

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

FORM 10-Q

**QUARTERLY REPORT UNDER SECTION 13 OR 15(d) OF
THE SECURITIES EXCHANGE ACT OF 1934**

For the quarter ended September 30, 2018

Commission File No. 1-15579



MSA SAFETY INCORPORATED

(Exact name of registrant as specified in its charter)

Pennsylvania

46-4914539

(State or other jurisdiction of
incorporation or organization)

(IRS Employer
Identification No.)

1000 Cranberry Woods Drive
Cranberry Township, Pennsylvania

16066-5207

(Address of principal executive offices)

(Zip Code)

Registrant's telephone number, including area code: (724) 776-8600

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 and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

Emerging growth company

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

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

As of October 22, 2018, 38,464,650 shares of common stock, of the registrant were outstanding.

PART I. FINANCIAL INFORMATION

Item 1. Financial Statements

MSA SAFETY INCORPORATED
CONDENSED CONSOLIDATED STATEMENT OF INCOME

Unaudited

(In thousands, except per share amounts)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Net sales	\$ 331,096	\$ 296,129	\$ 996,320	\$ 850,669
Cost of products sold	182,794	163,926	546,844	465,780
Gross profit	148,302	132,203	449,476	384,889
Selling, general and administrative	78,013	72,852	240,226	223,741
Research and development	13,296	12,351	39,752	35,282
Restructuring charges (Note 5)	2,615	3,214	10,223	16,920
Currency exchange (gains) losses, net	(252)	562	2,571	3,994
Other operating expense (Note 19)	14,627	3,346	25,469	32,956
Operating income	40,003	39,878	131,235	71,996
Interest expense	4,492	3,961	14,454	10,566
Loss on extinguishment of debt (Note 13)	1,494	—	1,494	—
Other income, net	(4,252)	(1,720)	(8,292)	(4,406)
Total other expense, net	1,734	2,241	7,656	6,160
Income before income taxes	38,269	37,637	123,579	65,836
Provision for income taxes (Note 11)	4,206	5,411	23,606	6,306
Net income	34,063	32,226	99,973	59,530
Net income attributable to noncontrolling interests	(346)	(160)	(706)	(519)
Net income attributable to MSA Safety Incorporated	\$ 33,717	\$ 32,066	\$ 99,267	\$ 59,011
Earnings per share attributable to MSA Safety Incorporated common shareholders:				
Basic	\$ 0.88	\$ 0.84	\$ 2.59	\$ 1.55
Diluted	\$ 0.86	\$ 0.83	\$ 2.55	\$ 1.52
Dividends per common share	\$ 0.38	\$ 0.35	\$ 1.11	\$ 1.03

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

MSA SAFETY INCORPORATED
CONDENSED CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

Unaudited

(In thousands)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Net income	\$ 34,063	\$ 32,226	\$ 99,973	\$ 59,530
Other comprehensive (loss) income, net of tax:				
Foreign currency translation adjustments (Note 7)	(4,755)	10,021	(19,235)	34,888
Pension and post-retirement plan actuarial gains, net of tax (Note 7)	2,651	2,180	8,039	6,321
Reclassification from accumulated other comprehensive (loss) into net income (Note 7)	—	—	(774)	—
Total other comprehensive (loss) income, net of tax	(2,104)	12,201	(11,970)	41,209
Comprehensive income	31,959	44,427	88,003	100,739
Comprehensive income attributable to noncontrolling interests	(152)	(4,289)	(409)	(3,185)
Comprehensive income attributable to MSA Safety Incorporated	\$ 31,807	\$ 40,138	\$ 87,594	\$ 97,554

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

MSA SAFETY INCORPORATED
CONDENSED CONSOLIDATED BALANCE SHEET

Unaudited

(In thousands)	September 30, 2018	December 31, 2017
Assets		
Cash and cash equivalents	\$ 118,161	\$ 134,244
Trade receivables, less allowance for doubtful accounts of \$5,846 and \$5,540	236,245	244,198
Inventories (Note 4)	183,829	153,739
Investments, short-term (Note 18)	56,996	—
Prepaid income taxes	34,147	31,448
Notes receivable, insurance companies (Note 19)	3,525	17,333
Prepaid expenses and other current assets	40,434	41,335
Total current assets	<u>673,337</u>	<u>622,297</u>
Property, plant and equipment, net (Note 6)	150,569	157,014
Prepaid pension cost	91,914	83,060
Deferred tax assets (Note 11)	27,360	25,825
Goodwill (Note 14)	416,779	422,185
Intangible assets (Note 14)	173,317	183,088
Notes receivable, insurance companies, noncurrent (Note 19)	60,726	59,567
Insurance receivable (Note 19) and other noncurrent assets	56,681	131,790
Total assets	<u>\$ 1,650,683</u>	<u>\$ 1,684,826</u>
Liabilities		
Notes payable and current portion of long-term debt, net (Note 13)	\$ 20,005	\$ 26,680
Accounts payable	71,659	87,061
Employees' compensation	37,757	39,377
Insurance and product liability (Note 19)	78,019	59,116
Income taxes payable (Note 11)	20,191	—
Warranty reserve (Note 19) and other current liabilities	80,316	77,045
Total current liabilities	<u>307,947</u>	<u>289,279</u>
Long-term debt, net (Note 13)	370,195	447,832
Pensions and other employee benefits	167,373	170,773
Deferred tax liabilities (Note 11)	8,973	9,341
Product liability (Note 19) and other noncurrent liabilities	136,489	165,023
Total liabilities	<u>\$ 990,977</u>	<u>\$ 1,082,248</u>
Commitments and contingencies (Note 19)		
Equity		
Preferred stock, 4 1/2% cumulative, \$50 par value (Note 8)	\$ 3,569	\$ 3,569
Common stock, no par value (Note 8)	207,315	194,953
Treasury shares, at cost (Note 8)	(298,466)	(297,834)
Accumulated other comprehensive loss (Note 7)	(183,435)	(171,762)
Retained earnings	925,337	868,675
Total MSA Safety Incorporated shareholders' equity	<u>654,320</u>	<u>597,601</u>
Noncontrolling interests	5,386	4,977
Total shareholders' equity	<u>659,706</u>	<u>602,578</u>
Total liabilities and shareholders' equity	<u>\$ 1,650,683</u>	<u>\$ 1,684,826</u>

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

MSA SAFETY INCORPORATED
CONDENSED CONSOLIDATED STATEMENT OF CASH FLOWS
Unaudited

(In thousands)	Nine Months Ended September 30,	
	2018	2017
Operating Activities		
Net income	\$ 99,973	\$ 59,530
Depreciation and amortization	28,585	27,665
Restructuring charges (Note 5)	—	11,384
Stock-based compensation (Note 12)	9,595	9,668
Pension expense (Note 16)	4,464	5,307
Deferred income tax benefit (Note 11)	(5,152)	(9,590)
Loss on asset dispositions, net	416	65
Pension contributions (Note 16)	(3,729)	(4,425)
Currency exchange losses, net	2,571	3,994
Other operating expense (Note 19)	25,469	32,956
Collections on insurance receivables and notes receivable, insurance companies	94,875	109,769
Product liability payments	(44,041)	(21,279)
Loss on extinguishment of debt	1,494	—
Changes in:		
Trade receivables	598	10,108
Inventories (Note 4)	(36,467)	(36,894)
Prepaid expenses and other current assets	(16,758)	(4,252)
Accounts payable and accrued liabilities	32,465	5,183
Other noncurrent assets and liabilities	(8,161)	(9,943)
Cash Flow From Operating Activities	186,197	189,246
Investing Activities		
Capital expenditures	(18,620)	(11,730)
Acquisition, net of cash acquired (Note 14)	—	(213,990)
Purchase of short-term investments (Note 18)	(57,090)	—
Property disposals	4,001	729
Cash Flow Used in Investing Activities	(71,709)	(224,991)
Financing Activities		
Payments on short-term debt, net	(8)	—
Proceeds from long-term debt (Note 13)	340,500	491,500
Payments on long-term debt (Note 13)	(421,167)	(415,600)
Debt issuance costs	(1,216)	—
Cash dividends paid	(42,605)	(39,200)
Company stock purchases (Note 8)	(4,299)	(16,656)
Exercise of stock options (Note 8)	6,154	12,392
Employee stock purchase plan (Note 8)	280	282
Other, net	(1,494)	(590)
Cash Flow (Used in) Provided by Financing Activities	(123,855)	32,128
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(9,952)	1,622
Decrease in cash, cash equivalents and restricted cash	(19,319)	(1,995)
Beginning cash, cash equivalents and restricted cash	137,889	114,962
Ending cash, cash equivalents and restricted cash	\$ 118,570	\$ 112,967
Supplemental cash flow information:		
Cash and cash equivalents	\$ 118,161	\$ 112,185
Restricted cash included in prepaid expenses and other current assets	409	782
Total cash, cash equivalents and restricted cash	\$ 118,570	\$ 112,967

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

MSA SAFETY INCORPORATED

CONDENSED CONSOLIDATED STATEMENT OF CHANGES IN RETAINED EARNINGS,
ACCUMULATED OTHER COMPREHENSIVE LOSS AND NONCONTROLLING INTERESTS

Unaudited

(In thousands)	Retained Earnings	Accumulated Other Comprehensive (Loss)
Balances June 30, 2017	\$ 896,621	\$ (199,775)
Net income	32,226	—
Foreign currency translation adjustments	—	10,021
Pension and post-retirement plan adjustments, net of tax of \$1,009	—	2,180
Income attributable to noncontrolling interests	(160)	(4,129)
Common dividends	(13,366)	—
Preferred dividends	(10)	—
Balances September 30, 2017	\$ 915,311	\$ (191,703)
Balances June 30, 2018	\$ 906,244	\$ (181,525)
Net income	34,063	—
Foreign currency translation adjustments	—	(4,755)
Pension and post-retirement plan adjustments, net of tax of \$886	—	2,651
(Income) loss attributable to noncontrolling interests	(346)	194
Common dividends	(14,614)	—
Preferred dividends	(10)	—
Balances September 30, 2018	\$ 925,337	\$ (183,435)
Balances December 31, 2016	\$ 901,415	\$ (230,246)
Net income	59,530	—
Foreign currency translation adjustments	—	34,888
Pension and post-retirement plan adjustments, net of tax of \$3,052	—	6,321
Income attributable to noncontrolling interests	(519)	(2,666)
Common dividends	(39,170)	—
Preferred dividends	(30)	—
Cumulative effect of the adoption of ASU 2016-16 (Note 2)	(5,915)	—
Balances September 30, 2017	\$ 915,311	\$ (191,703)
Balances December 31, 2017	\$ 868,675	\$ (171,762)
Net income	99,973	—
Foreign currency translation adjustments	—	(19,235)
Pension and post-retirement plan adjustments, net of tax of \$2,566	—	8,039
Reclassification from accumulated other comprehensive (loss) into earnings	—	(774)
(Income) loss attributable to noncontrolling interests	(706)	297
Common dividends	(42,575)	—
Preferred dividends	(30)	—
Balances September 30, 2018	\$ 925,337	\$ (183,435)

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

MSA SAFETY INCORPORATED
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

Unaudited

Note 1—Basis of Presentation

The condensed consolidated financial statements of MSA Safety Incorporated and its subsidiaries ("MSA" or the "Company") are unaudited. These condensed consolidated financial statements include all adjustments, consisting of normal recurring adjustments, considered necessary by management to fairly state the Company's results. Intercompany accounts and transactions have been eliminated. The results reported in these condensed consolidated financial statements are not necessarily indicative of the results that may be expected for the entire year. The December 31, 2017 condensed consolidated balance sheet data was derived from the audited consolidated balance sheet, but does not include all disclosures required by accounting principles generally accepted in the United States of America (U.S. GAAP). This Form 10-Q report should be read in conjunction with MSA's Form 10-K for the year ended December 31, 2017, which includes all disclosures required by U.S. GAAP.

