimates are assumptions that are based on the Company's history of claims and losses, a detailed analysis of existing claims with respect to potential value, and current legal and legislative trends. If actual claims differ from those projected by management, changes (either increases or decreases) to insurance reserves may be required and would be recorded through income in the period the change was determined. When a recognized liability is covered by third-party insurance, the Company records an insurance claim receivable to reflect the covered liability. Insurance claim receivables are included in Other receivables on the Consolidated Balance Sheets. See Note 1, Summary of Significant Accounting Policies, for additional information.

12. Capital Stock

The authorized capital stock of the Company consists of 150,000,000 shares of common stock and 4,000,000 shares of preferred stock, both having a par value of $1.25 per share. The preferred stock is issuable in series with terms as fixed by the Board of Directors (the "Board"). No preferred stock has been issued. The following table summarizes the Company's common stock:

	Shares Issued	Treasury Shares (a)	Outstanding Shares
Outstanding, January 1, 2015	112,357,348	31,697,498	80,659,850
Shares issued for vested restricted stock units	47,954	16,807	31,147
Treasury shares purchased	—	596,632	(596,632)
Outstanding, December 31, 2015	112,405,302	32,310,937	80,094,365
Shares issued for vested restricted stock units	94,572	13,974	80,598
Outstanding, December 31, 2016	112,499,874	32,324,911	80,174,963
Shares issued for vested restricted stock units	375,355	105,431	269,924
Stock appreciation rights exercised	12,897	3,932	8,965
Outstanding, December 31, 2017	**112,888,126**	**32,434,274**	**80,453,852**

(a) The Company repurchases shares in connection with the issuance of shares under stock-based compensation programs and in accordance with Board authorized share repurchase programs.

The following is a reconciliation of the average shares of common stock used to compute basic earnings per common share to the shares used to compute diluted earnings per common share as shown on the Consolidated Statements of Operations:

(In thousands, except per share data)	**2017**	**2016**	**2015**
Income (loss) from continuing operations attributable to Harsco Corporation common stockholders	**$ 7,626**	$ (86,336)	$ 7,168
Weighted-average shares outstanding—basic	**80,553**	80,333	80,234
Dilutive effect of stock-based compensation	**2,287**	—	131
Weighted-average shares outstanding—diluted	**82,840**	80,333	80,365
Income (loss) from continuing operations per common share, attributable to Harsco Corporation common stockholders:			
Basic	**$ 0.09**	$ (1.07)	$ 0.09
Diluted	**$ 0.09**	$ (1.07)	$ 0.09

The following average outstanding stock-based compensation units were not included in the computation of diluted earnings per share because the effect was antidilutive:

(In thousands)	2017	2016	2015
Restricted stock units	**—**	810	—
Stock options	**52**	89	98
Stock appreciation rights	**811**	1,458	1,142
Performance share units	**201**	684	278

13. Stock-Based Compensation

During 2017, the Company's stockholders and Board of Directors approved Amendment No. 1 to the 2013 Equity and Incentive Compensation Plan ("Amendment No. 1"). Amendment No. 1 increased the number of shares available for new awards and increased the number of shares that may be issued or transferred by the Company in connection with awards other than option rights or stock appreciation rights ("SARs"). The 2013 Equity and Incentive Plan, as amended (the "2013 Plan") authorizes the issuance of up to 7,800,000 shares of the Company's common stock for use in paying incentive compensation awards in the form of stock options or other equity awards such as restricted stock, restricted stock units ("RSUs"), SARs, or performance share units ("PSUs"). Of the 7,800,000 shares authorized, a maximum of 4,621,000 shares may be issued for awards other than option rights or SARs, as defined in the 2013 Plan. The 2016 Non-Employee Directors' Long-Term Equity Compensation Plan (the "2016 Plan") authorizes the issuance of up to 400,000 shares of the Company's common stock for equity awards. Both plans have been approved by the Company's stockholders. At December 31, 2017, there were 4,366,677 shares available for granting equity awards under the 2013 Plan, of which 2,834,345 shares were available for awards other than option rights or SARs. At December 31, 2017, there were 233,799 shares available for granting equity awards under the 2016 Plan.

Restricted Stock Units

The Company's Board approves the granting of performance-based RSUs as the long-term equity component of director, officer and certain key employee compensation. The RSUs require no payment from the recipient and compensation cost is measured based on the market price of the Company's common stock on the grant date and is generally recorded over the vesting period. RSUs granted to officers and certain key employees in 2015, either "cliff" vest at the end of three years, upon obtainment of specified retirement or years of service criteria. RSUs granted to officers and certain key employees in 2016 and 2017 either vest on a pro-rata basis over three years or upon obtainment of specified retirement or years of service criteria. Upon vesting, each RSU is exchanged for an equal number of shares of the Company's common stock. The vesting period for RSUs granted to non-employee directors is one year and each RSU is exchanged for an equal number of shares of the Company's common stock following the termination of the participant's service as a director. RSUs do not have an option for cash payment.

The following table summarizes RSUs issued and the compensation expense recorded for the years ended December 31, 2017, 2016 and 2015:

(Dollars in thousands, except per unit)	RSUs (a)	Weighted Average Fair Value	Expense 2017	Expense 2016	Expense 2015
Directors:					
2014	36,840	$ 24.80	**$ —**	$ —	$ 311
2015	59,985	$ 15.69	**—**	314	627
2016	109,998	$ 7.00	**257**	513	—
2017	56,203	$ 13.70	**641**	—	—
Employees:					
2012	141,486	$ 18.75	**—**	—	(71) (b)
2013	170,582	$ 20.63	**—**	66	87
2014	190,832	$ 25.21	**316**	669	504
2015	239,679	$ 16.53	**597**	880	919
2016	536,773	$ 7.09	**1,011**	995	—
2017	286,251	$ 13.70	**1,417**	—	—
Total			**$ 4,239**	$ 3,437	$ 2,377

(a) Represents number of awards originally issued.
(b) Represents the impact of forfeitures during 2015.

RSU activity for the year ended December 31, 2017 was as follows:

	Number of Shares	Weighted Average Grant-Date Fair Value
Non-vested at December 31, 2016	927,082	$ 11.19
Granted	342,454	13.70
Vested	(392,735)	11.96
Forfeited	(74,862)	12.96
Non-vested at December 31, 2017	**801,939**	**11.73**

At December 31, 2017, the total unrecognized compensation cost related to non-vested RSUs was $4.0 million, which will be recognized over a weighted-average period of 1.7 years. There was a $1.1 million decrease in excess tax benefits from RSUs recognized in equity in 2016 and none in 2015. Upon the adoption of changes issued by the FASB amending the accounting for stock-based compensation, the Company records any excess tax benefits or shortfalls as a component of income tax expense. See Note 1, Recently Adopted and Recently Issued Accounting Standards, for additional information.

Stock Appreciation Rights

The Company's Board approves the granting of SARs to officers and certain key employees under the 2013 Plan. The SARs generally vest on a pro-rata basis from three to five years from the grant date or upon specified retirement or years of service criteria and expire no later than ten years after the grant date. The exercise price of the SARs is equal to the fair value of Harsco common stock on the grant date. Upon exercise, shares of Company's common stock are issued based on the increase in the fair value of the Company's common stock over the exercise price of the SAR. SARs do not have an option for cash payment.

During 2015, the Company issued SARs covering 532,615 shares in May under the 2013 Plan. During 2016, the Company issued SARS covering 554,719 shares in May and 21,686 shares in November under the 2013 Plan. During 2017, the Company issued SARS covering 266,540 shares in March under the 2013 Plan.

The fair value of each SAR grant was estimated on the grant date using a Black-Scholes pricing model with the following assumptions:

	Risk-free Interest rate	Dividend Yield	Expected Life (Years)	Volatility	SAR Grant Price	Fair Value of SAR
May 2013 Grant	1.17%	3.61%	6.5	44.1%	$ 22.70	$ 6.86
June 2013 Grant	1.41%	3.56%	6.5	44.1%	23.03	7.07
November 2013 Grant	1.91%	3.13%	6.5	43.8%	26.22	8.60
April 2014 Grant	1.98%	3.53%	6.0	44.3%	23.25	7.25
May 2014 Grant (1st)	1.90%	3.16%	6.0	43.2%	25.93	8.16
May 2014 Grant (2nd)	1.82%	3.05%	6.0	42.8%	26.92	8.47
July 2014 Grant	2.00%	3.24%	6.0	41.2%	25.27	7.55
August 2014 Grant	1.92%	3.27%	6.0	41.2%	25.11	7.46
September 2014 Grant	2.03%	3.50%	6.0	40.6%	23.43	6.72
November 2014 Grant	1.78%	4.00%	6.0	38.6%	20.48	5.17
May 2015 Grant	1.70%	4.96%	6.0	35.8%	16.53	3.39
May 2016 Grant	1.39%	—%	6.0	42.1%	7.00	2.93
November 2016 Grant	1.74%	—%	6.0	43.8%	12.25	5.38
March 2017 Grant	2.17%	—%	6.0	43.9%	13.70	6.13

SARs activity for the years ended December 31, 2017 was as follows:

	Number of Shares	Weighted Average Exercise Price	Aggregate Intrinsic Value (in millions) (c)
Outstanding, December 31, 2016	1,535,873	$ 15.81	$ 3.4
Granted	266,540	13.70	
Exercised	(32,703)	10.73	
Forfeited/Expired	(90,434)	19.04	
Outstanding, December 31, 2017	**1,679,276**	**15.40**	**7.9**

(c) Intrinsic value is defined as the difference between the current market value and the exercise price, for those SARs where the market price exceeds the exercise price.

The total intrinsic value of SARs exercised in 2017 was $0.3 million. No SARs were exercised in 2016 and 2015.

The following table summarizes information concerning outstanding and exercisable SARs at December 31, 2017:

	SARs Outstanding				SARs Exercisable	
Range of exercisable prices	Vested	Non-vested	Weighted-Average Exercise Price per Share	Weighted-Average Remaining Contractual Life in Years	Number Exercisable	Weighted-Average Exercise Price per Share
$7.00 - $13.70	163,601	596,285	$ 9.40	8.65	163,601	$ 7.43
$16.53 - $22.70	377,147	255,269	18.29	6.66	377,147	18.26
$23.03 - $26.92	261,111	25,863	24.93	6.33	261,111	24.95
	801,859	**877,417**	**15.40**	**7.51**	**801,859**	**18.23**

Total compensation expense related to SARs was $2.0 million, $1.7 million and $1.2 million for the years ended December 31, 2017, 2016 and 2015, respectively. Vested and currently exercisable SARs have a weighted-average remaining contractual life of 7.51 years and an intrinsic value of $2.4 million at December 31, 2017 and total unrecognized compensation expense related to non-vested SARs was $2.1 million, which is expected to be recognized over a weighted average period of 1.7 years.

Weighted-average grant date fair value of non-vested SARs for the year ended December 31, 2017 was as follows:

	Number of Shares	Weighted-Average Grant Date Fair Value
Non-vested shares, December 31, 2016	1,014,524	$ 3.84
Granted	266,540	6.13
Vested	(280,510)	3.59
Exercised	(32,703)	3.11
Forfeited	(90,434)	5.96
Non-vested shares, December 31, 2017	**877,417**	**4.42**

Performance Share Units

The Company's Board approves the granting of PSUs to officers and certain key employees that may be earned based on the Company's total shareholder return over the three-year performance period. PSUs are paid out at the end of each performance period based on the Company's performance, which is measured by determining the percentile rank of the total shareholder return of the Company's common stock in relation to the total shareholder return of a specific peer group of companies. For PSUs issued in 2015, the peer group of companies utilized was the S&P Midcap 400 Index. For PSUs issued in 2016 and 2017, the peer group of companies utilized is the S&P 600 Industrial Index. The payment of PSUs following the performance period will be based in accordance with the scale set forth in the PSU agreements, and may range from 0% to 200% of the initial grant. PSUs do not have an option for cash payment.

During the year ended December 31, 2015, the Company granted 237,063 shares in May under the 2013 Plan. During the year ended December 31, 2016, the Company granted 527,249 shares in May and 9,524 shares in November under the 2013 plan. During the year ended December 31, 2017 the Company granted 286,251 shares in March under the 2013 Plan. The fair value of PSUs granted was estimated on the grant date using a Monte Carlo pricing model with the following assumptions:

	Risk-free Interest rate	Dividend Yield	Expected Life (Years)	Volatility	Fair Value of PSU
April 2014 Grant	0.75%	—%	2.73	34.3%	$ 18.00
May 2014 Grant (1st)	0.70%	—%	2.65	31.8%	25.26
May 2014 Grant (2nd)	0.63%	—%	2.61	30.1%	27.53
July 2014 Grant	0.74%	—%	2.42	26.9%	22.31
August 2014 Grant	0.67%	—%	2.42	26.9%	21.86
September 2014 Grant	0.72%	—%	2.29	25.7%	15.26
November 2014 Grant	0.55%	—%	2.10	26.3%	7.42
May 2015 Grant	0.83%	—%	2.65	28.5%	14.48
May 2016 Grant	0.84%	—%	2.65	33.3%	7.19
November 2016 Grant	0.96%	—%	2.14	35.2%	17.84
March 2017 Grant	1.54%	—%	2.83	34.2%	17.05

Total compensation expense related to PSUs was $3.5 million, $2.5 million and $1.4 million for the years ended December 31, 2017, 2016 and 2015, respectively. At December 31, 2017, total unrecognized compensation expense related to non-vested PSUs was $3.9 million, which is expected to be recognized over a weighted average period of 1.7 years.