Reclassifications - Certain reclassifications of prior year's data have been made to conform to the current year presentation. These reclassifications relate to how amounts are classified within the operating activities section of the Condensed Consolidated Statement of Cash Flows but do not change the overall cash flow from operating activities for the prior year as previously reported.

Note 2—Recently Adopted and Recently Issued Accounting Standards

In May 2014, the FASB issued ASU 2014-09, *Revenue with Contracts from Customers*. This ASU establishes a single revenue recognition model for all contracts with customers based on recognizing 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, eliminates industry specific requirements and expands disclosure requirements. We adopted ASU 2014-09 using the modified retrospective method as of January 1, 2018. The majority of our revenue transactions consist of a single performance obligation to transfer promised goods or services. The adoption of this new standard did not impact the Company's consolidated statement of income or balance sheet and there was no cumulative effect of initially applying the standard to the opening balance of retained earnings. See Note 3—Significant Accounting Policies Update for further information on our updated revenue recognition policy.

In July 2015, the FASB issued ASU 2015-11, *Simplifying the Measurement of Inventory*. This ASU was adopted on January 1, 2017. This ASU applies only to inventory measured using the first-in, first-out (FIFO) or average cost methods and requires inventory to be measured at the lower of cost and net realizable value (NRV). This ASU replaces market with NRV, defined as estimated selling prices in the ordinary course of business, less reasonably predictable costs of completion, disposal and transportation. This eliminates the need to determine and consider replacement cost or NRV less an approximately normal profit margin when measuring inventory. The adoption of this ASU did not have a material effect on our condensed consolidated financial statements.

In February 2016, the FASB issued ASU 2016-02, *Leases*. This ASU requires lessees to record a right of use asset and a liability for virtually all leases. This ASU will be effective beginning January 1, 2019. The Company has developed a transition plan and continues to evaluate the impact that the adoption of ASU 2016-02 will have on the consolidated financial statements. During 2017, we conducted a survey to identify all leases across the organization and are currently working to obtain all lease contracts to accumulate the necessary information for adoption. We have identified that a majority of our leases fall into one of three categories: office equipment, real estate and vehicles. We identified that most office equipment and vehicle leases utilize standard master leasing contracts that have similar terms. During the first nine months of 2018, we selected a service provider to help us inventory and account for our leases and began gathering data necessary to prepare the transition accounting. Total assets and total liabilities will increase significantly in the period the ASU is adopted. At September 30, 2018, the Company's undiscounted future minimum rent commitments under noncancellable operating leases were approximately \$36.2 million. In July 2018, the FASB issued ASU 2018-10, *Codification Improvements to Topic 842, Leases*. ASU 2018-10 includes certain clarifications to address potential narrow-scope implementation issues which the Company is incorporating into its assessment and adoption of ASU 2016-02. Additionally, in July 2018, the FASB issued ASU 2018-11, *Targeted Improvements to Topic 842, Leases*. ASU 2018-11 which provides an additional transition method to adopt ASU 2016-02 identified as comparative reporting at adoption. We expect to use this new transition approach and the comparative periods presented in our financial statements will continue to be reported in accordance with ASC 840, *Leases*. We anticipate that we will elect the package of practical expedients allowed in the standard, which among other things, allows us to carry forward our historical lease classification. All of our leases have historically been classified as operating leases. We also anticipate that we will make an accounting policy election to use the practical expedient allowed in the standard to not separate lease and non-lease components when calculating the lease liability under ASU 2016-02.

In March 2016, the FASB issued ASU 2016-09, *Improvements to Employee Share-Based Payment Accounting*. This ASU simplifies the accounting for many aspects associated with share-based payment accounting, including income taxes and the use of forfeiture rates. This ASU was adopted on January 1, 2017. The provisions of this ASU which impacted us included a requirement that all excess tax benefits and deficiencies that pertain to share-based payment arrangements be recognized as a component of income tax expense rather than as a component of shareholders' equity. The Company expects this to create volatility in its effective tax rate on a go-forward basis as the impact is treated as a discrete item within our quarterly tax provision. The extent of excess tax benefits/deficiencies is subject to variation in our stock price and timing/extent of stock-based compensation share vestings and employee stock option exercises. This ASU also removes the impact of the excess tax benefits and deficiencies from the calculation of diluted earnings per share and no longer requires a presentation of excess tax benefits and deficiencies related to the vesting and exercise of share-based compensation as both an operating outflow and financing inflow on the statement of cash flows. We have applied all of these changes on a prospective basis and therefore, prior years were not adjusted. Additionally, this ASU allows for an accounting policy election to estimate the number of awards that are expected to vest or account for forfeitures when they occur. We elected to maintain our current forfeitures policy and will continue to include an estimate of those forfeitures when recognizing stock-based compensation expense. This ASU also requires cash payments to tax authorities when an employer uses a net-settlement feature to withhold shares to meet statutory tax withholding provisions to be presented as a financing activity (eliminating previous diversity in practice). Application of this ASU resulted in an additional discrete tax benefit of approximately \$2.6 million and \$6.9 million during the nine months ended September 30, 2018 and 2017, respectively.

In June 2016, the FASB issued ASU 2016-13, *Allowance for Loan and Lease Losses*. This ASU introduces an approach based on expected losses to estimate credit losses on certain types of financial instruments, including loans, held-to-maturity debt securities, loan commitments, financial guarantees and net investments in leases, as well as reinsurance and trade receivables. This ASU will be effective beginning in 2020. Based on a review of its portfolio of financial instruments, the Company does not believe the adoption of this ASU will have a material impact on the condensed consolidated financial statements, but does expect the adoption to result in additional disclosures.

In August 2016, the FASB issued ASU 2016-15, *Classification of Certain Cash Payments and Cash Receipts*. This ASU clarifies how certain cash receipts and cash payments are presented and classified in the statement of cash flows. The Company's adoption of this ASU on January 1, 2018 did not have a material impact on our presentation of the condensed consolidated statement of cash flows.

In October 2016, the FASB issued ASU 2016-16, *Intra-entity Transfers of Assets Other than Inventory*. This ASU states that an entity should recognize the income tax consequences of an intra-entity transfer of an asset other than inventory when the transfer occurs. This ASU was early adopted on January 1, 2017 using the modified retrospective approach which resulted in a \$5.9 million cumulative-effect adjustment directly to retained earnings for any previously deferred income tax effects.

In November 2016, the FASB issued ASU 2016-18, *Restricted Cash*. This ASU requires that amounts generally described as restricted cash and restricted cash equivalents are included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. We adopted this ASU on January 1, 2018 using the retrospective method. The adoption of ASU 2016-18 had an impact on our financial statement presentation within the condensed consolidated statement of cash flows, as amounts generally described as restricted cash and restricted cash equivalents are now included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows and transfers of these amounts between balance sheet line items are no longer presented as an operating, investing or financing cash flow. For the nine months ended September 30, 2017, cash flow used in financing activities decreased by \$0.5 million as a result of the adoption of this ASU. Furthermore, adoption of ASU 2016-18 resulted in additional disclosures.

In January 2017, the FASB issued ASU 2017-01, *Business Combinations - Clarifying the Definition of a Business*. This ASU provides further guidance for identifying whether a set of assets and activities is a business by providing a screen outlining that when substantially all of the fair value of the gross assets acquired (or disposed of) is concentrated in a single identifiable asset or a group of similar identifiable assets, the set is not a business. This ASU was adopted beginning in 2018 and was applied prospectively. The adoption of this ASU may have a material effect on our condensed consolidated financial statements in the event that we have an acquisition or disposal that falls within this screen.

In January 2017, the FASB issued ASU 2017-04, *Simplifying the Test for Goodwill Impairment*. This ASU simplifies the accounting for goodwill impairments under Step 2 by eliminating the requirement to perform procedures to determine the fair value of the assets and liabilities of the reporting unit, including previously unrecognized assets and liabilities, in order to determine the fair value of the goodwill and any impairment charge to be recognized. Under this ASU, the impairment charge to be recognized should be the amount by which the reporting unit's carrying value exceeds the reporting unit's fair value as calculated under Step 1 provided that the loss recognized should not exceed the total amount of goodwill allocated to the reporting unit. This ASU is effective beginning in 2019 and early adoption is permitted for interim or annual goodwill impairment tests performed after January 1, 2017. The adoption of this ASU may have a material effect on our condensed consolidated financial statements in the event that we determine that goodwill for any of our reporting units is impaired.

In March 2017, the FASB issued ASU 2017-07, *Improving the Presentation of Net Periodic Pension Cost and Net Periodic Post-retirement Benefit Cost*, to improve the presentation of net periodic pension and net periodic post-retirement benefit cost. This ASU requires companies to present the service cost component of net periodic benefit cost in the same income statement line item as other compensation costs arising from services rendered during the period. Only the service cost component will be eligible for capitalization in assets. Additionally, this ASU requires that companies present the other components of the net periodic benefit cost separately from the line item that includes the service cost and outside of any subtotal of income from operations, if one is presented. This ASU is effective for annual periods beginning after December 15, 2017, and early adoption is permitted. The amendments in this ASU are to be applied retrospectively for presentation in the condensed consolidated statement of income and prospectively for the capitalization of the service cost component of net periodic pension cost and net periodic post-retirement benefit in assets. A practical expedient allows the Company to use the amount disclosed in its pension and other post-retirement benefit plan note for the prior comparative periods as the estimation basis for applying the retrospective presentation requirements. The Company adopted ASU 2017-07 on January 1, 2018, using the retrospective method and elected to use the practical expedient. The adoption of this ASU resulted in a \$3.4 million and \$2.3 million decrease in operating income for the nine months ended September 30, 2018 and 2017, respectively. The Company does not capitalize costs in assets so there is no impact from that provision of ASU 2017-07.

In May 2017, the FASB issued ASU 2017-09, *Stock Compensation - Scope of Modification Accounting*, which amends the scope of modification accounting for share-based payment arrangements. This ASU provides guidance on the types of changes to the terms or conditions of share-based payment awards to which an entity would be required to apply modification accounting. Specifically, an entity would not apply modification accounting if the fair value, vesting conditions, and classification of the awards are the same immediately before and after the modification. This ASU is effective for periods beginning after December 31, 2017. The Company's adoption of ASU on January 1, 2018, did not have a material effect on our condensed consolidated financial statements.

In January 2018, the FASB issued ASU 2018-02, *Income Statement - Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income*, which gives entities the option to reclassify to retained earnings the tax effects resulting from the new tax reform legislation commonly known as the Tax Cuts and Jobs Act ("the Act") related to items in AOCI that the FASB refers to as having been stranded in AOCI. The new guidance may be applied retrospectively to each period in which the effect of the Act is recognized in the period of adoption. The Company must adopt this guidance for fiscal years beginning after December 15, 2018, and interim periods within those fiscal years. Early adoption is permitted for periods for which financial statements have not yet been issued or made available for issuance, including the period the Act was enacted. The guidance, when adopted, will require new disclosures regarding a company's accounting policy for releasing the tax effects in AOCI and permit a company the option to reclassify to retained earnings the tax effects resulting from the Act that are stranded in AOCI. The Company has elected not to early adopt this ASU. Further, the Company is currently evaluating how to apply the new guidance and has not determined whether or not it will elect to reclassify stranded amounts, if any. As such, the Company is still evaluating the impact that the adoption of ASU 2018-02 will have on the condensed consolidated financial statements.

In August 2018, the FASB issued ASU 2018-13, *Disclosure Framework - Changes to the Disclosure Requirements for Fair Value Measurement*, which improves fair value disclosure requirements by removing disclosures that are not cost beneficial, clarifying disclosures' specific requirements and adding relevant disclosure requirements. This ASU is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019. The amendments on changes in unrealized gains and losses, the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements, and the narrative description of measurement uncertainty should be applied prospectively for only the most recent interim or annual period presented in the initial fiscal year of adoption. All other amendments should be applied retrospectively to all periods presented upon their effective date. Early adoption is permitted and an entity can choose to early adopt any removed or modified disclosures upon issuance of this ASU and delay adoption of the additional disclosures until their effective date. The Company is still evaluating the impact that the adoption of ASU 2018-13 will have on the condensed consolidated financial statements and has not yet decided whether or not to early adopt the amendments.

In August 2018, the FASB issued ASU 2018-14, *Disclosure Framework - Changes to the Disclosure Requirements for Defined Benefit Plans*, which improves defined benefit disclosure requirements by removing disclosures that are not cost beneficial, clarifying disclosures' specific requirements and adding relevant disclosure requirements. This ASU is effective for fiscal years ending after December 15, 2020 and early adoption is permitted. The amendments in this ASU are required to be applied on a retrospective basis to all periods presented. The Company is still evaluating the impact that the adoption of ASU 2018-14 will have on the condensed consolidated financial statements and has not yet decided whether or not to early adopt the amendments.

In August 2018, the FASB issued ASU 2018-15, *Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract*, which will now allow all cloud computing arrangements classified as service contracts to capitalize certain implementation costs in accordance with ASC 350-40, *Intangibles - Goodwill and Other - Internal-Use Software*, depending on the project stage within which the costs were incurred. This ASU is effective for fiscal years beginning after December 15, 2019 and interim periods within those fiscal periods. Early adoption of the amendments in this ASU is permitted, including adoption in any interim period and the amendments can be applied either retrospectively or prospectively. The Company has adopted this ASU prospectively for all implementation costs incurred related to cloud computing arrangements and the implementation did not have a material impact on our unaudited condensed consolidated financial statements.

Note 3—Significant Accounting Policies Update

Revenue Recognition—We generate revenue primarily from manufacturing and selling a comprehensive line of safety products to protect the health and safety of workers and facility infrastructures around the world in the oil, gas and petrochemical, fire service, construction, utilities and mining industries. Our core safety products include fixed gas and flame detection instruments, breathing apparatus where SCBA is the principal product, portable gas detection instruments, industrial head protection products, firefighter helmets & protective apparel and fall protection devices. Our customers generally fall into two categories: distributors and industrial or military end-users. In our Americas segment, approximately 75% to 85% of our sales are made through distributors. In our International segment, approximately 55% to 65% of our sales are made through distributors. The underlying principles of revenue recognition are identical for both categories of customers and revenue is generally recognized at a point in time as described below.

We account for revenue in accordance with ASC Topic 606, *Revenue from Contracts with Customers*, which we adopted on January 1, 2018, using the modified retrospective method. Revenue from the sale of products is recognized when there is persuasive evidence of an arrangement and control passes to the customer, which generally occurs either when product is shipped to the customer or, in the case of most U.S. distributor customers, when product is delivered to the distributor's delivery site. We establish our shipping terms according to local practice and market characteristics. We do not ship product unless we have an order or other documentation authorizing shipment to our customers. Our payment terms vary by the type and location of our customer and the products offered. The term between invoicing and when payment is due is not significant.

Refer to Note 9—Segment Information for disaggregation of revenue by segment and product group, as we believe this best depicts how the nature, amount, timing and uncertainty of our revenue and cash flows are affected by economic factors.

Revenue is measured as the amount of consideration we expect to receive in exchange for transferring goods or providing services. Amounts billed and due from our customers are classified as receivables on the consolidated balance sheet. We make appropriate provisions for uncollectible accounts receivable which have historically been insignificant in relation to our net sales. Certain contracts with customers, primarily distributor customers, have an element of variable consideration that is estimated when revenue is recognized under the contract to the extent that it is material to the individual contract. Variable consideration includes volume incentive rebates, performance guarantees, price concessions and returns. Rebates are based on achieving a certain level of purchases and other performance criteria that are documented in established distributor programs. These rebates are estimated based on projected sales to the customer and accrued as a reduction of net sales as they are earned by the customer. The rebate accrual is reviewed monthly and adjustments are made as the estimate of projected sales changes. Product returns, including an adjustment for restocking fees if it is material, are estimated based on historical return experience and revenue is adjusted. Sales, value add and other taxes collected with revenue-producing activities and remitted to governmental authorities are excluded from revenue.

Depending on the terms of the arrangement, we may defer revenue for which we have a future obligation, including training and extended warranty and technical services, until such time that the obligation has been satisfied. We use an observable price, or a cost plus margin approach when one is not available, to determine the stand-alone selling price for separate performance obligations. We have elected to recognize the cost for freight and shipping as an expense when control of the product has passed to the customer. These costs are included within the Cost of Products Sold line on the Condensed Consolidated Statement of Income.

We typically receive interim milestone payments under certain contracts, including our fixed gas and flame detection projects, as work progresses. For some of these contracts, we may be entitled to receive an advance payment. Revenue for these contracts is generally recognized as control passes to the customer, which is a point in time upon shipment of the product, and if applicable, acceptance by the customer. We recognize a liability for these advance payments in excess of revenue recognized and present it as contract liabilities on the condensed consolidated balance sheet. The advance payment is typically not considered a significant financing component because it is used to meet working capital demands that can be higher in the early stages of a contract and to protect us from the other party failing to adequately complete some or all of its obligations under the contract. In some cases, the customer retains a small portion of the contract price, typically 10%, until completion of the contract, which we present as contract assets on the condensed consolidated balance sheet. Accordingly, during the period of contract performance, billings and costs are accumulated on the condensed consolidated balance sheet as contract assets or contract liabilities, but no income is recognized until completion of the project and control has passed to the customer. As of September 30, 2018, there were no material contract assets or contract liabilities recorded on the Condensed Consolidated Balance Sheet.

Practical Expedients and Exemptions

We do not disclose the value of unsatisfied performance obligations for (i) contracts with an original expected length of one year or less and (ii) contracts for which we recognize revenue at the amount to which we have the right to invoice for services performed.

We do not assess whether a contract has a significant financing component if the expectation at contract inception is such that the period between payment by the customer and the transfer of the promised goods or services to the customer will be one year or less.

We generally expense sales commissions when incurred because the amortization period would have been one year or less. These costs are recorded within selling, general and administrative expenses in our Condensed Consolidated Statement of Income.

Investment securities—The Company’s investment securities, primarily fixed income, are classified as available for sale. The securities are recorded at fair market value and reported in “Investments, short-term” in the accompanying Condensed Consolidated Balance Sheet with changes in fair market value recorded in other comprehensive income, net of tax. The purchases and sales of these investments are classified as investing activities in the Condensed Consolidated Statement of Cash Flows.

Note 4—Inventories

The following table sets forth the components of inventory:

(In thousands)	September 30, 2018	December 31, 2017
Finished products	\$ 81,612	\$ 66,064
Work in process	8,783	10,141
Raw materials and supplies	134,288	117,388
Inventories at current cost	224,683	193,593
Less: LIFO valuation	(40,854)	(39,854)
Total inventories	\$ 183,829	\$ 153,739

Note 5—Restructuring Charges

During the three and nine months ended September 30, 2018, we recorded restructuring charges, net of adjustments, of \$2.6 million and \$10.2 million, respectively. Americas segment restructuring charges of \$2.0 million during the nine months ended September 30, 2018, were related to severance costs for staff reductions in our Northern North America and Latin America Regions. International segment restructuring charges of \$3.5 million during the nine months ended September 30, 2018, were primarily related to severance costs for staff reductions associated with our ongoing initiatives to drive profitable growth in Europe. Corporate segment restructuring charges of \$4.7 million during the nine months ended September 30, 2018, related primarily to the legal and operational realignment of our U.S. and Canadian operations.

During the three and nine months ended September 30, 2017, we recorded restructuring charges, net of adjustments, of \$3.2 million and \$16.9 million, respectively. Americas segment restructuring charges of \$12.5 million during the nine months ended September 30, 2017, related primarily to a non-cash special termination benefit expense of \$11.4 million for a voluntary retirement incentive package (“VRIP”) as well as severance from staff reductions in Brazil. All benefits for the VRIP were paid from our over funded North America pension plan. International segment restructuring charges of \$4.4 million during the nine months ended September 30, 2017, were related to severance costs for staff reductions associated with our ongoing initiatives to drive profitable growth in Europe and right size our operations in Australia and Africa.

Activity and reserve balances for restructuring charges by segment were as follows:

(In millions)	Americas	International	Corporate	Total
Reserve balances at December 31, 2016	\$ 0.9	\$ 2.8	\$ 0.3	\$ 4.0
Restructuring charges	13.0	4.9	—	17.9
Currency translation and other adjustments	(0.2)	(0.1)	—	(0.3)
Cash payments / utilization	(13.2)	(4.0)	(0.3)	(17.5)
Reserve balances at December 31, 2017	\$ 0.5	\$ 3.6	\$ —	\$ 4.1
Restructuring charges	2.0	3.5	4.7	10.2
Currency translation and other adjustments	(0.3)	(0.4)	—	(0.7)
Cash payments	(1.4)	(2.9)	(4.5)	(8.8)
Reserve balances at September 30, 2018	\$ 0.8	\$ 3.8	\$ 0.2	\$ 4.8

Note 6—Property, Plant and Equipment

The following table sets forth the components of property, plant and equipment:

(In thousands)	September 30, 2018	December 31, 2017
Land	\$ 3,218	\$ 3,312
Buildings	117,877	119,970
Machinery and equipment	384,146	379,747
Construction in progress	14,878	12,036
Total	520,119	515,065
Less: accumulated depreciation	(369,550)	(358,051)
Net property, plant and equipment	\$ 150,569	\$ 157,014

Note 7—Reclassifications Out of Accumulated Other Comprehensive Loss

Changes in accumulated other comprehensive loss were as follows:

(In thousands)	MSA Safety Incorporated		Noncontrolling Interests	
	Three Months Ended September 30,		Three Months Ended September 30,	
	2018	2017	2018	2017
Pension and other post-retirement benefits ^(a)				
Balance at beginning of period	\$ (92,560)	\$ (113,927)	\$ —	\$ —
Amounts reclassified from Accumulated other comprehensive loss:				
Amortization of prior service cost	(105)	(10)	—	—
Recognized net actuarial losses	3,642	3,199	—	—
Tax benefit	(886)	(1,009)	—	—
Total amount reclassified from Accumulated other comprehensive loss, net of tax	2,651	2,180	—	—
Balance at end of period	\$ (89,909)	\$ (111,747)	\$ —	\$ —
Foreign Currency Translation				
Balance at beginning of period	\$ (88,965)	\$ (85,848)	\$ 698	\$ (3,427)
Foreign currency translation adjustments	(4,561)	5,892	(194)	4,129
Balance at end of period	\$ (93,526)	\$ (79,956)	\$ 504	\$ 702

^(a) Reclassifications out of accumulated other comprehensive loss and into net income are included in the computation of net periodic pension and other post-retirement benefit costs (refer to Note 16—Pensions and Other Post-retirement Benefits).

(In thousands)	MSA Safety Incorporated		Noncontrolling Interests	
	Nine Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Pension and other post-retirement benefits ^(a)				
Balance at beginning of period	\$ (97,948)	\$ (118,068)	\$ —	\$ —
Amounts reclassified from accumulated other comprehensive loss:				
Amortization of prior service cost	(319)	(228)	—	—
Recognized net actuarial losses	10,924	9,601	—	—
Tax benefit	(2,566)	(3,052)	—	—
Total amount reclassified from accumulated other comprehensive loss, net of tax	8,039	6,321	—	—
Balance at end of period	\$ (89,909)	\$ (111,747)	\$ —	\$ —
Foreign Currency Translation				
Balance at beginning of period	\$ (73,814)	\$ (112,178)	\$ 801	\$ (1,964)
Reclassification from accumulated other comprehensive loss into net income	(774)	—	—	—
Foreign currency translation adjustments	(18,938)	32,222	(297)	2,666
Balance at end of period	\$ (93,526)	\$ (79,956)	\$ 504	\$ 702

^(a) Reclassifications out of accumulated other comprehensive loss and into net income are included in the computation of net periodic pension and other post-retirement benefit costs (refer to Note 16—Pensions and Other Post-retirement Benefits).