A summary of the Company's non-vested PSU activity during the years ending December 31, 2017 was as follows:

	Number of Shares	Weighted-Average Grant Date Fair Value
Non-vested shares, December 31, 2016	692,562	$ 9.25
Granted	286,251	17.05
Forfeited	(68,387)	11.04
Cancellations (d)	(166,843)	14.48
Non-vested shares, December 31, 2017	**743,583**	**10.91**

(d) The measurement period for PSUs issued in 2015 ended on December 31, 2017. The Company's total shareholder return compared to the peer group of companies resulted in no shares being issued because no PSUs were earned.

Stock Options

The Company's Board approves the granting of incentive stock options and nonqualified stock options to officers, certain key employees and non-employee directors under the plans noted above. The stock options would generally vest three years from the grant date, which is the date the Board approved the grants and expire no later than seven years after the grant date. The exercise price of the stock option would be fair value on the grant date. Upon exercise, a new share of Company common stock is issued for each stock option. Stock option activity for the years ended December 31, 2017 was as follows:

	Number of Shares	Weighted Average Exercise Price	Aggregate Intrinsic Value (in millions)(e)
Outstanding, December 31, 2016	55,000	$ 31.75	$ —
Forfeited	(12,500)	31.75	—
Outstanding, December 31, 2017	**42,500**	**31.75**	**—**

(e) Intrinsic value is defined as the difference between the current market value and the exercise price, for those options where the market price exceeds the exercise price.

All Stock options are vested and there was no compensation expense related to stock options in 2017, 2016 and 2015. There were no stock options exercised and no net cash proceeds from the exercise of stock options in 2017, 2016 and 2015.

The following table summarizes information concerning outstanding and exercisable options at December 31, 2017:

	Stock Options Outstanding				Stock Options Exercisable	
Range of Exercisable Prices	Vested	Non-vested	Weighted Average Exercise Price Per Share	Weighted Average Remaining Contractual Life in Years	Number Exercisable	Weighted Average Exercise Price Per Share
$31.75 - $31.75	**42,500**	**—**	**$ 31.75**	**0.1**	**42,500**	**$ 31.75**

14. Financial Instruments

Off-Balance Sheet Risk

As collateral for the Company's performance and to insurers, the Company is contingently liable under standby letters of credit, bonds and bank guarantees in the amounts of $275.4 million, $273.1 million and $232.5 million at December 31, 2017, 2016 and 2015, respectively. The increase at December 31, 2016 primarily relates to letters of credit and issuance of surety bonds related to the SBB rail order in the Harsco Rail Segment. These standby letters of credit, bonds and bank guarantees are generally in force for up to 2 years. Certain issues have no scheduled expiration date. The Company pays fees to various banks and insurance companies that range from 0.4% to 3.5% per annum of the instrument's face value. If the Company were required to obtain replacement standby letters of credit, bonds and bank guarantees at December 31, 2017 for those currently outstanding, it is the Company's opinion that the replacement costs would be within the present fee structure.

The Company has currency exposures in approximately 30 countries. The Company's primary foreign currency exposures during 2017 were in the European Union, the U.K. and Brazil.

Off-Balance Sheet Risk—Third-Party Guarantees
During June 2014, the Company provided a guarantee to Brand as part of the net working capital settlement related to the Infrastructure Transaction, for certain matters occurring prior to closing. The remaining term of this guarantee is 3 years at December 31, 2017. The maximum potential amount of future payments related to this guarantee is approximately $3 million at December 31, 2017. There is no recognition of this potential future payment in the consolidated financial statements as the Company believes the potential for making this payment is remote.

Any liabilities related to the Company's obligation to stand ready to act on third-party guarantees are included, Other current liabilities or Other liabilities (as appropriate), on the Consolidated Balance Sheets. Any recognition of these liabilities did not have a material impact on the Company's financial position or results of operations for 2017, 2016 or 2015.

In the normal course of business, legal indemnifications are provided related primarily to the performance of the Company's products and services and patent and trademark infringement of the products and services sold. These indemnifications generally relate to the performance (regarding function, not price) of the respective products or services and therefore no liability is recognized related to the fair value of such guarantees.

Derivative Instruments and Hedging Activities
The Company uses derivative instruments, including foreign currency exchange forward contracts, interest rate swaps and cross-currency interest rate swaps ("CCIRs"), to manage certain foreign currency and interest rate exposures. Derivative instruments are viewed as risk management tools by the Company and are not used for trading or speculative purposes.

All derivative instruments are recorded on the Consolidated Balance Sheets at fair value. Changes in the fair value of derivatives used to hedge foreign currency denominated balance sheet items are reported directly in earnings along with offsetting transaction gains and losses on the items being hedged. Derivatives used to hedge forecasted cash flows associated with foreign currency commitments may be accounted for as cash flow hedges, as deemed appropriate, if the criteria for hedge accounting are met. Gains and losses on derivatives designated as cash flow hedges are deferred in Accumulated other comprehensive loss, a separate component of equity, and reclassified to earnings in a manner that matches the timing of the earnings impact of the hedged transactions. The ineffective portion of all hedges, if any, is recognized currently in earnings.

The fair value of outstanding derivative contracts recorded as assets and liabilities on the Consolidated Balance Sheets:

	Asset Derivatives		Liability Derivatives	
(In thousands)	**Balance Sheet Location**	**Fair Value**	**Balance Sheet Location**	**Fair Value**
December 31, 2017				
Derivatives designated as hedging instruments:				
Foreign currency exchange forward contracts	Other current assets	**$ 2,329**	Other current liabilities	**$ 153**
Interest rate swaps	Other current assets	**464**		
Interest rate swaps	Other assets	**170**	Other liabilities	**1,368**
Total derivatives designated as hedging instruments		**$ 2,963**		**$ 1,521**
Derivatives not designated as hedging instruments:				
Foreign currency exchange forward contracts	Other current assets	**$ 2,915**	Other current liabilities	**$ 6,970**

	Asset Derivatives		Liability Derivatives	
(In thousands)	**Balance Sheet Location**	**Fair Value**	**Balance Sheet Location**	**Fair Value**
December 31, 2016				
Derivatives designated as hedging instruments:				
Foreign currency exchange forward contracts	Other current assets	$ 473		$ 166
Cross-currency interest rate swaps	Other current assets	514		—
Total derivatives designated as hedging instruments		$ 987		$ 166
Derivatives not designated as hedging instruments:				
Foreign currency exchange forward contracts	Other current assets	$ 4,459	Other current liabilities	$ 3,372

All of the Company's derivatives are recorded on the Consolidated Balance Sheets at gross amounts and not offset. All of the Company's interest rate swaps, CCIRs and certain foreign currency exchange forward contracts are transacted under International Swaps and Derivatives Association ("ISDA") documentation. Each ISDA master agreement permits the net settlement of amounts owed in the event of default. The Company's derivative assets and liabilities subject to enforceable master netting arrangements resulted in a $0.2 million net liability at December 31, 2017. At December 31, 2016, such arrangements did not result in a net asset or net liability.

The effect of derivative instruments on the Consolidated Statements of Operations and the Consolidated Statements of Comprehensive Income (Loss):

Derivatives Designated as Hedging Instruments

(In thousands)	Amount of Gain (Loss) Recognized in Other Comprehensive Income ("OCI") on Derivative—Effective Portion	Location of Gain (Loss) Reclassified from Accumulated OCI into Income—Effective Portion	Amount of Gain (Loss) Reclassified from Accumulated OCI into Income—Effective Portion	Location of Gain (Loss) Recognized in Income on Derivative—Ineffective Portion and Amount Excluded from Effectiveness Testing	Amount of Gain (Loss) Recognized in Income on Derivative—Ineffective Portion and Amount Excluded from Effectiveness Testing
Twelve Months Ended December 31, 2017:					
Foreign currency exchange forward contracts	**$ 3,547**	Product revenues / Cost of services and products sold	**$ (954)**		**$ —**
Interest rate swaps	**(734)**		**—**		**—**
Cross-currency interest rate swaps	**(205)**	Interest Expense	**1,002**	Cost of services and products sold	**420** (a)
	$ 2,608		**$ 48**		**$ 420**
Twelve Months Ended December 31, 2016:					
Foreign currency exchange forward contracts	$ 2,294	Cost of services and products sold	$ (410)		$ —
Cross-currency interest rate swaps	(1,549)		—	Cost of services and products sold	4,042 (a)
	$ 745		$ (410)		$ 4,042
Twelve Months Ended December 31, 2015:					
Foreign currency exchange forward contracts	$ 2,479	Cost of services and products sold	$ 53		$ —
Cross-currency interest rate swaps	9,012		—	Cost of services and products sold	30,359 (a)
	$ 11,491		$ 53		$ 30,359

(a) These gains (losses) offset foreign currency fluctuation effects on the debt principal.

Derivatives Not Designated as Hedging Instruments

(In thousands)	Location of Loss Recognized in Income on Derivative	Amount of Gain (Loss) Recognized in Income on Derivative for the Twelve Months Ended December 31(b) 2017	2016	2015
Foreign currency exchange forward contracts	Cost of services and products sold	**$ (23,572)**	$ 15,875	$ (158)

(b) These gains (losses) offset amounts recognized in cost of service and products sold principally as a result of intercompany or third-party foreign currency exposures.

Foreign Currency Exchange Forward Contracts

The Company conducts business in multiple currencies and, accordingly, is subject to the inherent risks associated with foreign exchange rate movements. The financial position and results of operations of substantially all of the Company's foreign subsidiaries are measured using the local currency as the functional currency. Foreign currency-denominated assets and liabilities are translated into U.S. dollars at the exchange rates existing at the respective balance sheet dates, and income and expense items are translated at the average exchange rates during the respective periods. The aggregate effects of translating the balance sheets of these subsidiaries are deferred and recorded in Accumulated other comprehensive loss, which is a separate component of equity.

The Company uses derivative instruments to hedge cash flows related to foreign currency fluctuations. Foreign currency exchange forward contracts outstanding are part of a worldwide program to minimize foreign currency exchange operating income and balance sheet exposure by offsetting foreign currency exposures of certain future payments between the Company and various subsidiaries, suppliers or customers. The unsecured contracts are with major financial institutions. The Company may be exposed to credit loss in the event of non-performance by the contract counterparties. The Company evaluates the creditworthiness of the counterparties and does not expect default by them. Foreign currency exchange forward contracts are used to hedge commitments, such as foreign currency debt, firm purchase commitments and foreign currency cash flows for certain export sales transactions.

The following tables summarize, by major currency, the contractual amounts of the Company's foreign currency exchange forward contracts in U.S. dollars. The "Buy" amounts represent the U.S. dollar equivalent of commitments to purchase foreign currencies and the "Sell" amounts represent the U.S. dollar equivalent of commitments to sell foreign currencies. The recognized gains and losses offset amounts recognized in cost of services and products sold principally as a result of intercompany or third-party foreign currency exposures.

Contracted Amounts of Foreign Currency Exchange Forward Contracts Outstanding at December 31, 2017:

(In thousands)	Type	U.S. Dollar Equivalent	Maturity	Recognized Gain (Loss)
British pounds sterling	Sell	**$ 76,761**	January 2018	**$ (769)**
British pounds sterling	Buy	**5,960**	January 2018	**72**
Euros	Sell	**314,649**	January 2018 through December 2018	**(4,916)**
Euros	Buy	**223,111**	January 2018 through November 2018	**4,564**
Other currencies	Sell	**39,889**	January 2018 through June 2018	**(1,049)**
Other currencies	Buy	**11,487**	January 2018	**219**
Total		**$ 671,857**		**$ (1,879)**

Contracted Amounts of Foreign Currency Exchange Forward Contracts Outstanding at December 31, 2016:

(In thousands)	Type	U.S. Dollar Equivalent	Maturity	Recognized Gain (Loss)
British pounds sterling	Sell	$ 55,120	January 2017	$ (228)
British pounds sterling	Buy	827	March 2017	(14)
Euros	Sell	326,797	January 2017 through December 2017	628
Euros	Buy	171,578	January 2017 through January 2018	(468)
Other currencies	Sell	43,455	January 2017 through September 2017	1,477
Other currencies	Buy	3,106	March 2017	(1)
Total		$ 600,883		$ 1,394

In addition to foreign currency exchange forward contracts, the Company designates certain loans as hedges of net investments in international subsidiaries. The Company recorded pre-tax net gains of $17.4 million, pre-tax net losses of $37.5 million and pre-tax net gains of $2.7 million related to hedges of net investments during 2017, 2016 and 2015, respectively, in Accumulated other comprehensive loss.

Interest Rate Swaps

The Company uses interest rate swaps in conjunction with certain debt issuances in order to secure a fixed interest rate. The interest rate swaps are recorded on the Consolidated Balance Sheets at fair value, with changes in value attributed to the effect of the swaps’ interest spread and changes in the credit worthiness of the counter-parties recorded in Accumulated other comprehensive loss.

In January 2017, the Company entered into a series of interest rate swaps that cover the period from 2018 through 2021, and had the effect of converting $300.0 million of the Term Loan Facility from floating-rate to fixed-rate beginning in 2018.   The fixed rates provided by the swaps replace the adjusted LIBOR rate in the interest calculation, ranging from 1.65% for 2018 to 2.71% for 2021.