Note 8—Capital Stock

Preferred Stock - The Company has authorized 100,000 shares of \$50 par value 4.5% cumulative preferred nonvoting stock which is callable at \$52.50. There are 71,340 shares issued and 52,878 shares held in treasury at September 30, 2018. There were no treasury purchases of preferred stock during the nine months ended September 30, 2018 or 2017. The Company has also authorized 1,000,000 shares of \$10 par value second cumulative preferred voting stock. No shares have been issued as of September 30, 2018.

Common Stock - The Company has authorized 180,000,000 shares of no par value common stock. There were 62,081,391 shares issued as of December 31, 2017. No new shares have been issued in 2018. There were 38,464,650 and 38,222,928 shares outstanding at September 30, 2018, and December 31, 2017, respectively.

Treasury Shares - On May 12, 2015, the Board of Directors adopted a stock repurchase program replacing the existing program. The program authorizes up to \$100.0 million to repurchase MSA common stock in the open market and in private transactions. The share purchase program has no expiration date. The maximum number of shares that may be purchased is calculated based on the dollars remaining under the program and the respective month-end closing share price. No shares were repurchased during the nine months ended September 30, 2018 or 2017. We do not have any other share repurchase programs. There were 23,616,741 and 23,858,463 Treasury Shares at September 30, 2018, and December 31, 2017, respectively.

The Company issues Treasury Shares for all share based benefit plans. Shares are issued from Treasury at the average Treasury Share cost on the date of the transaction. There were 290,659 and 526,890 Treasury Shares issued for these purposes during the nine months ended September 30, 2018 and 2017, respectively.

Note 9—Segment Information

We are organized into seven geographic operating segments based on management responsibilities. The operating segments have been aggregated (based on economic similarities, the nature of their products, end-user markets and methods of distribution) into three reportable segments: Americas, International, and Corporate.

The Americas segment is comprised of our operations in North America and Latin America geographies. The International segment is comprised of our operations of all geographies outside of the Americas. Certain global expenses are allocated to each segment in a manner consistent with where the benefits from the expenses are derived.

The Company's sales are allocated to each country based primarily on the destination of the end-customer.

Adjusted operating income (loss) and adjusted operating margin are the measures used by the chief operating decision maker to evaluate segment performance and allocate resources. Adjusted operating income (loss) is defined as operating income excluding restructuring charges, currency exchange gains/losses, other operating expense and strategic transaction costs. Adjusted operating margin is defined as adjusted operating income (loss) divided by segment sales to external customers. Adjusted operating income (loss) and adjusted operating margin are not recognized terms under U.S. GAAP and therefore do not purport to be alternatives to operating income or operating margin as a measure of operating performance. Further, the Company's measure of adjusted operating income (loss) and adjusted operating margin may not be comparable to similarly titled measures of other companies. Adjusted operating income (loss) on a consolidated basis is presented in the following table to reconcile the segment operating performance measure to operating income as presented on the Condensed Consolidated Statement of Income.

The accounting principles applied at the operating segment level in determining operating income (loss) are generally the same as those applied at the consolidated financial statement level. Sales and transfers between operating segments are accounted for at market-based transaction prices and are eliminated in consolidation.

Reportable segment information is presented in the following table:

(In thousands)	Americas	International	Corporate	Reconciling Items ¹	Consolidated Totals
Three Months Ended September 30, 2018					
Sales to external customers	\$ 209,343	\$ 121,753	\$ —	\$ —	\$ 331,096
Intercompany sales	33,877	82,852	—	(116,729)	—
Operating income					40,003
Restructuring charges (Note 5)					2,615
Currency exchange gains, net					(252)
Other operating expense (Note 19)					14,627
Strategic transaction costs (Note 15)					56
Adjusted operating income (loss)	51,532	13,329	(7,812)	—	57,049
Adjusted operating margin %	24.6%	10.9%			
Nine Months Ended September 30, 2018					
Sales to external customers	\$ 633,812	\$ 362,508	\$ —	\$ —	\$ 996,320
Intercompany sales	104,520	249,745	—	(354,265)	—
Operating income					131,235
Restructuring charges (Note 5)					10,223
Currency exchange losses, net					2,571
Other operating expense (Note 19)					25,469
Strategic transaction costs (Note 15)					208
Adjusted operating income (loss)	151,456	41,960	(23,710)	—	169,706
Adjusted operating margin %	23.9%	11.6%			

(In thousands)	Americas	International	Corporate	Reconciling Items ¹	Consolidated Totals
Three Months Ended September 30, 2017					
Sales to external customers	\$ 186,898	\$ 109,231	\$ —	\$ —	\$ 296,129
Intercompany sales	31,451	72,496	—	(103,947)	—
Operating income					39,878
Restructuring charges (Note 5)					3,214
Currency exchange losses, net					562
Other operating expense (Note 19)					3,346
Strategic transaction costs (Note 15)					386
Adjusted operating income (loss)	45,365	10,229	(8,208)	—	47,386
Adjusted operating margin %	24.3%	9.4%			
Nine Months Ended September 30, 2017					
Sales to external customers	\$ 528,426	\$ 322,243	\$ —	\$ —	\$ 850,669
Intercompany sales	93,904	218,267	—	(312,171)	—
Operating income					71,996
Restructuring charges (Note 5)					16,920
Currency exchange losses, net					3,994
Other operating expense (Note 19)					32,956
Strategic transaction costs (Note 15)					3,365
Adjusted operating income (loss)	125,087	30,146	(26,002)	—	129,231
Adjusted operating margin %	23.7%	9.4%			

¹Reconciling items consist primarily of intercompany eliminations and items not directly attributable to reporting segments.

Total sales by product group was as follows:

(In thousands)	Americas		International		Consolidated	
	Dollars	Percent	Dollars	Percent	Dollars	Percent
Three Months Ended September 30, 2018						
Breathing Apparatus	\$ 50,282	24%	\$ 30,142	25%	\$ 80,424	24%
Fixed Gas & Flame Detection	33,803	16%	31,148	26%	64,951	20%
Firefighter Helmets & Protective Apparel	30,373	15%	5,448	4%	35,821	11%
Industrial Head Protection	28,909	14%	8,029	7%	36,938	11%
Portable Gas Detection	26,755	13%	12,650	10%	39,405	12%
Fall Protection	16,465	8%	11,474	9%	27,939	8%
Other	22,756	10%	22,862	19%	45,618	14%
Total	\$ 209,343	100%	\$ 121,753	100%	\$ 331,096	100%
Nine Months Ended September 30, 2018						
Breathing Apparatus	\$ 146,293	23%	\$ 84,031	23%	\$ 230,324	23%
Firefighter Helmets & Protective Apparel	102,906	16%	24,075	7%	126,981	13%
Fixed Gas & Flame Detection	99,459	16%	90,023	25%	189,482	19%
Industrial Head Protection	87,901	14%	23,631	7%	111,532	11%
Portable Gas Detection	82,654	13%	40,285	11%	122,939	12%
Fall Protection	45,668	7%	34,028	9%	79,696	8%
Other	68,931	11%	66,435	18%	135,366	14%
Total	\$ 633,812	100%	\$ 362,508	100%	\$ 996,320	100%

Three Months Ended September 30, 2017 (In thousands)	Americas		International		Consolidated	
	Dollars	Percent	Dollars	Percent	Dollars	Percent
Breathing Apparatus	\$ 40,876	22%	\$ 25,299	23%	\$ 66,175	22%
Fixed Gas & Flame Detection	32,409	17%	28,985	27%	61,394	21%
Firefighter Helmets & Protective Apparel	25,345	14%	6,622	6%	31,967	11%
Portable Gas Detection	23,786	13%	11,710	11%	35,496	12%
Industrial Head Protection	27,539	15%	7,059	6%	34,598	12%
Fall Protection	13,727	7%	11,003	10%	24,730	8%
Other	23,216	12%	18,553	17%	41,769	14%
Total	\$ 186,898	100%	\$ 109,231	100%	\$ 296,129	100%

Nine Months Ended September 30, 2017 (In thousands)	Americas		International		Consolidated	
	Dollars	Percent	Dollars	Percent	Dollars	Percent
Breathing Apparatus	\$ 134,835	26%	\$ 69,978	22%	\$ 204,813	24%
Fixed Gas & Flame Detection	91,048	17%	81,302	25%	172,350	20%
Firefighter Helmets & Protective Apparel	37,123	7%	23,311	7%	60,434	7%
Portable Gas Detection	73,469	14%	35,547	11%	109,016	13%
Industrial Head Protection	80,503	15%	20,968	7%	101,471	12%
Fall Protection	39,217	7%	32,968	10%	72,185	8%
Other	72,231	14%	58,169	18%	130,400	16%
Total	\$ 528,426	100%	\$ 322,243	100%	\$ 850,669	100%

Note 10—Earnings per Share

Basic earnings per share attributable to MSA Safety Incorporated common shareholders is computed by dividing net income, after the deduction of preferred stock dividends and undistributed earnings allocated to participating securities, by the weighted average number of common shares outstanding during the period. Diluted earnings per share attributable to MSA Safety Incorporated common shareholders assumes the issuance of common stock for all potentially dilutive share equivalents outstanding not classified as participating securities. Participating securities are defined as unvested stock-based payment awards that contain nonforfeitable rights to dividends.

Amounts attributable to MSA Safety Incorporated common shareholders: (In thousands, except per share amounts)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Net income	\$ 33,717	\$ 32,066	\$ 99,267	\$ 59,011
Preferred stock dividends	(10)	(10)	(30)	(30)
Net income available to common equity	33,707	32,056	99,237	58,981
Dividends and undistributed earnings allocated to participating securities	(32)	(36)	(94)	(62)
Net income available to common shareholders	33,675	32,020	99,143	58,919
Basic weighted-average shares outstanding	38,417	38,074	38,328	37,970
Stock options and other stock compensation	619	628	586	722
Diluted weighted-average shares outstanding	39,036	38,702	38,914	38,692
Antidilutive stock options	—	—	—	—
Earnings per share:				
Basic	\$ 0.88	\$ 0.84	\$ 2.59	\$ 1.55
Diluted	\$ 0.86	\$ 0.83	\$ 2.55	\$ 1.52

Note 11—Income Taxes

The Tax Cuts and Jobs Act of 2017 ("the Act"), which was signed into law on December 22, 2017, has resulted in significant changes to the U.S. corporate income tax system including reducing the U.S. corporate rate to 21% starting in 2018. The Act also creates a territorial tax system with a one-time mandatory tax on previously deferred foreign earnings of U.S. subsidiaries.

On December 22, 2017, SAB 118 was issued to address the application of U.S. GAAP in situations when a registrant does not have the necessary information available, prepared or analyzed in reasonable detail to complete the accounting for certain income tax effects of the Act. In accordance with SAB 118, the Company calculated its best estimate of the impact of the Act and recorded income tax expense of \$19.8 million during the fourth quarter of 2017, the period in which the legislation was enacted. Of this amount, \$18.0 million related to the one-time transition tax and the remaining \$1.8 million was related to the revaluation of U.S. deferred tax assets and liabilities. In addition, deferred taxes have been recorded on the outside basis differences of non-U.S. subsidiaries in the amount of \$7.8 million, fully offset by foreign tax credits. During the third quarter of 2018, we reduced our estimate for the one-time transition tax by \$2 million for updated regulations related to the Act. Changes to applicable tax law, regulations or interpretations of the Act may require further adjustments and changes in our estimates. The final determination of the transition tax and the revaluation of U.S. deferred assets and liabilities will be completed as additional information becomes available, but no later than one year from the enactment of the Act.

During the third quarter of 2018, the Company recorded \$5.1 million of foreign taxes related to the legal and operational realignment of our U.S. and Canadian operations. These taxes are expected to be fully offset by foreign tax credits.