The following table indicates the notional amounts of the Company's interest rate swaps at December 31, 2017:

		Interest Rates	
(In millions)	Annual Notional Amount	Receive	Pay
Maturing 2018 through 2021	$ 300.0	Floating U.S. dollar rate	Fixed U.S. dollar rate

Cross-Currency Interest Rate Swaps

The Company may use CCIRs in conjunction with certain debt issuances in order to secure a fixed local currency interest rate. Under these CCIRs, the Company receives interest based on a fixed or floating U.S. dollar rate and pays interest on a fixed local currency rate based on the contractual amounts in dollars and the local currency, respectively. At maturity, there is also the payment of principal amounts between currencies. The CCIRs are recorded on the Consolidated Balance Sheets at fair value, with changes in value attributed to the effect of the swaps' interest spread and changes in the credit worthiness of the counter-parties recorded in Accumulated other comprehensive loss. Changes in value attributed to the effect of foreign currency fluctuations are recorded on the Consolidated Statements of Operations and offset currency fluctuation effects on the debt principal. The Company had no outstanding CCIRs at December 31, 2017.

During November 2017, the Company's final CCIR matured. During March 2016, the Company effected the early termination of the British pound sterling CCIR with an original maturity date of 2020. The Company received $16.6 million in cash related to this termination. During August 2015, the Company effected the early termination of the euro CCIR with an original maturity date of 2018. The Company received $75.1 million in cash related to this termination. Euro denominated foreign currency exchange forward contracts were entered into later in 2015 that provide similar protection from changes in foreign exchange rates to the terminated CCIR contract. There was no gain or loss recorded on these terminations as any change in value attributable to the effect of foreign currency translation was previously recognized on the Consolidated Statements of Operations.

Fair Value of Derivative Assets and Liabilities and Other Financial Instruments

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (an exit price). The Company utilizes market data or assumptions that the Company believes market participants would use in valuing the asset or liability, including assumptions about risk and the risks inherent in the inputs to the valuation technique.

The fair value hierarchy distinguishes between (1) market participant assumptions developed based on market data obtained from independent sources (observable inputs) and (2) an entity's own assumptions about market participant assumptions based on the best information available in the circumstances (unobservable inputs). The fair value hierarchy consists of three broad levels, which gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). The three levels of the fair value hierarchy are described below:

- Level 1—Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities.
- Level 2—Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly, including quoted prices for similar assets or liabilities in active markets; quoted prices for identical or similar assets or liabilities in markets that are not active; inputs other than quoted prices that are observable for the asset or liability (e.g., interest rates); and inputs that are derived principally from or corroborated by observable market data by correlation or other means.
- Level 3—Inputs that are both significant to the fair value measurement and unobservable.

In instances in which multiple levels of inputs are used to measure fair value, hierarchy classification is based on the lowest level input that is significant to the fair value measurement in its entirety. The Company's assessment of the significance of a particular input to the fair value measurement in its entirety requires judgment and considers factors specific to the asset or liability.

The following table indicates the fair value hierarchy of the financial instruments of the Company:

Level 2 Fair Value Measurements (In thousands)	**December 31 2017**	**December 31 2016**
Assets		
Foreign currency exchange forward contracts	**$ 5,244**	$ 4,932
Interest rate swaps	**634**	—
Cross-currency interest rate swaps	**—**	514
Liabilities		
Foreign-currency forward exchange contracts	**7,123**	3,538
Interest rate swaps	**1,368**	—

The following table reconciles the beginning and ending balances for liabilities measured on a recurring basis using unobservable inputs (Level 3) for the years ended December 31, 2017 and 2016:

Level 3 Liabilities—Unit Adjustment Liability (c) for the Twelve Months Ended December 31 (In thousands)	**2016**
Balance at beginning of year	$ 79,934
Reduction in the fair value related to election not to make 2016 payments	(19,145)
Sale of equity interest in Brand	(65,461)
Change in fair value to the unit adjustment liability	4,672
Balance at end of year	$ —

(c) See Note 4, Equity Method Investments, for additional information.

The Company primarily applies the market approach for recurring fair value measurements and endeavors to utilize the best available information. Accordingly, the Company utilizes valuation techniques that maximize the use of observable inputs, such as forward rates, interest rates, the Company's credit risk and counterparties' credit risks, and which minimize the use of unobservable inputs. The Company is able to classify fair value balances based on the ability to observe those inputs. Foreign currency exchange forward contracts, interest rate swaps and CCIRs are based upon pricing models using market-based inputs (Level 2). Model inputs can be verified and valuation techniques do not involve significant management judgment.

The carrying amounts of cash and cash equivalents, accounts receivable, accounts payable, accrued liabilities and short-term borrowings approximate fair value due to the short-term maturities of these assets and liabilities. At December 31, 2017 and 2016, the total fair value of long-term debt, including current maturities, was $599.1 million and $682.9 million, respectively, compared with a carrying value of $593.7 million and $673.4 million, respectively. Fair values for debt are based upon pricing models using market-based inputs (Level 2) for similar issues or on the current rates offered to the Company for debt of the same remaining maturities.

Concentrations of Credit Risk
Financial instruments that potentially subject the Company to concentrations of credit risk consist principally of cash and cash equivalents and accounts receivable. The Company places cash and cash equivalents with high-quality financial institutions and, by policy, limits the amount of credit exposure to any single institution.

Concentrations of credit risk with respect to accounts receivable are generally limited in the Harsco Industrial Segment. However, the Company's Harsco Metals & Minerals Segment and, to a lesser extent, the Harsco Rail Segment have several large customers throughout the world with significant accounts receivable balances. Consolidation in the global steel or rail industries could result in an increase in concentration of credit risk for the Company.

The Company generally does not require collateral or other security to support customer receivables. If a receivable from one or more of the Company's larger customers becomes uncollectible, it could have a material effect on the Company's results of operations or cash flows.

15. Information by Segment and Geographic Area

The Company reports information about operating segments using the "management approach," which is based on the way management organizes and reports the segments within the enterprise for making operating decisions and assessing performance. The Company's reportable segments are identified based upon differences in products, services and markets served. In 2017, the Company had three reportable segments. These segments and the types of products and services offered include the following:

Harsco Metals & Minerals Segment
Global expertise in providing on-site services for material logistics, product quality improvement and resource recovery from iron, steel and metals manufacturing; as well as value added environmental solutions for industrial co-products. Major customers include steel mills and asphalt roofing manufacturers.

Harsco Industrial Segment
Major products include air-cooled heat exchangers; industrial grating; high-security fencing and boilers and water heaters. Major customers include industrial plants and the non-residential, commercial and public construction and retrofit markets; and the natural gas, natural gas processing and petrochemical industries.

Harsco Rail Segment
This Segment manufactures railway track maintenance and safety equipment and provides track maintenance services. The major customers include private and government-owned railroads and urban mass transit systems worldwide.

Other Information
The measurement basis of segment profit or loss is operating income (loss). There are no significant inter-segment sales. Corporate assets, at December 31, 2017 and 2016, include principally cash, prepaid taxes, fair value of derivative instruments and U.S. deferred income taxes. Countries with revenues from unaffiliated customers or net property, plant and equipment of ten percent or more of the consolidated totals (in at least one period presented) are as follows:

Information by Geographic Area (a)

	Revenues from Unaffiliated Customers		
	Year Ended December 31		
(In thousands)	2017	2016	2015
U.S.	**$ 697,663**	$ 614,327	$ 758,820
U.K.	**146,624**	156,552	217,011
All Other	**762,775**	680,344	747,261
Totals including Corporate	**$ 1,607,062**	$ 1,451,223	$ 1,723,092

(a) Revenues are attributed to individual countries based on the location of the facility generating the revenue.

	Property, Plant and Equipment, Net		
	Balances at December 31		
(In thousands)	2017	2016	2015
U.S.	**$ 120,555**	$ 125,386	$ 142,506
China	**95,569**	90,288	97,305
Brazil	**54,704**	62,597	57,381
All Other	**208,919**	211,984	266,843
Totals including Corporate	**$ 479,747**	$ 490,255	$ 564,035

No single customer provided in excess of 10% of the Company's consolidated revenues in 2017, 2016 and 2015.

In 2017 and 2016, the Harsco Metals & Minerals Segment had one customer and in 2015 two customers that each provided in excess of 10% of this Segment's revenues under multiple long-term contracts at several mill sites. Should additional consolidations occur involving some of the steel industry's larger companies which are customers of the Company, it would result in an increase in concentration of credit risk for the Company. The loss of any one of the contracts would not have a material adverse effect upon the Company's financial position or cash flows; however, it could have a significant effect on quarterly or annual results of operations.

In 2017, the Harsco Industrial Segment had one customer, in 2016 no customers and in 2015 two customers that provided in excess of 10% of the Segment's revenues. In 2017 and 2016, the Harsco Rail Segment had one customer and in 2015 two customers that provided in excess of 10% of the Segment's revenues. The loss of any of these customers would not have a material adverse impact on the Company's financial positions or cash flows; however, it could have a material effect on quarterly or annual results of operations.

Operating Information by Segment:

	Twelve Months Ended		
	December 31		
(In thousands)	2017	2016	2015
Revenues			
Harsco Metals & Minerals	**$ 1,011,328**	$ 965,540	$ 1,106,162
Harsco Industrial	**299,592**	247,542	357,256
Harsco Rail	**295,999**	238,107	259,674
Corporate	**143**	34	—
Total Revenues	**$ 1,607,062**	$ 1,451,223	$ 1,723,092

(In thousands)	Twelve Months Ended December 31 2017	2016	2015
Operating Income (Loss)			
Harsco Metals & Minerals	**$ 105,257**	$ 81,634	$ 26,289
Harsco Industrial	**35,174**	23,182	57,020
Harsco Rail	**32,091**	(17,527)	50,896
Corporate	**(29,723)**	(23,820)	(45,669)
Total Operating Income	**$ 142,799**	$ 63,469	$ 88,536
Total Assets			
Harsco Metals & Minerals	**$ 1,184,280**	$ 1,181,602	$ 1,286,336
Harsco Industrial	**113,410**	107,987	119,830
Harsco Rail	**237,135**	204,477	219,753
Corporate	**43,860**	87,272	425,968
Total Assets	**$ 1,578,685**	$ 1,581,338	$ 2,051,887
Depreciation and Amortization			
Harsco Metals & Minerals	**$ 112,329**	$ 120,611	$ 136,579
Harsco Industrial	**7,360**	7,223	6,266
Harsco Rail	**4,221**	5,383	6,093
Corporate	**6,027**	8,269	7,537
Total Depreciation and Amortization	**$ 129,937**	$ 141,486	$ 156,475
Capital Expenditures			
Harsco Metals & Minerals	**$ 87,526**	$ 62,322	$ 99,563
Harsco Industrial	**6,895**	5,118	17,382
Harsco Rail	**2,403**	1,696	1,957
Corporate	**1,490**	204	4,650
Total Capital Expenditures	**$ 98,314**	$ 69,340	$ 123,552

Reconciliation of Segment Operating Income to Consolidated Income (Loss) From Continuing Operations Before Income Taxes and Equity Income:

(In thousands)	Twelve Months Ended December 31 2017	2016	2015
Segment operating income	**$ 172,522**	$ 87,289	$ 134,205
General Corporate expense	**(29,723)**	(23,820)	(45,669)
Operating income from continuing operations	**142,799**	63,469	88,536
Interest income	**2,469**	2,475	1,574
Interest expense	**(47,552)**	(51,584)	(46,804)
Loss on early extinguishment of debt	**(2,265)**	(35,337)	—
Change in fair value to the unit adjustment liability and loss on dilution and sale of equity method investment	**—**	(58,494)	(8,491)
Income (loss) from continuing operations before income taxes and equity income	**$ 95,451**	$ (79,471)	$ 34,815

Information about Products and Services:

	Revenues from Unaffiliated Customers Twelve Months Ended December 31		
(In thousands)	2017	2016	2015
Key Product and Services Groups			
Global expertise in providing on-site services of material logistics, product quality improvement and resource recovery for iron, steel and metals manufacturing; as well as value added environmental solutions for industrial co-products	**$ 1,011,328**	$ 965,540	$ 1,106,162
Railway track maintenance and safety equipment and track maintenance services	**295,999**	238,107	259,674
Air-cooled heat exchangers	**144,955**	93,616	186,243
Industrial grating and fencing products	**116,598**	115,914	129,869
Heat transfer products	**38,039**	38,012	41,144
General Corporate	**143**	34	—
Consolidated Revenues	**$ 1,607,062**	**$ 1,451,223**	**$ 1,723,092**

16. Other Expenses, Net

During 2017, 2016 and 2015, the Company recorded pre-tax other expenses, net of $4.6 million, $12.6 million and $30.6 million, respectively. The major components of this Consolidated Statements of Operations caption are as follows:

(In thousands)	2017	2016	2015
Net gains	**$ (5,136)**	$ (1,764)	$ (10,613)
Employee termination benefit costs	**7,350**	10,777	14,914
Other costs to exit activities	**1,633**	440	13,451
Impaired asset write-downs	**1,025**	399	8,170
Foreign currency gains related to Harsco Rail Segment advances on contracts	**—**	—	(10,940)
Harsco Metals & Minerals Segment separation costs	**—**	3,235	9,922
Subcontractor settlement	**—**	—	4,220
Other expense	**(231)**	(467)	1,449
Total	**$ 4,641**	$ 12,620	$ 30,573

Net Gains
Net gains result from the sales of redundant properties (primarily land, buildings and related equipment) and non-core assets. In 2017, gains related to assets sold principally in Latin America and Western Europe. In 2016, gains related to assets sold principally in Western Europe, North America and Latin America. In 2015, gains related to assets sold principally in North America and Latin America.

	Net Gains		
(In thousands)	2017	2016	2015
Harsco Metals & Minerals Segment	**$ (1,354)**	$ (1,828)	$ (7,059)
Harsco Industrial Segment	**(3,782)**	64	(3,554)
Total	**$ (5,136)**	$ (1,764)	$ (10,613)

Cash proceeds associated with these gains are included in Proceeds from sales of assets, in the cash flows from investing activities section of the Consolidated Statements of Cash Flows.

Employee Termination Benefit Costs
Costs and the related liabilities associated with involuntary termination benefit costs associated with one-time benefit arrangements provided as part of an exit or disposal activity are recognized by the Company when a formal plan for reorganization is approved at the appropriate level of management and communicated to the affected employees. Additionally, costs associated with ongoing benefit arrangements, or in certain countries where statutory requirements dictate a minimum required benefit, are recognized when they are probable and estimable.

The employee termination benefits costs in 2017 related principally to the Harsco Metals & Minerals Segment, primarily in Latin America and Western Europe. The employee termination benefits costs in 2016 related principally to the Harsco Metals & Minerals Segment, including a probable site exit and the impact of Harsco Metals & Minerals Segment's Improvement Plan ("Project Orion"), primarily in Western Europe, Latin America and North America. The employee termination benefits costs in 2015 related principally to the Harsco Metals & Minerals Segment, including the impact of Project Orion, primarily in Western Europe, North America and Asia Pacific.

	Employee Termination Benefit Costs		
(In thousands)	**2017**	**2016**	**2015**
Harsco Metals & Minerals Segment	**$ 4,411**	$ 8,491	$ 11,454
Harsco Industrial Segment	**617**	947	561
Harsco Rail Segment	**1,133**	297	145
Corporate	**1,189**	1,042	2,754
Total	**$ 7,350**	$ 10,777	$ 14,914

Other Costs to Exit Activities
Costs associated with exit or disposal activities are recognized as follows:

- Costs to terminate a contract that is not a capital lease are recognized when an entity terminates the contract or when an entity ceases using the right conveyed by the contract. This includes the costs to terminate the contract before the end of its term or the costs that will continue to be incurred under the contract for its remaining term without economic benefit to the entity (e.g., lease run-out costs).
- Other costs associated with exit or disposal activities (e.g., costs to consolidate or close facilities and relocate equipment or employees) are recognized and measured at their fair value in the period in which the liability is incurred.

In 2017, $1.6 million of exit costs were incurred, principally in Western Europe and North America. In 2016, $0.4 million of exit costs were incurred, principally in North America and Western Europe. In 2015, $13.5 million of exit costs were incurred, principally in the Harsco Metals & Minerals Segment, primarily related to the Middle East, North America, Latin America and Western Europe.

Other costs to exit activities during 2015 include costs associated with the Company's exit of operations in Bahrain. Over the past several years the Company has been in discussions with officials at the Supreme Council for Environment in Bahrain with regard to a processing by-product ("salt cakes") located at Hafeera. During 2015, the Company completed the assessment of options available for processing or removing the salt cakes. As a result, the Company has entered into a service agreement with a third party for processing the salt cakes and recorded a charge of $7.0 million, payable over several years, related to the estimated cost of processing and disposal. The Company's Bahrain operations are operated under a strategic venture for which its strategic venture partner has a 35% minority interest. Accordingly, the net impact of the charge to the Company's net income (loss) attributable to the Company was $4.6 million.

	Costs to Exit Activities		
(In thousands)	**2017**	**2016**	**2015**
Harsco Metals & Minerals Segment	**$ 706**	$ 220	$ 12,638
Harsco Industrial Segment	**371**	40	—
Corporate	**556**	180	813
Total	**$ 1,633**	$ 440	$ 13,451

Impaired Asset Write-downs
Impaired asset write-downs are measured as the amount by which the carrying amount of assets exceeds their fair value. Fair value is estimated based upon the expected future realizable cash flows including anticipated selling prices. Non-cash impaired asset write-downs are included in, Other, net, on the Consolidated Statements of Cash Flows as adjustments to reconcile net income (loss) to net cash provided by operating activities.

In 2017, $1.0 million of impaired asset write-downs were incurred principally in the Harsco Metals & Minerals Segment, mostly in the Asia Pacific and North America regions. In 2016, $0.4 million of impaired asset write-downs were incurred principally in the Harsco Metals & Minerals Segment, mostly in the Asia Pacific region. In 2015, $8.2 million of impaired asset write-downs were incurred in the Harsco Metals & Minerals Segment, mostly in North America, Middle East and Africa and the Asia Pacific regions.

	Impaired Asset Write-downs		
(In thousands)	**2017**	**2016**	**2015**
Harsco Metals & Minerals Segment	**$ 706**	$ 399	$ 8,170
Harsco Industrial Segment	**151**	—	—
Corporate	**168**	—	—
Total	**$ 1,025**	$ 399	$ 8,170

Foreign Currency Gains Related to Harsco Rail Segment Advances on Contracts
In January 2015, the Swiss National Bank ended its policy of maintaining a stable exchange rate between the Swiss franc and the euro. As a result of this change in policy, the Swiss franc experienced significant appreciation against the euro. During 2015, the Company recognized $10.9 million in foreign currency gains primarily related to converting Swiss franc bank deposits to euros. This gain was associated with advances received for the Harsco Rail Segment's two contracts with the SBB.

Harsco Metals & Minerals Segment Separation Costs
The Company has previously announced its intention to pursue strategic options for the separation of the Harsco Metals & Minerals Segment from the rest of the Company. In 2016 and 2015, the Company incurred $3.2 million and $9.9 million of expenses related to the strategic review of this initiative, respectively. After carefully studying alternatives to separate the Harsco Metals & Minerals Segment from the Company’s other businesses, and considering the future benefits of the ongoing business transformation and the expected recovery in the Company’s end markets, the Company has concluded such a separation will not be pursued for the foreseeable future.

Subcontractor Settlement
A subcontractor at the site of a large customer in the Harsco Metals & Minerals Segment had filed arbitration against the Company, claiming that it was owed monetary damages from the Company in connection with its processing certain materials. Additionally, related to this matter, the Company has brought suit against its customer which the Company believed had responsibility for any damages. During 2015, all parties involved reached a binding settlement agreement. The Company recorded a charge of $4.2 million related to its obligations under the settlement agreement.

17. Components of Accumulated Other Comprehensive Loss

Accumulated other comprehensive loss is included on the Consolidated Statements of Stockholders' Equity. The components of Accumulated other comprehensive loss, net of the effect of income taxes, and activity for the years ended December 31, 2017 and 2016 are as follows:

	Components of Accumulated Other Comprehensive Income (Loss) - Net of Tax				
(In thousands)	**Cumulative Foreign Exchange Translation Adjustments**	**Effective Portion of Derivatives Designated as Hedging Instruments**	**Cumulative Unrecognized Actuarial Losses on Pension Obligations**	**Unrealized Loss on Marketable Securities**	**Total**
Balance at December 31, 2015	$ (125,561)	$ (400)	$ (389,696)	$ (31)	$ (515,688)
Other comprehensive income (loss) before reclassifications	(53,301) (a)	(1,650) (b)	(86,181) (c)	26	(141,106)
Realized (gains) losses reclassified from accumulated other comprehensive loss in connection with loss on dilution of equity method investment (See Note 4, Equity Method Investments)	28,641	1,636	(1,534)	—	28,743
Amounts reclassified from accumulated other comprehensive loss, net of tax	1,157	(263)	16,011	—	16,905
Other comprehensive income (loss) from equity method investee	1,943	(405)	306	—	1,844
Total other comprehensive income (loss)	(21,560)	(682)	(71,398)	26	(93,614)
Less: Other comprehensive loss attributable to noncontrolling interests	2,587	(7)	—	—	2,580
Other comprehensive income (loss) attributable to Harsco Corporation	(18,973)	(689)	(71,398)	26	(91,034)
Balance at December 31, 2016	$ (144,534)	$ (1,089)	$ (461,094)	$ (5)	$ (606,722)

	Components of Accumulated Other Comprehensive Income (Loss) - Net of Tax				
(In thousands)	**Cumulative Foreign Exchange Translation Adjustments**	**Effective Portion of Derivatives Designated as Hedging Instruments**	**Cumulative Unrecognized Actuarial Losses on Pension Obligations**	**Unrealized Loss on Marketable Securities**	**Total**
Balance at December 31, 2016	$ (144,534)	$ (1,089)	$ (461,094)	$ (5)	$ (606,722)
Other comprehensive income (loss) before reclassifications	36,011 (a)	1,967 (b)	5,143 (c)	22	43,143
Amounts reclassified from accumulated other comprehensive loss, net of tax	—	(70)	20,111	—	20,041
Total other comprehensive income (loss)	36,011	1,897	25,254	22	63,184
Less: Other comprehensive loss attributable to noncontrolling interests	(3,044)	—	—	—	(3,044)
Other comprehensive income (loss) attributable to Harsco Corporation	32,967	1,897	25,254	22	60,140
Balance at December 31, 2017	**$ (111,567)**	**$ 808**	**$ (435,840)**	**$ 17**	**$ (546,582)**

(a) Principally foreign currency fluctuation.
(b) Principally net change from periodic revaluations.
(c) Principally changes due to annual actuarial remeasurements.

Amounts reclassified from accumulated other comprehensive loss for 2017 and 2016 are as follows:

(In thousands)	Year Ended December 31 2017	Year Ended December 31 2016	Affected Caption on the Consolidated Statements of Operations
Amortization of defined benefit pension items (d):			
Actuarial losses	**$ 10,174**	$ 8,490	Selling, general and administrative expenses
Actuarial losses	**11,811**	9,005	Cost of services and products sold
Prior-service costs	**(58)**	(11)	Selling, general and administrative expenses
Prior-service costs	**277**	263	Cost of services and products sold
Settlement/curtailment losses	**—**	355	Selling, general and administrative expenses
Total before tax	**22,204**	18,102	
Tax benefit	**(2,093)**	(2,091)	
Total reclassification of defined benefit pension items, net of tax	**$ 20,111**	$ 16,011	
Amortization of cash flow hedging instruments:			
Foreign currency exchange forward contracts	**$ (936)**	$ (408)	Product revenues
Foreign currency exchange forward contracts	**(18)**	(2)	Cost of services and products sold
Cross-currency interest rate swaps	**1,002**	—	Interest expense
Total before tax	**48**	(410)	
Tax benefit	**(118)**	147	
Total reclassification of cash flow hedging instruments	**$ (70)**	$ (263)	
Recognition of cumulative foreign exchange translation adjustments:			
Foreign exchange translation adjustments, before tax	**$ —**	$ 1,157	Other expenses, net
Tax benefit	**—**	—	
Total reclassification of cumulative foreign exchange translation adjustments	**$ —**	$ 1,157	

(d) These accumulated other comprehensive loss components are included in the computation of NPPC. See Note 9, Employee Benefit Plans, for additional information.

Realized (gains) losses reclassified from accumulated other comprehensive loss in connection with loss on dilution and sale of equity method investment are as follows:

(In thousands)	Twelve Months Ended December 31 2016	Affected Caption on the Consolidated Statements of Operations
Foreign exchange translation adjustments	**$ 45,405**	Change in fair value to the adjustment liability and loss on dilution and sale of equity method investment
Cash flow hedging instruments	**2,593**	Change in fair value to the adjustment liability and loss on dilution and sale of equity method investment
Defined benefit pension obligations	**(2,433)**	Change in fair value to the adjustment liability and loss on dilution and sale of equity method investment
Total before tax	**45,565**	
Tax benefit (e)	**(16,822)**	
Total amounts reclassified from accumulated other comprehensive loss in connection with loss on dilution and sale of equity method investment	**$ 28,743**	

(e) For the year ended December 31, 2016 the tax benefit was not recognized on the Consolidated Statement of Operations since a valuation allowance was established against the resulting deferred tax assets. See Note 10, Income Taxes, for additional information.