The Company's effective tax rate for the third quarter of 2018 was 11.0% and differs from the U.S. federal statutory rate of 21% primarily due to benefits associated with the reduction in the one-time transition tax as discussed above, additional manufacturing deduction benefits and certain share-based payments related to the application of ASU 2016-09. The Company's effective tax rate for the third quarter of 2017 was 14.4% and differs from the U.S. federal statutory rate of 35% primarily due to a benefit of approximately 6.6% associated with the reduction of exit taxes related to our European reorganization, additional manufacturing deduction benefits and the release of valuation allowance on foreign losses.

The Company's effective tax rate for the nine months ended September 30, 2018, was 19.1% and differs from the U.S. federal statutory rate of 21% primarily due to tax benefits associated with the reduction in the one-time transition tax as discussed above, additional manufacturing benefits and certain share-based payments related to the application of ASU 2016-09 partially offset by increased profitability in less favorable tax jurisdictions and higher foreign entity losses in jurisdictions where we cannot take tax benefits. The Company's effective tax rate for the nine months ended September 30, 2017, was 9.6% which differs from the U.S. federal statutory rate of 35% primarily due to a significant tax benefit of approximately 10.5% related to certain share-based payments related to the application of ASU 2016-09 as well as a 3.8% associated with the reduction of exit taxes related to our European reorganization, additional manufacturing deduction benefits and the release of a valuation allowance on foreign losses.

At September 30, 2018, the Company had a gross liability for unrecognized tax benefits of \$14.5 million. The Company has recognized tax benefits associated with these liabilities of \$5.2 million at September 30, 2018. The gross liability includes amounts associated with prior period foreign tax exposure.

The Company recognizes interest related to unrecognized tax benefits in interest expense and penalties in operating expenses. The Company's liability for accrued interest related to uncertain tax positions was \$3.0 million at September 30, 2018.

Note 12—Stock Plans

The 2016 Management Equity Incentive Plan provides for various forms of stock-based compensation for eligible key employees through May 2026. Management stock-based compensation includes stock options, restricted stock, restricted stock units and performance stock units. The 2017 Non-Employee Directors' Equity Incentive Plan provides for grants of stock options and restricted stock to non-employee directors through May 2027. We issue treasury shares for stock option exercises, and grants of restricted stock and performance stock. Please refer to Note 8—Capital Stock for further information regarding stock compensation share issuance.

Stock compensation expense is as follows:

(In thousands)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Stock compensation expense	\$ 1,904	\$ 1,435	\$ 9,595	\$ 9,668
Income tax benefit	463	543	2,332	3,650
Stock compensation expense, net of income tax benefit	\$ 1,441	\$ 892	\$ 7,263	\$ 6,018

A summary of stock option activity for the nine months ended September 30, 2018, follows:

	Shares	Weighted Average Exercise Price
Outstanding at January 1, 2018	955,446	\$ 42.75
Exercised	(160,617)	38.31
Forfeited	(4,721)	44.50
Outstanding at September 30, 2018	790,108	43.66
Exercisable at September 30, 2018	692,773	\$ 43.55

Restricted stock and restricted stock units are valued at the market value of the stock on the grant date. A summary of restricted stock and unit activity for the nine months ended September 30, 2018, follows:

	Shares	Weighted Average Grant Date Fair Value
Unvested at January 1, 2018	227,161	\$ 57.50
Granted	73,062	87.00
Vested	(88,298)	58.18
Forfeited	(4,661)	58.94
Unvested at September 30, 2018	207,264	\$ 68.76

Performance stock units have a market condition modifier and are valued at an estimated fair value using the Monte Carlo model. The final number of shares to be issued for performance stock units granted in the first quarter of 2018 may range from 0% to 200% of the target award based on achieving the specified performance targets over the performance period. The following weighted average assumptions were used in the Monte Carlo model for units granted in the first quarter of 2018 with a market condition modifier.

Fair value per unit	\$83.58
Risk-free interest rate	2.36%
Expected dividend yield	1.82%
Expected volatility	28.3%
MSA stock beta	1.240

The risk-free interest rate is based on the U.S. Treasury Constant Maturity rates as of the grant date converted into an implied spot rate yield curve. Expected dividend yield is based on the most recent annualized dividend divided by the one year average closing share price. Expected volatility is based on the ten year historical volatility using daily stock prices. Expected life is based on historical stock option exercise data.

A summary of performance stock unit activity for the nine months ended September 30, 2018, follows:

	Shares	Weighted Average Grant Date Fair Value
Unvested at January 1, 2018	242,186	\$ 55.06
Granted	62,775	84.79
Performance adjustments	(3,356)	44.61
Vested	(41,660)	40.23
Forfeited	(8,659)	44.53
Unvested at September 30, 2018	251,286	\$ 65.45

The performance adjustments above relate to the final number of shares issued for the 2015 Management Performance Units, which were 93.6% of the target award based on Total Shareholder Return during the three year performance period, and vested in the first quarter of 2018.

Note 13—Long-Term Debt

(In thousands)	September 30, 2018	December 31, 2017
2006 Senior Notes payable through 2021, 5.41%, net of debt issuance costs	\$ —	\$ 26,667
2010 Senior Notes payable through 2021, 4.00%, net of debt issuance costs	80,000	80,000
2016 Senior Notes payable through 2031, 3.40%, net of debt issuance costs	71,422	74,139
Senior revolving credit facility maturing in 2023, net of debt issuance costs	238,773	293,693
Total	390,195	474,499
Amounts due within one year, net of debt issuance costs	20,000	26,667
Long-term debt, net of debt issuance costs	\$ 370,195	\$ 447,832

On September 7, 2018, the Company entered into an Amended and Restated Credit Agreement associated with our senior revolving credit facility which extended the term of the revolving credit facility through September 2023 and increased the capacity to \$600.0 million. Under this 2018 Amended and Restated Credit Agreement, the Company may elect either a Base rate of interest (“BASE”) or an interest rate based on the London Interbank Offered Rate (“LIBOR”). The BASE is a daily fluctuating per annum rate equal to the highest of (i) 0.00%, (ii) the Prime Rate, (ii) the Federal Funds Open Rate plus one half of one percent (0.5%), (iii) the Overnight Bank Funding Rate, plus one half of one percent (0.50%), or (iv) the Daily Libor Rate plus one percent (1.00%). The Company pays a credit spread of 0 to 175 basis points based on the Company’s net EBITDA leverage ratio and elected rate (BASE or LIBOR). The Company has a weighted average revolver interest rate of 3.33% as of September 30, 2018. At September 30, 2018, \$341.7 million of the existing \$600.0 million senior revolving credit facility was unused, including letters of credit.

On January 22, 2016, the Company entered into a multi-currency note purchase and private shelf agreement, pursuant to which MSA issued notes in an aggregate original principal amount of £54.9 million (approximately \$71.5 million at September 30, 2018). The notes are repayable in annual installments of £6.1 million (approximately \$7.9 million at September 30, 2018), commencing January 22, 2023, with a final payment of any remaining amount outstanding on January 22, 2031. The interest rate on these notes is fixed at 3.4%. On September 7, 2018, the Company entered into an Amended and Restated agreement associated with this multi-currency note purchase and private shelf agreement dated January 22, 2016. Under this 2018 Second Amended and Restated Multi-Currency Note Purchase and Private Shelf Agreement, the Company may request from time to time during a three-year period ending September 7, 2021, the issuance of up to \$150 million of additional senior notes. The amended note purchase agreement requires MSA to comply with specified financial covenants, including a requirement to maintain a minimum fixed charges coverage ratio of not less than 1.50 to 1.00 and a consolidated leverage ratio not to exceed 3.50 to 1.00; in each case calculated on the basis of the trailing four fiscal quarters. In addition, the amended note purchase agreement contains negative covenants limiting the ability of MSA and its subsidiaries to incur additional indebtedness or issue guarantees, create or incur liens, make loans and investments, make acquisitions, transfer or sell assets, enter into transactions with affiliated parties, make changes in its organizational documents that are materially adverse to lenders or modify the nature of MSA's or its subsidiaries' business.

On August 24, 2018, we repaid our 5.41% 2006 Senior Notes. In connection with the payoff of these notes, MSA recognized a loss on extinguishment of debt of \$1.5 million which was recorded in loss on extinguishment of debt on our condensed consolidated statement of income.

The revolving credit facilities and note purchase agreements require the Company to comply with specified financial covenants. In addition, the credit facilities and the note purchase agreements contain negative covenants limiting the ability of the Company and its subsidiaries to enter into specified transactions. The Company was in compliance with all covenants at September 30, 2018.

The Company had outstanding bank guarantees and standby letters of credit with banks as of September 30, 2018, totaling \$11.1 million, of which \$3.0 million relate to the senior revolving credit facility. The letters of credit serve to cover customer requirements in connection with certain sales orders and insurance companies. The full amount of the letters of credit remains unused and available at of September 30, 2018. The Company is also required to provide cash collateral in connection with certain arrangements. At September 30, 2018, the Company has \$0.4 million of restricted cash in support of these arrangements.

Note 14—Goodwill and Intangible Assets

Changes in goodwill during the nine months ended September 30, 2018 are as follows:

(In thousands)	<u>Goodwill</u>
Balance at January 1, 2018	\$ 422,185
Disposals	(525)
Currency translation	(4,881)
Balance at September 30, 2018	<u>\$ 416,779</u>

At September 30, 2018, the Company had goodwill of \$273.3 million and \$143.5 million related to the Americas and International reportable segments, respectively.

Changes in intangible assets, net of accumulated amortization during the nine months ended September 30, 2018, are as follows:

(In thousands)	<u>Intangible Assets</u>
Net balance at January 1, 2018	\$ 183,088
Amortization expense	(7,916)
Currency translation	(1,855)
Net balance at September 30, 2018	<u>\$ 173,317</u>

At September 30, 2018, the Company had a trade name with an indefinite life totaling \$60.0 million related to the acquisition of Globe Holding Company, LLC. Refer to Note 15—Acquisitions for additional information.

Note 15—Acquisitions

Acquisition of Globe Holding Company, LLC

On July 31, 2017, we acquired 100% of the common stock in Globe Holding Company, LLC ("Globe") in an all-cash transaction valued at \$215 million plus a working capital adjustment of \$1.4 million. There is no contingent consideration.

Based in Pittsfield, NH, Globe is a leading innovator and provider of firefighter protective clothing and boots. This acquisition aligns with our corporate strategy in that it strengthens our leading position in the North American fire service market. The transaction was funded through borrowings on our unsecured senior revolving credit facility.

Globe operating results are included in our consolidated financial statements from the acquisition date as part of the Americas reportable segment. The acquisition qualifies as a business combination and will be accounted for using the acquisition method of accounting.

We finalized the purchase price allocation as of June 30, 2018. The following table summarizes the fair values of the Globe assets acquired and liabilities assumed at the date of acquisition:

(In millions)	July 31, 2017
Current assets (including cash of \$58 thousand)	\$ 28.6
Property, plant and equipment and other noncurrent assets	8.3
Trade name	60.0
Distributor relationships	40.2
Acquired technology and other intangible assets	10.5
Goodwill	74.5
Total assets acquired	222.1
Total liabilities assumed	5.7
Net assets acquired	\$ 216.4

Assets acquired and liabilities assumed in connection with the acquisition have been recorded at their fair values. Fair values were determined by management, based, in part on an independent valuation performed by a third party valuation specialist. The valuation methods used to determine the fair value of intangible assets included the relief from royalty method for trade name and technology related intangible assets; the excess earnings approach for distributor relationships using distributor inputs and contributory charges; and the cost method for assembled workforce which is included in goodwill. A number of significant assumptions and estimates were involved in the application of these valuation methods, including sales volumes and prices, royalty rates, costs to produce, tax rates, capital spending, discount rates, and working capital changes. Cash flow forecasts were generally based on Globe pre-acquisition forecasts coupled with estimated MSA sales synergies. Identifiable intangible assets with finite lives are subject to amortization over their estimated useful lives. The distributor relationships acquired in the Globe transaction will be amortized over a period of 20 years and the remaining identifiable assets will be amortized over 5 years. The trade name was determined to have an indefinite useful life. We will perform an impairment assessment annually on the trade name, or sooner if there is a triggering event. Additionally, as part of each impairment assessment, we will reassess whether the asset continues to have an indefinite life or whether it should be reassessed with a finite life. Estimated future amortization expense related to the identifiable intangible assets is approximately \$1 million for the remainder of 2018, \$4.1 million in each of the next three years 2019 through 2021 and \$3.2 million in 2022. Estimated future depreciation expense related to Globe property, plant and equipment is approximately \$0.3 million for the remainder of 2018 and \$1.0 million in each of the next four years.