Two-Year Summary of Quarterly Results (Unaudited)
(In millions, except per share amounts)

	2017 (a)			
Quarterly	**First**	**Second**	**Third**	**Fourth**
Revenues	**$ 372.5**	**$ 394.9**	**$ 384.7**	**$ 455.0**
Gross profit (b)	**84.8**	**101.5**	**94.9**	**105.2**
Net income (loss) attributable to Harsco Corporation	**8.9**	**19.0**	**13.3**	**(33.4)**
Basic income (loss) per share attributable to Harsco Corporation common stockholders:				
Continuing operations	**$ 0.12**	**$ 0.23**	**$ 0.17**	**$ (0.42)**
Discontinued operations (c)	**—**	**0.01**	**—**	**0.01**
Basic income (loss) per share attributable to Harsco Corporation common stockholders	**$ 0.11** (d)	**$ 0.24**	**$ 0.16** (d)	**$ (0.41)**
Diluted income (loss) per share attributable to Harsco Corporation common stockholders:				
Continuing operations	**$ 0.11**	**$ 0.22**	**$ 0.16**	**$ (0.42)**
Discontinued operations (c)	**—**	**—**	**—**	**0.01**
Diluted income (loss) per share attributable to Harsco Corporation common stockholders	**$ 0.11**	**$ 0.23** (d)	**$ 0.16**	**$ (0.41)**

	2016 (a)			
Quarterly	**First**	**Second**	**Third**	**Fourth**
Revenues	$ 353.3	$ 369.9	$ 367.8	$ 360.2
Gross profit (b)	70.2	53.0	81.5	76.0
Net loss attributable to Harsco Corporation	(10.9)	(26.2)	(33.0)	(15.6)
Basic income (loss) per share attributable to Harsco Corporation common stockholders:				
Continuing operations	$ (0.13)	$ (0.35)	$ (0.41)	$ (0.19)
Discontinued operations (c)	—	0.02	—	(0.01)
Basic loss per share attributable to Harsco Corporation common stockholders	$ (0.14) (d)	$ (0.33)	$ (0.41)	$ (0.19) (d)
Diluted loss per share attributable to Harsco Corporation common stockholders:				
Continuing operations	$ (0.13)	$ (0.35)	$ (0.41)	$ (0.19)
Discontinued operations (c)	—	0.02	—	(0.01)
Diluted loss per share attributable to Harsco Corporation common stockholders	$ (0.14) (d)	$ (0.33)	$ (0.41)	$ (0.19) (d)

(a) Sum of the quarters may not equal the total year due to rounding.
(b) Gross profit is defined as Revenues less costs and expenses associated directly with or allocated to products sold or services rendered.
(c) Discontinued operations related principally to the Gas Technologies Segment which was sold in the fourth quarter of 2007.
(d) Does not total due to rounding.

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

None.

Item 9A. Controls and Procedures.

Based on the evaluation required by Securities Exchange Act Rules 13a-15(b) and 15d-15(b), the Company's management, including the Chief Executive Officer and Chief Financial Officer, conducted an evaluation of the effectiveness of disclosure controls and procedures, as defined in Securities Exchange Act Rules 13a-15(e) and 15d-15(e), at December 31, 2017. Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that the disclosure controls and procedures were effective at December 31, 2017. There were no changes in internal control over financial reporting that have materially affected, or are reasonably likely to materially affect, internal control over financial reporting during the fourth quarter of 2017.

Management's Report on Internal Controls Over Financial Reporting is included in Part II, Item 8, "Financial Statements and Supplementary Data." The effectiveness of the Company's internal control over financial reporting at December 31, 2017 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in the Report of Independent Registered Public Accounting Firm appearing in Part II, Item 8, "Financial Statements and Supplementary Data."

Item 9B. Other Information.

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

The information regarding executive officers of the Company required by this Item is set forth as a Supplementary Item, titled "Executive Officers of the Registrant," at the end of Part I of this Annual Report on Form 10-K (pursuant to Instruction 3 to Item 401(b) of Regulation S-K) and is incorporated herein by reference. The other information required by this Item is incorporated herein by reference from the disclosures that will be included under the sections entitled "Corporate Governance," "Proposal 1: Election of Directors - Nominees for Director," "Meetings and Committees of the Board," "Report of the Audit Committee" and "Section 16(a) Beneficial Ownership Reporting Compliance" of the Company's Definitive Proxy Statement for its 2018 Annual Meeting of Stockholders (the "2018 Proxy Statement"), which will be filed pursuant to SEC Regulation 14A not later than 120 days after the end of the Company's fiscal year ended December 31, 2017.

The Company's Code of Conduct (the "Code"), which applies to all officers, directors and employees of the Company, may be found on the Company's Internet website, www.harsco.com. The Company intends to disclose on its website any amendments to the Code or any waiver from a provision of the Code granted to an executive officer or director of the Company. The Code is available in print, without charge, to any person who requests it. To request a copy of the Code please contact the Company's Senior Director—Corporate Communications at (717) 730-3683.

Item 11. Executive Compensation.

The information regarding compensation of executive officers and directors required by this Item is incorporated herein by reference from the disclosures that will be included under the sections entitled "Compensation Discussion and Analysis - Executive Summary," "Discussion and Analysis of 2017 Compensation" and "Non-Employee Director Compensation" of the 2018 Proxy Statement. The other information required by this Item is incorporated herein by reference from the disclosures that will be included under the sections entitled "Compensation Committee Interlocks and Insider Participation" and "Compensation Committee Report" of the 2018 Proxy Statement.

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

The information regarding security ownership of certain beneficial owners and management required by this Item is incorporated herein by reference from the disclosures that will be included under the section entitled "Share Ownership of Directors, Management and Certain Beneficial Owners" of the 2018 Proxy Statement.

Equity compensation plan information is incorporated herein by reference from the disclosures that will be included under the section entitled "Equity Compensation Plan Information (As of December 31, 2017)" of the 2018 Proxy Statement.

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

The information regarding certain relationships and related transactions required by this Item is incorporated herein by reference from the disclosures that will be included under the section entitled "Transactions with Related Persons" of the 2018 Proxy Statement. The information regarding director independence required by this Item is incorporated herein by reference from the disclosures that will be included under the section entitled "Corporate Governance" of the 2018 Proxy Statement.

Item 14. Principal Accounting Fees and Services.

The information regarding principal accounting fees and services required by this Item is incorporated herein by reference from the disclosures that will be included under the sections entitled "Report of the Audit Committee" and "Fees Billed by the Independent Auditors for Audit and Non-Audit Services" of the 2018 Proxy Statement.

PART IV

Item 15. Exhibits, Financial Statement Schedules.

(a) 1. The Index to Consolidated Financial Statements and Supplementary Data is located under Part II, Item 8, "Financial Statements and Supplementary Data."

2. The following financial statement schedule should be read in conjunction with the Consolidated Financial Statements under Part II, Item 8, "Financial Statements and Supplementary Data":

Financial statement schedules other than that listed above are omitted because the required information is not applicable, or because the information required is included in the consolidated financial statements.

SCHEDULE II. VALUATION AND QUALIFYING ACCOUNTS

Continuing Operations

(In thousands)

COLUMN A	COLUMN B	COLUMN C	COLUMN D		COLUMN E
		Additions	Additions (Deductions)		
Description	Balance at Beginning of Period	Charged to Cost and Expenses	Due to Currency Translation Adjustments	Other	Balance at End of Period
For the year 2017:					
Allowance for Doubtful Accounts	**$ 11,800**	**$ 5,346**	**$ 533**	**$ (12,948)** (a)	**$ 4,731**
Deferred Tax Assets—Valuation Allowance	**146,097**	**33,041**	**10,097**	**(15,009)** (b)	**174,226**
For the year 2016:					
Allowance for Doubtful Accounts	$ 25,649	$ (38)	$ (320)	$ (13,491) (a)	$ 11,800
Deferred Tax Assets—Valuation Allowance	110,680	38,490	(6,323)	3,250	146,097
For the year 2015:					
Allowance for Doubtful Accounts	$ 15,119	$ 13,047	$ (1,585)	$ (932)	$ 25,649
Deferred Tax Assets—Valuation Allowance	131,422	13,175	(11,519)	(22,398) (b)	110,680

(a) Includes the write-off of previously reserved accounts receivable balances.

(b) Includes a decrease of $11.6 million and $16.1 million for 2017 and 2015, respectively, related to pension adjustments recorded through Accumulated other comprehensive loss; and a $4.6 million decrease related to a U.S. tax rate change for 2017 and $6.3 million decrease related to a U.K. tax rate change for 2015.

Listing of Exhibits Filed with Form 10-K

	Description of Exhibit
3(a)	Restated Certificate of Incorporation (incorporated by reference to the Company's Quarterly Report on Form 10-Q for the period ended June 30, 2013, Commission File Number 001-03970).
3(b)	Certificate of Designation filed September 25, 1997 (incorporated by reference to Exhibit 3.A to the Company's Annual Report on Form 10-K for the period ended December 31, 1997, Commission File Number 001-03970).
3(c)	Certificate of Amendment to the Restated Certificate of Incorporation, dated April 29, 2015 (incorporated by reference to the Company's Current Report on Form 8-K/A dated May 22, 2015, Commission File Number 001-03970).
3(d)	By-laws, as amended October 28, 2014 (incorporated by reference to the Company's Current Report on Form 8-K dated October 28, 2014, Commission File Number 001-03970).
4	Form of Specimen Common Stock Certificate (incorporated by reference to Exhibit 4(h) to the Company's Registration Statement on Form S-3 dated December 15, 1994, Registration No. 33-56885).
Material Contracts—Credit and Underwriting Agreements	
10(a)(i)	Amended and Restated Five-Year Credit Agreement, dated March 2, 2012, among Harsco Corporation, the lenders named therein, Citibank, N.A., as administrative agent, RBS Securities Inc., as syndication agent, and the Bank of Tokyo-Mitsubishi UFJ, Ltd., HSBC Bank USA, National Association, ING Bank N.V., Dublin Branch, JPMorgan Chase Bank, N.A. and Lloyds TSB Bank PLC, as documentation agents (incorporated by reference to the Company's Current Report on Form 8-K dated March 7, 2012, Commission File No. 001-03970).
10(a)(ii)	Amendment No. 1, dated September 12, 2013, to the Amended and Restated Five-Year Credit Agreement, dated March 2, 2012, among Harsco Corporation, the lenders named therein, Citibank, N.A., as administrative agent, RBS Securities Inc., as syndication agent, and the Bank of Tokyo-Mitsubishi UFJ, Ltd., HSBC Bank USA, National Association, ING Bank N.V., Dublin Branch, JPMorgan Chase Bank, N.A. and Lloyds TSB Bank PLC, as documentation agents (incorporated by reference to the Company's Quarterly Report on Form 10-Q for the period ended September 30, 2013, Commission File Number 001-03970).
10(a)(iii)	Amendment No. 2, dated December 20, 2013, to the Amended and Restated Five-Year Credit Agreement, dated March 2, 2012, among Harsco Corporation, the lenders named therein, Citibank, N.A., as administrative agent, RBS Securities Inc., as syndication agent, and the Bank of Tokyo-Mitsubishi UFJ, Ltd., HSBC Bank USA, National Association, ING Bank N.V., Dublin Branch, JPMorgan Chase Bank, N.A. and Lloyds TSB Bank PLC, as documentation agents (incorporated by reference to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2014, Commission File Number 001-03970).
10(a)(iv)	Amendment No. 3, dated as of March 27, 2015, to the Amended and Restated Five-Year Credit Agreement among Harsco Corporation, a Delaware corporation, as Borrower, the Lenders party thereto and Citibank, N.A., as Administrative Agent (incorporated by reference to the Company's Current Report on Form 8-K filed April 1, 2015, Commission File Number 001-03970).
10(a)(v)	Amendment and Restatement Agreement, dated as of December 2, 2015, among Harsco Corporation, the subsidiaries of the Company party thereto, Citibank N.A., as administrative agent, the other agents party thereto and the lenders party thereto including Second Amended and Restated Credit Agreement, dated as of December 2, 2015, among Harsco Corporation, the lenders named therein, Citibank, N.A. and Royal Bank of Canada, as issuing lenders, and Citibank N.A., as administrative agent and as collateral agent (incorporated by reference to the Company's Current Report on Form 8-K dated December 4, 2015, Commission File No. 001-03970).
10(a)(vi)	Amendment and Restatement Agreement and First Amendment to Guarantee and Collateral Agreement, dated as of November 2, 2016, among the Company, the subsidiaries of the Company party thereto, Citibank N.A., as administrative agent and collateral agent and the lenders party thereto (incorporated by reference to the Company's Current Report on Form 8-K filed November 8, 2016, Commission file No. 001-03970).
10(a)(vii)	Amendment No. 1, dated December 8, 2017, among Harsco Corporation, the subsidiaries of the Company party thereto, Citibank N.A., as administrative agent and collateral agent, and the lenders party thereto (incorporated by reference to the Company's Current Report on Form 8-K dated December 13, 2017, Commission File No. 001-03970).
Material Contracts—Management Contracts and Compensatory Plans	
10(b)	Harsco Corporation Supplemental Retirement Benefit Plan as amended and restated January 1, 2009 (incorporated by reference to the Company's Annual Report on Form 10-K, for the period ended December 31, 2008, Commission File Number 001-03970).
10(c)	Trust Agreement between Harsco Corporation and Dauphin Deposit Bank and Trust Company dated July 1, 1987 relating to the Supplemental Retirement Benefit Plan (incorporated by reference to the Company's Annual Report on Form 10-K for the period ended December 31, 1987, Commission File Number 001-03970).

	Description of Exhibit
10(d)	Restricted Stock Units Agreement (incorporated by reference to the Company's Current Report on Form 8-K dated January 23, 2007, Commission File Number 001-03970).
10(e)	Restricted Stock Units Agreement for International Employees (incorporated by reference to the Company's Annual Report on Form 10-K for the period ended December 31, 2007, Commission File Number 001-03970).
10(f)	Stock Option Contract (incorporated by reference to the Company's Current Report on Form 8-K dated January 31, 2011, Commission File Number 001-03970).
10(g)	Harsco Corporation 2013 Equity and Incentive Compensation Plan (incorporated by reference to the Company's Current Report on Form 8-K dated April 26, 2013, Commission File Number 001-03970).
10(h)	Amendment No. 1 to the Harsco Corporation 2013 Equity and Incentive Compensation Plan (incorporated by reference to the Company's Current Report on Form 8-K dated May 1, 2017, Commission File Number 001-03970).
10(i)	Harsco Corporation Form of Restricted Stock Units Agreement (effective for grants on and after May 10, 2013) (incorporated by reference to the Company's Quarterly Report on Form 10-Q for the period ended June 30, 2013, Commission File Number 001-03970).
10(j)	Harsco Corporation Form of Stock Appreciation Rights Agreement (effective for grants on and after May 10, 2013) (incorporated by reference to the Company's Quarterly Report on Form 10-Q for the period ended June 30, 2013, Commission File Number 001-03970).
10(k)(i)	Harsco Corporation 1995 Non-Employee Directors' Stock Plan as Amended and Restated at January 27, 2004 (incorporated by reference to Proxy Statement dated March 23, 2004 on Exhibit A, pages A-1 through A-9, Commission File Number 001-03970).
10(k)(ii)	Amendment No. 1 to the Harsco Corporation 1995 Non-Employee Directors' Stock Plan (incorporated by reference to the Company's Annual Report on Form 10-K for the period ended December 31, 2008, Commission File Number 001-03970).
10(l)	Harsco Corporation Form of Restricted Stock Units Agreement (Directors) (incorporated by reference to the Company's Current Report on Form 8-K dated April 26, 2005, Commission File Number 001-03970).
10(m)(i)	Harsco Corporation Deferred Compensation Plan for Non-Employee Directors (as Amended and Restated as of December 31, 2008) (incorporated by reference to the Company's Annual Report on Form 10-K for the period ended December 31, 2008, Commission File Number 001-03970).
10(m)(ii)	First Amendment to the Harsco Corporation Deferred Compensation Plan for Non Employee Directors (incorporated by reference to the Company's Annual Report on Form 10-K for the period ended December 31, 2016, Commission File Number 001-03970).
10(n)	Harsco Non-Qualified Retirement Savings & Investment Plan Part B—Amendment and Restatement as of January 1, 2009 (incorporated by reference to the Company's Annual Report on Form 10-K for the period ended December 31, 2008, Commission File Number 001-03970).
10(o)	Form of Change in Control Severance Agreement (incorporated by reference to the Company's Quarterly Report on Form 10-Q for the period ended September 30, 2014, Commission File Number 001-03970).
10(p)	Notification Letter to F. Nicholas Grasberger, III dated March 20, 2013 (incorporated by reference to the Company's Quarterly Report on Form 10-Q for the period ended March 31, 2013, Commission File Number 001-03970).
10(q)	Notification Letter to David Everitt dated March 14, 2014 (incorporated by reference to the Company's Quarterly Report on Form 10-Q for the period ended March 31, 2014, Commission File Number 001-03970).
10(r)	Notification Letter to F. N. Grasberger dated April 8, 2014 (incorporated by reference to the Company's Quarterly Report on Form 10-Q for the period ended June 30, 2014, Commission File Number 001-03970).
10(s)	Notification Letter to F. N. Grasberger dated August 1, 2014 (incorporated by reference to the Company's Quarterly Report on Form 10-Q for the period ended September 30, 2014, Commission File Number 001-03970).
10(t)	Form of Restricted Stock Units Agreement (effective for grants on or after April 28, 2014) (incorporated by reference to the Company's Quarterly Report on Form 10-Q for the period ended June 30, 2014, Commission File Number 001-03970).
10(u)	Form of Stock Appreciation Rights Agreement (effective for grants on or after April 28, 2014) (incorporated by reference to the Company's Quarterly Report on Form 10-Q for the period ended June 30, 2014, Commission File Number 001-03970).
10(v)	Form of Performance Share Units Agreement (incorporated by reference to the Company's Quarterly Report on Form 10-Q for the period ended June 30, 2014, Commission File Number 001-03970).
10(w)	Form of Performance Share Units Agreement (effective for grants on or after April 28, 2015) (incorporated by reference to the Company's Quarterly Report on Form 10-Q for the period ended March 31, 2015, Commission File Number 001-03970).

	Description of Exhibit
10(x)	Form of Restricted Stock Units Agreement (effective for grants on or after April 28, 2015) (incorporated by reference to the Company's Quarterly Report on Form 10-Q for the period ended March 31, 2015, Commission File Number 001-03970).
10(y)	Form of Stock Appreciation Rights Agreement (effective for grants on or after April 28, 2015) (incorporated by reference to the Company's Quarterly Report on Form 10-Q for the period ended March 31, 2015, Commission File Number 001-03970).
10(z)	Separation Agreement and General Release, dated August 15, 2016, between Harsco Corporation and Scott W. Jacoby (incorporated by reference to the Company's Quarterly Report on Form 10-Q for the period ended September 30, 2016, Commission File Number 001-03970).
10(aa)(i)	2016 Non-Employee Directors' Long-Term Equity Compensation Plan (incorporated by reference to the Company's Form S-8 dated May 6, 2016, Commission File Number 001-03970).
10(aa)(ii)	First Amendment to 2016 Non-Employee Directors' Long-Term Equity Compensation Plan (incorporated by reference to the Company's Quarterly Report on Form 10-Q for the period ended June 30, 2016, Commission File Number 001-03970).
10(bb)	Form of Restricted Stock Units Agreement (Non-Employee Director) (incorporated by reference to the Company's Quarterly Report on Form 10-Q for the period ended June 30, 2016, Commission File Number 001-03970).
10(cc)	Form of Performance Share Units Agreement (effective for grants on or after April 26, 2016) (incorporated by reference to the Company's Quarterly Report on Form 10-Q for the period ended March 31, 2016, Commission File Number 001-03970).
10(dd)	Form of Restricted Stock Units Agreement (effective for grants on or after April 26, 2016) (incorporated by reference to the Company's Quarterly Report on Form 10-Q for the period ended March 31, 2016, Commission File Number 001-03970).
10(ee)	Form of Stock Appreciation Rights Agreement (effective for grants on or after April 26, 2016) (incorporated by reference to the Company's Quarterly Report on Form 10-Q for the period ended March 31, 2016, Commission File Number 001-03970).
10(ff)	Form of Performance Share Units Agreement (effective for grants on or after February 16, 2017).
10(gg)	Form of Restricted Stock Units Agreement (effective for grants on or after February 16, 2017).
10(hh)	Form of Stock Appreciation Rights Agreement (effective for grants on or after February 16, 2017).
Director Indemnity Agreements	
10(ii)	Form of Director Indemnification Agreement.
12	Computation of Ratios of Earnings to Fixed Charges.
21	Subsidiaries of the Registrant.
23	Consent of Independent Registered Public Accounting Firm.
31.1	Certification Pursuant to Rule 13a-14(a) and 15d-14(a) as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (Chief Executive Officer).
31.2	Certification Pursuant to Rule 13a-14(a) and 15d-14(a) as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (Chief Financial Officer).
32	Certifications Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (Chief Executive Officer and Chief Financial Officer).
101	The following financial statements from Harsco Corporation's Annual Report on Form 10-K for the year ended December 31, 2017, filed with the Securities and Exchange Commission on February 22, 2018, formatted in XBRL (eXtensible Business Reporting Language): (i) the Consolidated Balance Sheets; (ii) the Consolidated Statements of Operations; (iii) the Consolidated Statements of Cash Flows; (iv) the Consolidated Statements of Changes in Equity; (v) the Consolidated Statements of Comprehensive Income (Loss) and (vi) the Notes to Consolidated Financial Statements.

Exhibits other than those listed above are omitted for the reason that they are either not applicable or not material.

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.

HARSCO CORPORATION
(Registrant)

DATE	February 22, 2018	/s/ PETER F. MINAN Peter F. Minan *Senior Vice President and Chief Financial Officer* (Principal Financial Officer)
DATE	February 22, 2018	/s/ SAMUEL C. FENICE Samuel C. Fenice *Vice President and Corporate Controller* (Principal Accounting Officer)

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 dates indicated.

Signature	Capacity	Date
/s/ F. NICHOLAS GRASBERGER, III F. Nicholas Grasberger, III	President, Chief Executive Officer and Director (Principal Executive Officer)	February 22, 2018
/s/ PETER F. MINAN Peter F. Minan	Senior Vice President and Chief Financial Officer (Principal Financial and Accounting Officer)	February 22, 2018
/s/ DAVID C. EVERITT David C. Everitt	Non-Executive Chairman and Director	February 22, 2018
/s/ JAMES F. EARL James F. Earl	Director	February 22, 2018
/s/ KATHY G. EDDY Kathy G. Eddy	Director	February 22, 2018
/s/ STUART E. GRAHAM Stuart E. Graham	Director	February 22, 2018
/s/ TERRY D. GROWCOCK Terry D. Growcock	Director	February 22, 2018
/s/ ELAINE LA ROCHE Elaine La Roche	Director	February 22, 2018
/s/ MARIO LONGHI Mario Longhi	Director	February 22, 2018
Edgar M. Purvis, Jr.	Director	
/s/ PHILLIP C. WIDMAN Phillip C. Widman	Director	February 22, 2018

INDEMNIFICATION AGREEMENT

This INDEMNIFICATION AGREEMENT is made as of the __ day of ______, ____, by and between Harsco Corporation, a Delaware corporation (the "Corporation"), and the individual whose name appears on the signature page hereof (such individual being referred to herein as the "Indemnified Representative" and, together with other persons who may execute similar agreements, as "Indemnified Representatives").

WHEREAS, the Indemnified Representative currently is and will be in the future serving in one or more capacities as a director, officer, employee, or agent of the Corporation or, at the request of the Corporation, as a director, officer, employee, agent fiduciary, or trustee of, or in a similar capacity for, another corporation, partnership, joint venture, trust, employee benefit plan, or other entity, and in so doing is and will be performing a valuable service to or on behalf of the Corporation;

WHEREAS, the Board of Directors of the Corporation has determined that, in order to attract and retain qualified individuals, the Corporation will utilize commercially reasonable efforts to maintain, at its sole expense, liability insurance to protect persons serving the Corporation and its subsidiaries from certain liabilities. Although the furnishing of such insurance has been a customary and wide-spread practice among United States-based corporations and other business enterprises, the Corporation believes that, given current market conditions and trends, such insurance may be available to it in the future only at higher premiums and with more exclusions. At the same time, directors, officers, and other persons in service to corporations or business enterprises are being increasingly subjected to expensive and time-consuming litigation relating to, among other things, matters that traditionally would have been brought only against the Corporation or business enterprise itself;

WHEREAS, the Indemnified Representative is willing to continue to serve and to undertake additional duties and responsibilities for and on behalf of the Corporation on the condition that he be indemnified contractually by the Corporation; and

WHEREAS, as an inducement to the Indemnified Representative to continue to serve the Corporation, and in consideration for such continued service, the Corporation has agreed to indemnify the Indemnified Representative upon the terms set forth herein.

NOW, THEREFORE, in consideration of the promises and mutual covenants contained herein, and intending to be legally bound hereby, the Corporation and the Indemnified Representative agree as follows:

1. Agreement To Serve. The Indemnified Representative agrees to serve or continue to serve for or on behalf of the Corporation in each Official Capacity (as hereinafter defined) held now or in the future for so long as the Indemnified Representative is duly elected or appointed or until such time as the Indemnified Representative tenders a resignation in writing. This Agreement shall not be deemed an employment contract between the Corporation or any of its subsidiaries and any Indemnified Representative who is an employee of the Corporation or any of its subsidiaries. The Indemnified Representative specifically acknowledges that the Indemnified Representative's employment with the Corporation or any of its subsidiaries, if any, is at will, and that the Indemnified Representative may be discharged at any time for any reason, with or without cause, except as may be otherwise provided in any written employment contract between the Indemnified Representative and the Corporation or any of its subsidiaries, other applicable formal severance policies duly adopted by the board of directors of the Indemnified Representative's employer, or, with respect to service as a Director of the Corporation, by the Corporation's Certificate of Incorporation, By-Laws, and the Delaware General Corporation Law. The foregoing notwithstanding, this Agreement shall continue in force after the Indemnified Representative has ceased to serve in any Official Capacity for or on behalf of the Corporation or any of its subsidiaries.

2. Indemnification.

(a) Except as provided in Sections 3 and 5 hereof, the Corporation shall indemnify the Indemnified Representative against any Liability (as hereinafter defined) incurred by or assessed against the Indemnified Representative in connection with any Proceeding (as hereinafter defined) in which the Indemnified Representative may be involved, as a party or otherwise, by reason of the fact that the Indemnified Representative is or was serving in any Official Capacity held now or in the future, including, without limitation, any Liability resulting from actual or alleged breach or neglect of duty, error, misstatement, misleading statement, omission, negligence, act giving rise to strict or product liability, act giving rise to liability for environmental contamination, or other act or omission, whether occurring prior to or after the date of this Agreement. As used in this Agreement:

(i) "Liability" means any damage, judgment, amount paid in settlement, fine, penalty, punitive damage, or expense of any nature (including attorneys' fees and expenses);

(ii) "Proceeding" means any threatened, pending, or completed action, suit, appeal, arbitration, or other proceeding of any nature, whether civil, criminal, administrative, or investigative, whether formal or informal, and whether brought by or in the right of the Corporation, a class of its security holders, or any other party; and

(iii) "Official Capacity" means service to the Corporation as a director, officer, employee, or agent or, at the request of the Corporation, as a director, officer, employee, agent, fiduciary, or trustee of, or in a similar capacity for, another corporation, partnership, joint venture, trust, employee benefit plan (including a plan qualified under the Employee Retirement Income Security Act of 1974), or other entity.