Goodwill is calculated as the excess of the purchase price over the fair value of net assets acquired and represents the future economic benefits arising from other assets acquired that could not be individually identified and separately recognized. Among the factors that contributed to a purchase price in excess of the fair value of the net tangible and intangible assets acquired were the acquisition of an assembled workforce, the expected synergies and other benefits that we believe will result from combining the operations of Globe with our operations. Goodwill of \$74.5 million related to the Globe acquisition has been recorded in the Americas reportable segment and is deductible for tax purposes.

Our results for the nine months ended September 30, 2018, include strategic transaction costs of \$0.2 million, including an insignificant amount of transaction and integration costs related to the acquisition of Globe Holding Company LLC. Our results for the nine months ended September 30, 2017, include strategic transaction costs of \$3.4 million. These costs are reported in selling, general and administrative expenses.

The operating results of the Globe acquisition have been included in our consolidated financial statements from the acquisition date through September 30, 2018. Our results for the nine months ended September 30, 2018, include Globe sales and net income of \$86.6 million and \$9.7 million, respectively.

The following unaudited pro forma information presents our combined results as if the Globe acquisition had occurred at the beginning of 2017. The unaudited pro forma financial information was prepared to give effect to events that are (1) directly attributable to the acquisition; (2) factually supportable; and (3) expected to have a continuing impact on the combined company's results. There were no material transactions between MSA and Globe during the periods presented that are required to be eliminated. Intercompany transactions between Globe companies during the periods presented have been eliminated in the unaudited pro forma condensed combined financial information. The unaudited pro forma condensed combined financial information does not reflect any cost savings, operating synergies or revenue enhancements that the combined companies may achieve as a result of the acquisitions or the costs to integrate the operations or the costs necessary to achieve cost savings, operating synergies or revenue enhancements.

Pro forma condensed combined financial information (Unaudited)

(In millions, except per share amounts)	Three Months Ended September 30, 2017	Nine Months Ended September 30, 2017
Net sales	\$ 305	\$ 915
Net income	\$ 32	\$ 67
Basic earnings per share	\$ 0.83	\$ 1.77
Diluted earnings per share	\$ 0.81	\$ 1.74

The unaudited pro forma condensed combined financial information is presented for information purposes only and is not intended to represent or be indicative of the combined results of operations or financial position that we would have reported had the acquisitions been completed as of the date and for the period presented, and should not be taken as representative of our consolidated results of operations or financial condition following the acquisitions. In addition, the unaudited proforma condensed combined financial information is not intended to project the future financial position or results of operations of the combined company.

The unaudited pro forma condensed combined financial information was prepared using the acquisition method of accounting under existing U.S. GAAP. MSA has been treated as the acquirer.

Note 16—Pensions and Other Post-retirement Benefits

Components of net periodic benefit cost consisted of the following:

(In thousands)	Pension Benefits		Other Benefits	
	2018	2017	2018	2017
Three Months Ended September 30,				
Service cost	\$ 2,891	\$ 2,721	\$ 92	\$ 96
Interest cost	4,218	4,572	199	204
Expected return on plan assets	(9,097)	(8,738)	—	—
Amortization of prior service cost	(4)	(4)	(101)	(6)
Recognized net actuarial losses	3,454	3,184	188	15
Settlements	26	34	—	—
Net periodic benefit cost ^(a)	1,488	1,769	378	309
Nine Months Ended September 30,				
Service cost	\$ 8,673	\$ 8,163	\$ 276	\$ 308
Interest cost	12,656	13,716	595	678
Expected return on plan assets	(27,289)	(26,214)	—	—
Amortization of prior service cost	(16)	(12)	(303)	(216)
Recognized net actuarial losses	10,360	9,552	564	49
Settlement/curtailment loss (credit)	80	102	—	—
Net periodic benefit cost, excluding below	4,464	5,307	1,132	819
Special termination charge	—	11,384 ^(b)	—	—
Net periodic benefit cost ^(a)	4,464	16,691	1,132	819

^(a) Components of net periodic benefit cost other than service cost are included in the line item "Other income, net" in the income statement.

^(b) Represents the charge for special termination benefits related to the VRIP which were paid from our over funded North America pension plan and recorded as restructuring charges on the Condensed Consolidated Statement of Income. See further details in Note 5—Restructuring Charges.

Effective December 31, 2017, the Company changed the method it uses to estimate the service and interest cost components of net periodic benefit cost for pension and other post-retirement benefits for a majority of its U.S. and foreign plans. Historically, the service and interest cost components for these plans were estimated using a single weighted-average discount rate derived from the yield curve used to measure the projected benefit obligation at the beginning of the period. The Company has elected to utilize a spot rate approach, which discounts the individual plan specific expected cash flows underlying the service and interest cost using the applicable spot rates derived from a yield curve used in the determination of the benefit obligation to the relevant projected cash flows. The Company made this change to improve the correlation between projected benefit cash flows and the corresponding yield curve spot rates and to provide a more precise measurement of service and interest costs. This change does not affect the measurement of total benefit obligations. We estimate that service and interest cost for the pension and OPEB plans will be reduced by approximately \$1.8 million in 2018 as a result of this change. The Company has accounted for this change to the spot rate approach as a change in accounting estimate that is inseparable from a change in accounting principle, pursuant to Accounting Standards Codification (ASC) 250, *Accounting Changes and Error Corrections*, and accordingly has accounted for it prospectively. For plans where the discount rate is not derived from plan specific expected cash flows, the Company will continue to employ the current approaches for measuring both the projected benefit obligations and the service and interest cost components of net periodic benefit cost for pension and other post-retirement benefits.

We made contributions of \$3.7 million and \$4.4 million to our pension plans during the nine months ended September 30, 2018 and 2017, respectively. We expect to make total contributions of approximately \$5.0 million to our pension plans in 2018 which are primarily associated with our International segment.

Note 17—Derivative Financial Instruments

As part of our currency exchange rate risk management strategy, we may enter into certain derivative foreign currency forward contracts that do not meet the U.S. GAAP criteria for hedge accounting, but which have the impact of partially offsetting certain foreign currency exposures. We account for these forward contracts at fair value and report the related gains or losses in currency exchange losses (gains) in the Condensed Consolidated Statement of Income. The notional amount of open forward contracts was \$73.0 million and \$124.7 million at September 30, 2018, and December 31, 2017, respectively.

The following table presents the Condensed Consolidated Balance Sheet location and fair value of assets and liabilities associated with derivative financial instruments:

(In thousands)	September 30, 2018	December 31, 2017
Derivatives not designated as hedging instruments:		
Foreign exchange contracts: other current liabilities	\$ 458	\$ 314
Foreign exchange contracts: other current assets	36	840

The following table presents the Condensed Consolidated Statement of Income location and impact of derivative financial instruments:

(In thousands)	Statement of Income Location	Loss (Gain) Recognized in Income	
		Nine Months Ended September 30,	
		2018	2017
Derivatives not designated as hedging instruments:			
Foreign exchange contracts	Currency exchange losses (gains), net	\$ 1,202	\$ (5,780)

Note 18—Fair Value Measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. 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:

- Level 1—Observable inputs that reflect unadjusted quoted prices for identical assets or liabilities in active markets.
- Level 2—Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly.
- Level 3—Unobservable inputs for the asset or liability.

The valuation methodologies we used to measure financial assets and liabilities include the derivative financial instruments described in Note 17—Derivative Financial Instruments. We estimate the fair value of the derivative financial instruments, consisting of foreign currency forward contracts, based upon valuation models with inputs that generally can be verified by observable market conditions and do not involve significant management judgment. Accordingly, the fair values of the derivative financial instruments are classified within Level 2 of the fair value hierarchy.

We value our investments in marketable securities, primarily fixed income, at fair value using quoted market prices for similar securities or pricing models. Accordingly, the fair values of the investments are classified within Level 2 of the fair value hierarchy. The amortized cost basis of our investments was \$57.1 million as of September 30, 2018 and the fair value was \$57.0 million which was reported in "Investments, short-term" in the accompanying Condensed Consolidated Balance Sheet. The change in fair value is recorded in other comprehensive income, net of tax. The Company does not intend to sell, nor is it more likely than not that we will be required to sell, these securities prior to recovery of their cost, as such, management believes that any unrealized gains or losses are temporary; therefore, no impairment gains or losses relating to these securities have been recognized. The Company did not hold any investment securities as of December 31, 2017.

With the exception of fixed rate long-term debt, we believe that the reported carrying amounts of our financial assets and liabilities approximate their fair values. The reported carrying amount of our fixed rate long-term debt (including the current portion) was \$151.4 million and \$180.8 million at September 30, 2018, and December 31, 2017, respectively. The fair value of this debt was \$162.0 million and \$200.0 million at September 30, 2018, and December 31, 2017, respectively. The fair value of this debt was determined using Level 2 inputs by evaluating similarly rated companies with publicly traded bonds where available or current borrowing rates available for financings with similar terms and maturities.

Note 19—Contingencies

Product liability

We face an inherent business risk of exposure to product liability claims arising from the alleged failure of our products to prevent the types of personal injury or death against which they are designed to protect. Product liability claims are categorized as either single incident or cumulative trauma.

Single incident product liability claims. Single incident product liability claims involve incidents of short duration that are typically known when they occur and involve observable injuries, which provide an objective basis for quantifying damages. The Company estimates its liability for single incident product liability claims based on expected settlement costs for asserted single incident product liability claims, and an estimate of costs for single incident product liability claims incurred but not reported ("IBNR"). The estimate for IBNR claims is based on experience, sales volumes, and other relevant information. The reserve for single incident product liability claims, which includes asserted single incident product liability claims and IBNR single incident product liability claims, was \$4.0 million at September 30, 2018, and \$5.4 million at December 31, 2017. Single incident product liability expense was \$1.3 million during the nine months ended September 30, 2018 and \$0.3 million during the nine months ended September 30, 2017. Single incident product liability exposures are evaluated on an annual basis, or more frequently if changing circumstances warrant. Adjustments are made to the reserve as appropriate.

Cumulative trauma product liability claims. Cumulative trauma product liability claims involve exposures to harmful substances (e.g., silica, asbestos and coal dust) that occurred years ago and may have developed over long periods of time into diseases such as silicosis, asbestosis, mesothelioma, or coal worker's pneumoconiosis. One of the Company's affiliates Mine Safety Appliances Company, LLC ("MSA LLC") was named as a defendant in 1,517 lawsuits comprised of 2,392 claims as of September 30, 2018. These lawsuits mainly involve respiratory protection products allegedly manufactured and sold by MSA LLC or its predecessors. The products at issue were manufactured many years ago and are not currently offered by MSA LLC.

A summary of cumulative trauma product liability lawsuits and asserted cumulative trauma product liability claims activity is as follows:

	Nine Months Ended September 30, 2018	Year Ended December 31, 2017
Open lawsuits, beginning of period	1,420	1,794
New lawsuits	280	398
Settled and dismissed lawsuits	(183)	(772)
Open lawsuits, end of period	1,517	1,420
	Nine Months Ended September 30, 2018	Year Ended December 31, 2017
Asserted claims, beginning of period	2,242	3,023
New claims	363	455
Settled and dismissed claims	(213)	(1,236)
Asserted claims, end of period	2,392	2,242

More than half of the open lawsuits at September 30, 2018, have had a de minimis level of activity over the last 5 years. It is possible that these cases could become active again at any time due to changes in circumstances.