(b) Notwithstanding Section 2(a) hereof, except for a Proceeding brought pursuant to Section 5(d) of this Agreement, the Corporation shall not indemnify the Indemnified Representative under this Agreement for any Liability incurred in a Proceeding initiated by the Indemnified Representative unless the Proceeding is authorized, either before or after commencement of the Proceeding, by the majority vote of a quorum of the Board of Directors of the Corporation. An affirmative defense or counterclaim of an Indemnified Representative shall not be deemed to constitute a Proceeding initiated by the Indemnified Representative.

3. Exclusions.

(a) The Corporation shall not be liable under this Agreement to make any payment in connection with any Liability incurred by the Indemnified Representative:

(i) to the extent payment for such Liability is made to the Indemnified Representative under an insurance policy obtained by the Corporation;

(ii) to the extent payment is made to the Indemnified Representative for such Liability by the Corporation under its Certificate of Incorporation, By-Laws, the Delaware General Corporation Law, or otherwise than pursuant to this Agreement;

(iii) to the extent such Liability is determined in a final determination pursuant to Section 5(d) hereof to be based upon or attributable to the Indemnified Representative gaining any personal profit to which such Indemnified Representative was not legally entitled;

(iv) for any claim by or on behalf of the Corporation for recovery of profits resulting from the purchase and sale or sale and purchase by such Indemnified Representative of equity securities of the Corporation pursuant to Section 16(b) of the Securities Exchange Act of 1934, as amended;

(v) for which the conduct of the Indemnified Representative has been determined in a final determination pursuant to Section 5(d) hereof to constitute bad faith or active and deliberate dishonesty, in either such case material to the cause of action or claim at issue in the Proceeding; or

(vi) to the extent such indemnification has been determined in a final determination pursuant to Section 5(d) hereof to be unlawful.

(b) Any act, omission, liability, knowledge, or other fact of or relating to any other person, including any other person who is also an Indemnified Representative, shall not be imputed to the Indemnified Representative for the purposes of determining the applicability of any exclusion set forth herein.

(c) The termination of a proceeding by judgment, order, settlement, conviction, or upon a plea of nolo contendere or its equivalent shall not, of itself, create a presumption that the Indemnified Representative is not entitled to indemnification under this Agreement.

4. Advancement of Expenses. The Corporation shall pay any Liability in the nature of an expense (including attorneys' fees and expenses) incurred in good faith by the Indemnified Representative in advance of the final disposition of a Proceeding within thirty (30) days of receipt of a demand for payment by the Indemnified Representative; provided, however, that the Indemnified Representative shall repay such amount if it shall ultimately be determined, pursuant to Section 5(d) hereof, that the Indemnified Representative is not entitled to be indemnified by the Corporation pursuant to this Agreement. The financial ability of the Indemnified Representative to repay an advance shall not be a prerequisite to the making of such advance.

5. Indemnification Procedure.

(a) The Indemnified Representative shall use his best efforts to notify promptly the Secretary of the Corporation of the commencement of any Proceeding or the occurrence of any event which might give rise to a Liability under this Agreement, but the failure to so notify the Corporation shall not relieve the Corporation of any obligation which it may have to the Indemnified Representative under this Agreement or otherwise.

(b) The Corporation shall be entitled, upon notice to the Indemnified Representative, to assume the defense of any Proceeding with counsel reasonably satisfactory to the Indemnified Representative involved in such Proceeding or, if there be more than one (1) Indemnified Representative involved in such Proceeding, to a majority of the Indemnified Representatives involved in such Proceeding. If, in accordance with the foregoing, the Corporation defends the Proceeding, the Corporation shall not be liable for the expenses (including attorneys' fees and expenses) of the Indemnified Representative incurred in connection with the defense of such Proceeding subsequent to the required notice, unless (i) such expenses (including attorneys' fees) have been authorized by the Corporation or (ii) the Corporation shall not in fact have employed counsel reasonably satisfactory to such Indemnified Representative, or to the majority of Indemnified Representatives if more than one (1) is involved, to assume the defense of such Proceeding. The foregoing notwithstanding, the Indemnified Representative may elect to retain counsel at the Indemnified Representative's own cost and expense to participate in the defense of such Proceeding.

(c) The Corporation shall not be required to obtain the consent of the Indemnified Representative to the settlement of any Proceeding which the Corporation has undertaken to defend if the Corporation assumes full and sole responsibility for such settlement and the settlement grants the Indemnified Representative a complete and unqualified release in respect of the potential Liability. The Corporation shall not be liable for any amount paid by an Indemnified Representative in settlement of any Proceeding that is not defended by the Corporation, unless the Corporation has consented to such settlement, which consent shall not be unreasonably withheld.

(d) Except as set forth herein, any dispute concerning the right to indemnification under this Agreement and any other dispute arising hereunder, including but not limited to matters of validity, interpretation, application, and enforcement, shall be determined exclusively by and through final and binding arbitration in Camp Hill, Pennsylvania, each party hereto expressly and conclusively waiving its or his right to proceed to a judicial determination with respect to such matter; provided, however, that in the event that a claim for indemnification against liabilities arising under the Securities Act of 1933 (the "Act") (other than the payment by the Corporation of expenses incurred or paid by a director, officer, or controlling person of the Corporation in the successful defense of any action, suit, or proceeding) is asserted by a director, officer, or controlling person in connection with securities being registered under the Act, the Corporation will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of competent jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue. The arbitration shall be conducted in accordance with the commercial arbitration rules then in effect of the American Arbitration Association before a panel of three (3) arbitrators, the first of whom shall be selected by the Corporation, the second of whom shall be selected by the Indemnified Representative, and the third of whom shall be selected by the other two (2) arbitrators. If for any reason arbitration under the arbitration rules of the American Arbitration Association cannot be initiated, the necessary arbitrator or arbitrators shall be selected by the presiding judge of the state court of general jurisdiction in Cumberland County, Pennsylvania. Each arbitrator selected as provided herein is required to be serving or to have served as a director or an executive officer of a corporation whose shares of common stock, during at least one year of such service, were quoted in the NASDAQ National Market System or listed on the New York Stock Exchange or the American Stock Exchange. The Corporation shall reimburse the Indemnified Representative for the expenses (including attorneys' fees) incurred in prosecuting or defending such arbitration to the full extent of such expenses if the Indemnified Representative is awarded 50% or more of the monetary value of his claim or, if not, to the extent such expenses are determined by the arbitrators to be allocable to the Corporation. It is expressly understood and agreed by the parties that a party may compel arbitration pursuant to this Section 5(d) through an action for specific performance and that any award entered by the arbitrators may be enforced, without further evidence or proceedings, in any court of competent jurisdiction.

(e) Upon payment under this Agreement to the Indemnified Representative with respect to any Liability, the Corporation shall be subrogated to the extent of such payment to all of the rights of the Indemnified Representative to recover against any person with respect to such Liability, and the Indemnified Representative shall execute all documents and instruments required and shall take such other actions as may be necessary to secure such rights, including the execution of such documents as may be necessary for the Corporation to bring suit to enforce such rights.

6. Contribution. If the indemnification provided for in this Agreement is unavailable for any reason to hold harmless an Indemnified Representative in respect of any Liability or portion thereof, the Corporation shall contribute to such Liability or portion thereof in such proportion as is appropriate to reflect the relative benefits received by the Corporation and the Indemnified Representative from the transaction giving rise to the Liability.

7. Non-Exclusivity. The rights granted to the Indemnified Representative pursuant to this Agreement shall not be deemed exclusive of any other rights to which the Indemnified Representative may be entitled under statute, the provisions of any certificate of incorporation, by-laws, or agreement, a vote of stockholders or directors, or otherwise, both as to action in an Official Capacity and in any other capacity.

8. Reliance on Provisions. The Indemnified Representative shall be deemed to be acting in any Official Capacity in reliance upon the rights of indemnification provided by this Agreement. Without limiting the generality of the foregoing, the Corporation and the Indemnified Representative acknowledge the existence of Article III, Section 9 of the Corporation's By-Laws as restated and adopted by the Board of Directors on March 15, 1990 and effective April 25, 1990, and confirm that the Indemnified Representative is also acting in reliance thereon.

9. Severability and Reformation. Any provision of this Agreement which is determined to be invalid or unenforceable in any jurisdiction or under any circumstance shall be ineffective only to the extent of such invalidity or unenforceability and shall be deemed reformed to the extent necessary to conform to the applicable law of such jurisdiction and still give maximum effect to the intent of the parties hereto. Any such determination shall not invalidate or render unenforceable the remaining provisions hereof and shall not invalidate or render unenforceable such provision in any other jurisdiction or under any other circumstances.

10. Notices. Any notice, claim, request, or demand required or permitted hereunder shall be in writing and shall be deemed given if delivered personally or sent by telegram or by registered or certified mail, first class, postage prepaid: (i) if to the Corporation, to Harsco Corporation, 350 Poplar Church Road, Camp Hill, Pennsylvania 17011, Attention: Corporate Secretary, or (ii) if to any Indemnified Representative, to the address of such Indemnified Representative listed on the signature page hereof, or to such other address as any party hereto shall have specified in a notice duly given in accordance with this Section 10.

11. Amendments; Binding Effect. No amendment, modification, termination, or cancellation of this Agreement shall be effective as to the Indemnified Representative unless signed in writing by the Corporation and the Indemnified Representative. This Agreement shall be binding upon the Corporation and its successors and assigns and shall inure to the benefit of the Indemnified Representative's heirs, executors, administrators, and personal representatives.

12. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Delaware, without regard to the conflict of laws provisions thereof.

IN WITNESS WHEREOF, the undersigned have executed this Agreement as of the day and year first set forth above.

ATTEST: HARSCO CORPORATION

______________________________ ______________________________

WITNESS: INDEMNIFIED REPRESENTATIVE

______________________________ ______________________________

Exhibit 12

HARSCO CORPORATION
Computation of Ratios of Earnings to Fixed Charges

	YEARS ENDED DECEMBER 31													
(In thousands)	**2017 (a)**		**2016 (a)**			**2015 (a)**			**2014 (a)**		**2013 (a)**			
Pre-tax income (loss) from continuing operations attributable to Harsco shareholders	**$**	**91,429**	$	(79,699)	(b)	$	34,846		$	8,085	$	(199,381)	(c)	
Add: Consolidated Fixed Charges computed below		**58,515**		63,649			62,720			67,181		78,637		
Net adjustments for unconsolidated entities		**93**		(5,670)			(147)			1,558		(1,511)		
Net adjustments for capitalized interest		**187**		194			466			(46)		53		
Consolidated Earnings Available for Fixed Charges	**$**	**150,224**	$	(21,526)	(b)	$	97,885		$	76,778	$	(122,202)	(c)	
Consolidated Fixed Charges:														
Interest expense per financial statements (d)	**$**	**47,552**	$	51,584		$	46,804		$	47,111	$	49,654		
Interest expense capitalized		**—**		—			—			541		577		
Portion of rentals (1/3) representing a reasonable approximation of the interest factor		**10,963**		12,065			15,916			19,529		28,406		
Consolidated Fixed Charges	**$**	**58,515**	$	63,649		$	62,720		$	67,181	$	78,637		
Consolidated Ratio of Earnings to Fixed Charges		2.57		—	(b) (e)		1.56			1.14		—	(c) (f)	

(a) Does not include interest related to uncertain tax position obligations.

(b) During 2016, the Company recorded pre-tax charges of $43.5 million related to the sale of the Company's equity interest in Brand; pre-tax charges of $45.1 million related to an estimated forward loss provision related to the Company's contracts with the federal railway system of Switzerland; and pre-tax charges of $35.3 million loss on early extinguishment of debt.

(c) During 2013, the Company recorded a $272.3 million, non-cash pre-tax long-lived asset impairment charge.

(d) Includes amortization of debt discount.

(e) For the year ended December 31, 2016, the ratio coverage was less than 1:1. We would have needed to generate additional earnings of $85.2 million to achieve a coverage of 1:1.

(f) For the year ended December 31, 2013, the ratio coverage was less than 1:1. We would have needed to generate additional earnings of $200.8 million to achieve a coverage of 1:1.