Cumulative trauma product liability litigation is inherently unpredictable and MSA LLC's expense with respect to cumulative trauma product liability claims could vary significantly in future periods. Factors that limit MSA LLC's ability to estimate potential liability for cumulative trauma product liability claims include low volumes in the number of claims asserted and resolved (both in general and with respect to particular plaintiffs' counsel as claims experience can vary significantly among different counsel), inconsistency of claims composition, uncertainty as to if and over what time periods claims might be asserted in the future, and other factors. With respect to the risk associated with any particular case that is filed against MSA LLC, it has typically not been until very late in the legal process that it can be reasonably determined whether it is probable that such a case will ultimately result in a liability. This uncertainty is caused by many factors, including consideration of the applicable statute of limitations, the sufficiency of product identification and other defenses. The complaints initially filed generally have not provided information sufficient to determine if a lawsuit will develop into an actively litigated case. Even when a case is actively litigated, it is often difficult to determine if the lawsuit will be dismissed or otherwise resolved until late in the lawsuit. Moreover, even if it is probable that such a lawsuit will result in a loss, it is often difficult to estimate the amount of actual loss that will be incurred. These actual loss amounts are highly variable and turn on a case-by-case analysis of the relevant facts, including the nature of the injury, the jurisdiction in which the claim is filed, the counsel for the plaintiff and the number of parties in the lawsuit. In addition, there are uncertainties concerning the impact of bankruptcies of other companies that are co-defendants with respect to particular claims and uncertainties surrounding the litigation process in different jurisdictions and from case to case within a particular jurisdiction.

Management works with outside legal counsel quarterly to review and assess MSA LLC's exposure to asserted cumulative trauma product liability claims not yet resolved. In addition, in connection with finalizing and reporting its results of operations, management works annually (unless significant changes in trends or new developments warrant an earlier review) with an outside valuation consultant and outside legal counsel to review MSA LLC's exposure to IBNR cumulative trauma product liability claims. The review process for asserted cumulative trauma product liability claims not yet resolved takes into account available facts for those claims, including their number and composition, outcomes of matters resolved during current and prior periods, and variances associated with different groups of claims, plaintiffs' counsel, claims filing trends, and venues, as well as any other relevant information.

In August 2017, MSA LLC obtained additional detailed information about a significant number of claims that were then pending against it, including the nature and extent of the alleged injuries, product identification and other factors. MSA LLC subsequently agreed to resolve a substantial number of these claims for \$75.2 million, a portion of which was insured. Amounts in excess of estimated insurance recoveries were reflected within Other operating expense in the Condensed Consolidated Statement of Income. MSA LLC paid a total of \$25.2 million during 2017 and \$21.4 million during the nine months ended September 30, 2018, related to these settlements. MSA LLC expects to pay \$7.1 million ratably over each of the next four quarters ending in the third quarter of 2019.

In the fourth quarter of 2017, MSA LLC, in consultation with an outside valuation consultant and outside legal counsel, performed a review for IBNR cumulative trauma product liability claims. Based on that review process, which concluded in early 2018, it was determined that a reasonable estimate of MSA LLC's liability for IBNR claims was \$111.1 million. Accordingly, the cumulative trauma product liability reserve was increased by \$111.1 million at December 31, 2017, for estimated IBNR cumulative trauma product liability claims. The balance is \$103.9 million at September 30, 2018. This estimated amount is not discounted to present value. This amount represents estimated liability relating to asbestos, silica and coal dust claims projected to be asserted through 2060. Therefore, the combined cumulative trauma product liability reserve covers all cumulative trauma product liability claims, including those that have been asserted against MSA LLC and IBNR cumulative trauma product liability claims.

The ability to make a reasonable estimate of the potential liability for IBNR cumulative trauma product liability claims reflects recent developments affecting asbestos claims, recent developments affecting silica claims, and recent developments affecting coal dust claims. Significant changes in MSA LLC's claims experience over the last few years have resulted in stabilization of a number of factors important to the estimation process and enabled greater predictability of IBNR claims. These developments occurred as a result of changes in defense strategy implemented in recent years, increased experience in defending, negotiating, and resolving key groups of claims, and resolutions of a substantial number of cumulative trauma product liability claims in the last few years. These changes have collectively resulted in MSA LLC having a more stable recent claims history that could be extrapolated into the future and greater certainty as to the number of claims that might be asserted against MSA LLC in the future, the percentage of those claims that might be resolved without payment, and the potential settlement value of those claims that are not resolved without payment. All of these factors were considered by MSA LLC's valuation consultant in estimating the IBNR cumulative trauma product liability claims. MSA LLC, taking into account the analysis and estimates developed by its consultant, concluded in the fourth quarter of 2017 that reasonable estimates for its IBNR asbestos, silica and coal dust claims could be made and that the liability described above should be accrued.

Notwithstanding these developments, there remains considerable uncertainty in numerous aspects of MSA LLC's potential future claims experience, such as with respect to the number of claims that might be asserted, the alleged severity of those claims and the average settlement values of those claims, and that uncertainty may cause actual claims experience in the future to vary from the current estimate. Numerous uncertainties also exist with respect to factors not specific to MSA LLC's claims experience, including potential legislative or judicial changes at the federal level or in key states concerning claims adjudication, future bankruptcy proceedings involving key co-defendants, payments from trusts established to compensate claimants, and/or changes in medical science relating to the diagnosis and treatment of cumulative trauma product liability claims. If future estimates of asserted cumulative trauma product liability claims not yet resolved and/or IBNR cumulative trauma product liability claims are materially higher (lower) than the accrued liability, we will record an appropriate charge (credit) to the Consolidated Statement of Income to increase (decrease) the accrued liability.

Certain significant assumptions underlying the material components of the accrual for IBNR cumulative trauma product liability claims include MSA LLC's experience related to the following:

- The types of illnesses alleged by claimants to give rise to their claims;
- The number of claims asserted against MSA LLC;
- The propensity of claimants and their counsel asserting cumulative trauma product liability claims to name MSA LLC as a defendant;
- The percentage of cumulative trauma product liability claims asserted against MSA LLC that are dismissed without payment; and
- The average value of settlements paid to claimants.

Additional assumptions include the following:

- MSA LLC will continue to evaluate and handle cumulative trauma product liability claims in accordance with its existing defense strategy;
- The number and effect of co-defendant bankruptcies will not materially change in the future;
- No material changes in medical science occur with respect to cumulative trauma product liability claims; and
- No material changes in law occur with respect to cumulative trauma product liability claims including, in particular, no material state or federal tort reform actions affecting such claims.

The total cumulative trauma product liability reserve was \$172.3 million at September 30, 2018, of which \$68.4 million related to asserted cumulative trauma product liability claims (\$36.0 million for claims settled but not yet paid and related defense costs and \$32.4 million for the estimated value of claims asserted but not yet resolved) and \$103.9 million related to estimated IBNR cumulative trauma product liability claims. The asserted claims reserve was increased by \$16.9 million in the third quarter of 2018 as the Company obtained more information about certain asserted claims through the Company's defense efforts, including the nature and extent of the alleged injuries, product identification and other factors. The total cumulative trauma product liability reserve was \$181.1 million at December 31, 2017, of which \$70.0 million related to asserted cumulative trauma product liability claims (\$54.5 million for claims settled but not yet paid and \$15.5 million for the estimated value of claims asserted but not yet resolved) and \$111.1 million related to estimated IBNR cumulative trauma product liability claims. The majority of the reserve relating to claims settled but not yet paid for both periods relates to the August 2017 settlement of certain coal dust claims described above. The amount included in the reserve for IBNR cumulative trauma product liability claims represents the estimated value of such claims if the most likely potential outcome with respect to each of the assumptions described above is applied. The reserve does not include amounts which will be spent to defend the claims covered by the reserve. Defense costs are recognized in the Condensed Consolidated Statement of Income as incurred. At September 30, 2018, the full amount of \$68.4 million for the cumulative trauma product liability reserve for asserted cumulative trauma product liability claims is recorded in the Insurance and product liability line within other current liabilities in the Condensed Consolidated Balance Sheet. At December 31, 2017, \$48.6 million of the reserve for asserted cumulative trauma product liability claims is recorded in the Insurance and product liability line within other current liabilities in the Condensed Consolidated Balance Sheet and the remainder, \$21.4 million, is recorded in the Product liability and other noncurrent liabilities line. All of the reserve for IBNR claims as of both September 30, 2018, and December 31, 2017, is recorded in the Product liability and other noncurrent liabilities line.

Because litigation is subject to inherent uncertainties, and unfavorable rulings or developments could occur, there can be no certainty that MSA LLC may not ultimately incur charges in excess of presently recorded liabilities. The reserve for liabilities relating to cumulative trauma product liability claims may be adjusted from time to time based on whether the actual number, types, and settlement value of claims differs from current projections and estimates and other developing facts and circumstances. These adjustments may reflect changes in estimates for asserted cumulative trauma product liability claims not yet resolved and/or IBNR cumulative trauma product liability claims. These adjustments may be material and could materially impact our consolidated financial statements in future periods.

Insurance Receivable and Notes Receivable, Insurance Companies

MSA LLC purchased insurance policies for the policy years from 1952-1986 from over 20 different insurance carriers that, subject to some common contract exclusions, provided coverage for cumulative trauma product liability losses and, in many instances, related defense costs (the "Occurrence-Based Policies"). The vast majority of these insurance policies have been exhausted, settled, or converted to negotiated coverage-in-place arrangements. MSA LLC's insurance policies have significant per claim retentions and applicable exclusions for claims after April 1986.

In the normal course of business, MSA LLC makes payments to settle product liability claims and for related defense costs and records receivables for the estimated amounts that are covered by insurance. Since MSA LLC is now largely self-insured for cumulative trauma product liability claims, additional amounts recorded as insurance receivables will be limited and based on calculating the amounts to be reimbursed pursuant to negotiated Coverage-in-Place Agreements (as defined below). Various factors could affect the timing and amount of recovery of the insurance receivable, including assumptions regarding claims composition (which are relevant to calculating reimbursement under the terms of certain Coverage-In-Place Agreements) and the extent to which the issuing insurers may become insolvent in the future.

Insurance receivables at September 30, 2018, totaled \$61.8 million, of which, \$12.5 million is reported in Prepaid expenses and other current assets in the Condensed Consolidated Balance Sheet and \$49.3 million is reported in Insurance receivable and other noncurrent assets. Insurance receivables at December 31, 2017, totaled \$134.7 million, of which \$11.6 million was reported in Prepaid expenses and other current assets in the Condensed Consolidated Balance Sheet and \$123.1 million was reported in Insurance receivable and other noncurrent assets. The vast majority of the \$61.8 million insurance receivable balance at September 30, 2018 is attributable to reimbursement believed to be due under the terms of signed Coverage-in-Place Agreements.

A summary of Insurance receivable balances and activity related to cumulative trauma product liability losses follows:

(In millions)	Nine Months Ended September 30, 2018	Year Ended December 31, 2017
Balance beginning of period	\$ 134.7	\$ 159.9
Additions	5.7	94.6
Collections, settlements converted to notes receivable and other adjustments	(78.6)	(119.8)
Balance end of period	\$ 61.8	\$ 134.7

Additions to insurance receivables in the above table represent insured cumulative trauma product liability losses and related defense costs which we believe are covered by the Occurrence-Based Policies or applicable Coverage-in-Place Agreements. Collections of the receivable primarily occur pursuant to the terms of negotiated agreements with the insurance companies, either in a lump sum, in installments over time, or to reimburse a portion of future expense once incurred (i.e. pursuant to a Coverage-in-Place Agreement).