HARSCO CORPORATION **Exhibit 21**

Subsidiaries of Registrant

Subsidiary	Country of Incorporation	Ownership Percentage
Harsco Metals Argentina S.A.	Argentina	100%
Harsco (Australia) Pty. Limited	Australia	100%
Harsco Industrial Air-X-Changers Pty. Ltd.	Australia	100%
Harsco Metals Australia Pty. Ltd.	Australia	100%
Harsco Metals Australia Holding Investment Co. Pty. Ltd.	Australia	100%
Harsco Rail Pty. Ltd.	Australia	100%
Harsco Minerals Austria GmbH	Austria	100%
AluServ Middle East W.L.L.	Bahrain	65%
Harsco Belgium S.P.R.L.	Belgium	100%
Harsco Metals Emirates Partnership	Belgium	65%
Harsco Rail Emirates Maatschap/Societe de Droit Commun	Belgium	100%
Harsco Brazil Investments SPRL	Belgium	100%
Harsco Chile Investments SPRL	Belgium	100%
Harsco do Brasil Participacoes e Servicos Siderurgicos Ltda.	Brazil	100%
Harsco Metals Limitada	Brazil	100%
Harsco Minerais Limitada	Brazil	100%
Harsco Rail Ltda	Brazil	100%
Heckett Comercio de Rejeitos Industriais, Importacao e Exportacao Ltda	Brazil	100%
Harsco Canada Corporation Societe Harsco Canada	Canada	100%
Harsco Canada General Partner Limited	Canada	100%
Harsco Canada Limited Partnership	Canada	100%
Harsco Nova Scotia Holding Corporation	Canada	100%
Harsco Metals Chile S.A.	Chile	100%
Harsco (Beijing) Fertiliser Co., Ltd	China	100%
Harsco Metals (Ningbo) Pty. Ltd.	China	70%
Harsco Metals Tangshan Co. Ltd.	China	100%
Harsco Metals Zhejiang Co. Ltd.	China	70%
JiangSu Harsco Industrial Grating Company Limited	China	100%
Shanxi TISCO-Harsco Technology Co., Ltd.	China	60%
Harsco APAC Rail Machinery (Beijing) Co., Ltd.	China	100%
Harsco Technology China Co., Ltd.	China	100%
Harsco (Tangshan) Metallurgical Materials Technology Co., Ltd	China	65%
Harsco (Tangshan) Renewable Resources Development Co., Ltd	China	51%
Harsco Infrastructure CZ s.r.o	Czech Republic	100%
Czech Slag- Nova Hut s.r.o.	Czech Republic	65%
Harsco Metals CZ s.r.o	Czech Republic	100%
Harsco Metals Middle East FZE	Dubai	100%
Harsco Metals Egypt L.L.C.	Egypt	100%
Heckett Bahna Co. For Industrial Operations S.A.E.	Egypt	65%
Heckett MultiServ Bahna S.A.E.	Egypt	65%
Slag Processing Company Egypt (SLAR) S.A.E.	Egypt	60%
MultiServ Oy	Finland	100%

HARSCO CORPORATION **Exhibit 21**

Subsidiaries of Registrant

Subsidiary	Country of Incorporation	Ownership Percentage
Harsco Metals and Minerals France S.A.S.	France	100%
Harsco France S.A.S.	France	100%
Harsco Metals Germany GmbH	Germany	100%
Harsco Minerals Deutschland GmbH	Germany	100%
Harsco Rail Europe GmbH	Germany	100%
Harsco (Gibraltar) Holding Limited	Gibraltar	100%
Harsco Metals Guatemala S.A.	Guatemala	100%
Harsco China Holding Company Limited	Hong Kong	100%
Harsco Industrial Grating China Holding Co. Ltd.	Hong Kong	100%
Harsco Infrastructure Hong Kong Ltd	Hong Kong	100%
Harsco India Metals Private Limited	India	99.99%
Harsco India Private Ltd.	India	91.78%
Harsco India Services Private Ltd.	India	100%
Harsco Track Machines and Services Private Limited	India	100%
Harsco Metals Italia S.R.L.	Italy	100%
Ilserv S.R.L.	Italy	65%
Harsco Metals Nord Italia S.R.L.	Italy	100%
Ballagio S.a.r.l.	Luxembourg	100%
Excell Africa Holdings, Ltd.	Luxembourg	100%
Harsco Luxembourg S.a.r.l	Luxembourg	100%
Harsco Metals Luxembourg S.A.	Luxembourg	100%
Harsco Metals Luxequip S.A.	Luxembourg	100%
Excell Americas Holdings Ltd S.a.r.L.	Luxembourg	100%
Harsco Americas Investments S.a.r.l.	Luxembourg	100%
Harsco International Finance S.a.r.l.	Luxembourg	100%
harsco Metals Kemaman Sdn Bhd	Malaysia	100%
Harsco Rail Malaysia Sdn Bhd	Malaysia	100%
Harsco Industrial IKG de Mexico, S.A. de C.V.	Mexico	100%
Harsco Metals de Mexico S.A. de C.V.	Mexico	100%
Irving, S.A. de C.V.	Mexico	100%
Harsco Asia Investment B.V.	Netherlands	100%
Harsco Asia China Investment B.V.	Netherlands	100%
Harsco Asia Pacific Investment B.V.	Netherlands	100%
GasServ (Netherlands) VII B.V.	Netherlands	100%
Harsco (Mexico) Holdings B.V.	Netherlands	100%
Harsco Infrastructure Industrial Services B.V.	Netherlands	100%
Harsco Infrastructure B.V.	Netherlands	100%
Harsco Infrastructure Construction Services B.V.	Netherlands	100%
Harsco Infrastructure Logistic Services B.V.	Netherlands	100%
Harsco Investments Europe B.V.	Netherlands	100%
Harsco Metals Holland B.V.	Netherlands	100%
Harsco Metals Transport B.V.	Netherlands	100%

HARSCO CORPORATION **Exhibit 21**

Subsidiaries of Registrant

Subsidiary	Country of Incorporation	Ownership Percentage
Harsco Metals Oostelijk Staal International B.V.	Netherlands	100%
Harsco Minerals Europe B.V.	Netherlands	100%
Harsco Nederland Slag B.V.	Netherlands	100%
Heckett MultiServ China B.V.	Netherlands	100%
Heckett MultiServ Far East B.V.	Netherlands	100%
Hunnebeck Nederland B.V.	Netherlands	100%
Minerval Metallurgic Additives B.V.	Netherlands	100%
MultiServ Finance B.V.	Netherlands	100%
MultiServ International B.V.	Netherlands	100%
Slag Reductie (Pacific) B.V.	Netherlands	100%
Slag Reductie Nederland B.V.	Netherlands	100%
Harsco (Peru) Holdings B.V.	Netherlands	100%
Harsco Europa B.V.	Netherlands	100%
Harsco Finance B.V.	Netherlands	100%
Harsco Metals SteelServ Limited	New Zealand	50%
Harsco Infrastructure Norge A.S.	Norway	100%
Harsco Metals Norway A.S.	Norway	100%
Harsco Minerals Arabia LLC (FZC)	Oman	100%
Harsco Steel Mill Trading Arabia LLC	Oman	100%
Harsco Metals Peru S.A.	Peru	100%
Harsco Metals Polska SP Z.O.O.	Poland	100%
Harsco Metals CTS Prestacao de Servicos Tecnicos e Aluguer de Equipamentos LDA Unipessoal	Portugal	100%
Harsco Metals Saudi Arabia Ltd.	Saudi Arabia	55%
Harsco Metals D.O.O. Smederevo	Serbia	100%
Harsco Infrastructure Slovensko s.r.o.	Slovak Republic	100%
Harsco Metals Slovensko s.r.o.	Slovak Republic	100%
Harsco Minerali d.o.o.	Slovenia	100%
Harsco Metals RSA Africa (Pty.) Ltd.	South Africa	100%
Harsco Metals South Africa (Pty.) Ltd.	South Africa	100%
Harsco Metals SRH Mill Services (Pty.) Ltd.	South Africa	100%
Harsco Metals SteelServ (Pty.) Ltd.	South Africa	100%
Harsco Metals Ilanga Pty. Ltd.	South Africa	100%
Harsco Infrastructure South Africa (Pty.) Ltd.	South Africa	100%
Heckett MultiServ (FS) Pty Ltd	South Africa	100%
MultiServ Technologies (South Africa) Pty Ltd	South Africa	100%
Harsco Metals Gesmafesa S.A.	Spain	100%
Harsco Metals Intermetal S.A.	Spain	100%
Harsco Metals Lycrete S.A.	Spain	100%
Harsco Metals Reclamet S.A.	Spain	100%
Harsco Infrastructure Sverige A.B.	Sweden	100%
Harsco Metals Sweden A.B.	Sweden	100%
Montanus Industriforvaltning A.B.	Sweden	100%
Harsco Switzerland Finance GmbH	Switzerland	100%
Harsco Switzerland Holding GmbH	Switzerland	100%

Harsco Metals (Thailand) Company Ltd.	Thailand	100%
Harsco Metals Turkey Celik Limited Sirkety	Turkey	100%
Harsco Sun Demiryolu Ekipmanlari Uretim Ve Ticaret Limited Sirketi	Turkey	51%
Tosyali Harsco Geri Kazanim Teknolojileri Anonim Sirketi	Turkey	50%

HARSCO CORPORATION **Exhibit 21**

Subsidiaries of Registrant

Subsidiary	Country of Incorporation	Ownership Percentage
Faber Prest Limited	U.K.	100%
Fourninezero Ltd.	U.K.	100%
Harsco (U.K.) Limited	U.K.	100%
Harsco (UK) Group Ltd	U.K.	100%
Harsco (UK) Holdings Ltd	U.K.	100%
Harsco (York Place) Limited	U.K.	100%
Harsco Fairerways Limited Partnership	U.K.	100%
Harsco Fairestways Limited Partnership	U.K.	100%
Harsco Fairways Partnership	U.K.	100%
Harsco Higherlands Limited Partnership	U.K.	100%
Harsco Highestlands Limited Partnership	U.K.	100%
Harsco Infrastructure Group Ltd.	U.K.	100%
Harsco Infrastructure Services Ltd.	U.K.	100%
Harsco Investment Ltd.	U.K.	100%
Harsco Leatherhead Limited	U.K.	100%
Harsco Metals 373 Ltd	U.K.	100%
Harsco Metals 385 plc	U.K.	100%
Harsco Metals Group Limited	U.K.	100%
Harsco Metals Holdings Limited	U.K.	100%
Harsco Mole Valley Limited	U.K.	100%
Harsco Rail Limited	U.K.	100%
Harsco Surrey Limited	U.K.	100%
Harsco Track Technologies Ltd	U.K.	100%
Mastclimbers Ltd	U.K.	100%
MultiServ Investment Limited	U.K.	100%
MultiServ Limited	U.K.	100%
MultiServ Logistics Limited	U.K.	100%
SGB Holdings Limited	U.K.	100%
SGB Investments Ltd.	U.K.	100%
Short Brothers (Plant) Ltd.	U.K.	100%
Harsco Defense Holding, LLC	U.S.A.	100%
Harsco Financial Holdings Inc.	U.S.A.	100%
Harsco Holdings, Inc.	U.S.A.	100%
Harsco Infrastructure Holdings, Inc.	U.S.A.	100%
Harsco Metals Holding LLC	U.S.A.	100%
Harsco Metals Intermetal LLC	U.S.A.	100%
Harsco Metals Investment LLC	U.S.A.	100%
Harsco Metals Operations LLC	U.S.A.	100%
Harsco Metals SRI LLC	U.S.A.	100%

Harsco Metals VB LLC	U.S.A.	100%
Harsco Metro Rail, LLC	U.S.A.	100%
Harsco Minerals Technologies LLC	U.S.A.	100%
Harsco Minnesota Finance, Inc.	U.S.A.	100%
Harsco Minnesota LLC	U.S.A.	100%
Harsco Rail, LLC	U.S.A.	100%
Harsco Switzerland Finance GmbH, Inc	U.S.A.	100%
Harsco Technologies LLC	U.S.A.	100%
Protran Technology LLC	U.S.A.	100%

HARSCO CORPORATION **Exhibit 21**

Subsidiaries of Registrant

Companies in which Harsco Corporation does not exert management control are not consolidated. These companies are listed below as unconsolidated entities.

Company Name	Country of Incorporation	Ownership Percentage
P.T. Purna Baja Heckett	Indonesia	40%

Exhibit 23

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statement on Forms S-8 (Nos. 333-13175, 333-13173, 333-59832, 333-70710, 333-114958, 333-188448, 333-211203, and 333-217616) of Harsco Corporation of our report dated February 22, 2018 relating to the financial statements, financial statement schedule, and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/PricewaterhouseCoopers LLP
Philadelphia, Pennsylvania
February 22, 2018

Exhibit 31.1

HARSCO CORPORATION
CERTIFICATION PURSUANT TO RULE 13a-14(a) OR 15d-14(a)
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, F. Nicholas Grasberger, III, certify that:

1. I have reviewed this Annual Report on Form 10-K of Harsco Corporation;

2. 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;

3. 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;

4. The registrant's other certifying officer(s) 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:

   (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(s) 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.

February 22, 2018

/s/ F. NICHOLAS GRASBERGER, III

F. Nicholas Grasberger, III

President and Chief Executive Officer

Exhibit 31.2

HARSCO CORPORATION
CERTIFICATION PURSUANT TO RULE 13a-14(a) OR 15d-14(a)
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Peter F. Minan, certify that:

1. I have reviewed this Annual Report on Form 10-K of Harsco Corporation;

2. 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;

3. 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;

4. The registrant's other certifying officer(s) 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:

   (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(s) 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.

February 22, 2018

/s/ PETER F. MINAN

Peter F. Minan
Senior Vice President and Chief Financial Officer

Exhibit 32

HARSCO CORPORATION
CERTIFICATIONS 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 Harsco Corporation (the "Company") on Form 10-K for the period ending December 31, 2017, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), we certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to the best of our knowledge:

(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.

February 22, 2018

/s/ F. NICHOLAS GRASBERGER, III

F. Nicholas Grasberger, III
President and Chief Executive Officer

/s/ PETER F. MINAN

Peter F. Minan
Senior Vice President and Chief Financial Officer

A signed original of this written statement required by Section 906 has been provided to Harsco Corporation and will be retained by Harsco Corporation and furnished to the Securities and Exchange Commission or its staff upon request.