In some cases, payment streams due pursuant to negotiated settlement agreements were converted to formal notes receivable from insurance companies. The notes receivable were recorded as a transfer from the Insurance receivable balance to the Notes receivable, insurance companies (current and noncurrent) in the Condensed Consolidated Balance Sheet. In cases where the payment stream covers multiple years and there were no contingencies, the present value of the payments was recorded as a transfer from the insurance receivable balance to the Notes receivable, insurance companies (current and long-term) in the Condensed Consolidated Balance Sheet. Provided the remaining insurance receivable was recoverable through the insurance carriers, no gain or loss is recognized at the time of transfer from Insurance receivable to Notes receivable, insurance companies.

Notes receivable from insurance companies at September 30, 2018, totaled \$64.2 million, of which \$3.5 million is reported in Notes receivable, insurance companies, current on the Condensed Consolidated Balance Sheet and \$60.7 million is reported in Notes receivable, insurance companies, noncurrent. Notes receivable from insurance companies at December 31, 2017, totaled \$76.9 million, of which \$17.3 million was reported in Notes receivable, insurance companies, current on the Condensed Consolidated Balance Sheet and \$59.6 million was reported in Notes receivable, insurance companies, noncurrent.

A summary of Notes receivable, insurance companies balances is as follows:

(In millions)	Nine Months Ended September 30, 2018	Year Ended December 31, 2017
Balance beginning of period	\$ 76.9	\$ 67.3
Additions	1.2	35.1
Collections	(13.9)	(25.5)
Balance end of period	\$ 64.2	\$ 76.9

The collectibility of MSA LLC's insurance receivables and notes receivable is regularly evaluated and we believe that the amounts recorded are probable of collection. The determination that the recorded insurance receivables are probable of collection is based on the terms of the settlement agreements reached with the insurers, assumptions regarding various aspects of the composition of future claims (which are relevant to calculating reimbursement under the terms of certain Coverage-In-Place Agreements), the financial ability of the insurance carriers to pay the claims, and the advice of MSA LLC's outside legal counsel.

Total cumulative trauma liability losses were \$31.9 million for the nine months ended September 30, 2018, primarily related the increase to our asserted cumulative trauma product liability reserve as a result of additional information obtained during the quarter as disclosed above as well as defense costs incurred. Total cumulative trauma liability losses were \$101.4 million for the nine months ended September 30, 2017, primarily related to certain asserted cumulative trauma product liability claims which MSA LLC agreed to resolve in August 2017 as well as defense costs incurred. Uninsured cumulative trauma product liability losses, which were included in Other operating expense on the Condensed Consolidated Statement of Income, were \$25.5 million for the nine months ended September 30, 2018 and \$33.0 million for the nine months ended September 30, 2017.

Insurance Litigation

For more than a decade, MSA LLC was engaged in coverage litigation with many of its insurance carriers that issued Occurrence-Based Policies. In July 2010, MSA LLC (as Mine Safety Appliances Company) filed a lawsuit in the Superior Court of the State of Delaware seeking declaratory and other relief concerning the future rights and obligations of MSA LLC and its excess insurance carriers under various insurance policies. During the same time period, MSA LLC was also engaged in coverage disputes with The North River Insurance Company ("North River") in various courts. Since 2010, MSA LLC reached negotiated resolutions with the vast majority of the insurance carriers once in litigation, including the recent July 2018 settlement with North River disclosed below.

In February 2017, MSA LLC resolved through a negotiated settlement its coverage litigation with The Hartford ("Hartford"). Additionally, in April 2017, MSA LLC resolved through negotiated settlements its coverage litigation with Travelers Insurance Company ("Travelers") and Wausau Indemnity Company ("Wausau"). Each of the settling carriers agreed to cash payments which were made in 2017 or January 2018. In addition, Travelers has agreed to pay a percentage of future cumulative trauma product liability settlements paid as incurred on a claim-by-claim basis. As part of these settlements, MSA LLC dismissed all claims against Hartford, Travelers and Wausau in the coverage litigation in the Superior Court of the State of Delaware.

In July 2018, MSA LLC resolved through a negotiated settlement its remaining coverage litigation with North River. As part of this settlement in October 2018, MSA LLC dismissed all claims and appeals against North River in each of the pending coverage actions. This represents a settlement with MSA LLC's last major Occurrence-Based insurance carrier. Payment under this negotiated settlement was received in the third quarter of 2018 and was accounted for as a reduction of the insurance receivable balance.

Product Warranty

The Company provides warranties on certain product sales. Product warranty reserves are established in the same period that revenue from the sale of the related products is recognized, or in the period that a specific issue arises as to the functionality of a Company's product. The determination of such reserves requires the Company to make estimates of product return rates and expected costs to repair or to replace the products under warranty.

The amounts of the reserves are based on established terms and the Company's best estimate of the amounts necessary to settle future and existing claims on products sold as of the balance sheet date. If actual return rates and/or repair and replacement costs differ significantly from estimates, adjustments to recognize additional cost of sales may be required in future periods.

The following table reconciles the changes in the Company's accrued warranty reserve:

(In thousands)	Nine Months Ended September 30, 2018	Year Ended December 31, 2017
Beginning warranty reserve	\$ 14,753	\$ 11,821
Warranty payments	(666)	(550)
Warranty claims	1,217	2,116
Provision for product warranties and other adjustments	(576)	1,366
Ending warranty reserve	\$ 14,728	\$ 14,753

Warranty expense for the nine months ended September 30, 2018 and 2017, was \$7.9 million and \$9.8 million, respectively.

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion and analysis should be read in conjunction with the historical financial statements and other financial information included elsewhere in this quarterly report on Form 10-Q. This discussion may contain forward-looking statements that involve risks and uncertainties. The forward-looking statements are not historical facts, but rather are based on current expectations, estimates, assumptions and projections about our industry, business and future financial results. Our actual results could differ materially from the results contemplated by these forward-looking statements due to a number of factors, including those discussed in the sections of our annual report entitled "Forward-Looking Statements" and "Risk Factors."

BUSINESS OVERVIEW

We are a global leader in the development, manufacture and supply of safety products that protect people and facility infrastructures. Many MSA products integrate a combination of electronics, mechanical systems and advanced materials to protect users against hazardous or life-threatening situations. The Company's comprehensive product line is used by workers around the world in a broad range of markets, including the oil, gas and petrochemical, fire service, construction, utilities and mining industries. MSA's core products include fixed gas and flame detection systems, breathing apparatus where self-contained breathing apparatus ("SCBA") is the principal product, portable gas detection instruments, industrial head protection products, firefighter helmets and protective apparel, and fall protection devices. We are committed to providing our customers with service unmatched in the safety industry and, in the process, enhancing our ability to provide a growing line of safety solutions for customers in key global markets.

On July 31, 2017, the Company acquired 100% of the common stock of Globe Holding Company, LLC ("Globe") for \$215 million in cash plus a working capital adjustment of \$1.4 million. Based in Pittsfield, NH, Globe is a leading innovator and provider of firefighter protective clothing and boots. This acquisition aligns with the Company's corporate strategy in that it strengthens our leading position in the North American fire service market. The transaction was funded through borrowings on our unsecured senior revolving credit facility. Refer to Note 15—Acquisitions to the unaudited condensed consolidated financial statements in Part I Item 1 of this Form 10-Q for further information.

We tailor our product offerings and distribution strategy to satisfy distinct customer preferences that vary across geographic regions. To best serve these customer preferences, we have organized our business into seven geographical operating segments that are aggregated into three reportable geographic segments: Americas, International and Corporate. In 2017, 62% and 38% of our net sales were made by our Americas and International segments, respectively.

Americas. Our largest manufacturing and research and development facilities are located in the United States. We serve our markets across the Americas with manufacturing facilities in the U.S., Mexico and Brazil. Operations in other Americas segment countries focus primarily on sales and distribution in their respective home country markets.

International. Our International segment includes companies in Europe, Middle East, Africa and the Asia Pacific region, some of which are in developing regions of the world. In our largest International affiliates (in Germany, France, United Kingdom, Ireland and China), we develop, manufacture and sell a wide variety of products. In China, the products manufactured are sold primarily in the home country as well as in regional markets. Operations in other International segment countries focus primarily on sales and distribution in their respective home country markets. Although some of these companies may perform limited production, most of their sales are of products manufactured in our plants in Germany, France, the U.S., United Kingdom, Ireland and China, or are purchased from third party vendors.

Corporate. The Corporate segment primarily consists of general and administrative expenses incurred in our corporate headquarters, costs associated with corporate development initiatives, legal expense, interest expense, foreign exchange gains or losses and other centrally-managed costs. Corporate general and administrative costs comprise the majority of the expense in the Corporate segment.

PRINCIPAL PRODUCTS

The following is a brief description of each of our principal product categories:

MSA's corporate strategy includes a focus on driving sales of core products where we have leading market positions and a distinct competitive advantage. Core products, as mentioned above, include fixed gas and flame detection instruments, breathing apparatus where SCBA is the principal product, portable gas detection instruments, industrial head protection products, firefighter helmets and protective apparel, and fall protection devices. These products receive the highest levels of investment and resources as they typically realize higher levels of return on investment than non-core products. Core products comprised approximately 86% and 84% of sales for the nine months ended September 30, 2018 and 2017, respectively.

MSA maintains a portfolio of non-core products. Non-core products reinforce and extend the core offerings, drawing upon our customer relationships, distribution channels, geographical presence and technical experience. These products are complementary to the core offerings and have their roots within the core product value chain. Key non-core products include respirators, eye and face protection, ballistic helmets and gas masks. Ballistic helmet and gas mask sales are the primary sales to our military customers and were approximately \$32.6 million and \$26.3 million globally during the nine months ended September 30, 2018 and 2017, respectively.

A detailed listing of our significant product offerings in the aforementioned product groups above is included in MSA's Annual Report on Form 10-K for the year ended December 31, 2017.

RESULTS OF OPERATIONS

Three Months Ended September 30, 2018, Compared to Three Months Ended September 30, 2017

Net Sales. Net sales for the three months ended September 30, 2018, were \$331.1 million, an increase of \$35.0 million, or 11.8%, compared to \$296.1 million for the three months ended September 30, 2017. Please refer to the Net Sales table for a reconciliation of the quarter over quarter sales change.

Net Sales (In millions)	Three Months Ended September 30,		Dollar Increase	Percent Increase
	2018	2017		
Consolidated	\$331.1	\$296.1	\$35.0	11.8%
Americas	209.3	186.9	22.4	12.0%
International	121.8	109.2	12.6	11.5%

Net Sales (Percent Change)	Three Months Ended September 30, 2018 versus September 30, 2017		
	Americas	International	Consolidated
GAAP reported sales change	12.0%	11.5%	11.8%
Less: Currency translation effects	(1.6)%	(2.7)%	(2.0)%
Constant currency sales change	13.6%	14.2%	13.8%
Less: Acquisitions	2.0%	—%	1.2%
Organic constant currency change	11.6%	14.2%	12.6%

Note: Organic constant currency sales change is a non-GAAP financial measure provided by the Company to give a better understanding of the Company's underlying business performance. Organic constant currency sales change is calculated by deducting the percentage impact from acquisitions and currency translation effects from the overall percentage change in net sales.

Net sales for the Americas segment were \$209.3 million in the third quarter of 2018, an increase of \$22.4 million, or 12%, compared to \$186.9 million in the third quarter of 2017 on stronger core sales. During the quarter, constant currency sales in the Americas segment increased 14% compared to the prior year period, driven partially by the acquisition of Globe, which increased sales in the Americas segment by 2% in the third quarter. The 12% organic growth during the quarter was driven by growth throughout our core product portfolio.

Net sales for the International segment were \$121.8 million in the third quarter of 2018, an increase of \$12.6 million, or 12%, compared to \$109.2 million for the third quarter of 2017. Constant currency sales in the International segment increased 14% during the quarter as we recognized stronger sales driven by growth throughout our product portfolio.

Our leading indicators point to sustained strength across our portfolio, with incoming orders increasing high-single digit in the quarter and backlog levels trending relatively consistent with the second quarter of 2018.

Gross profit. Gross profit for the third quarter of 2018 was \$148.3 million, an increase of \$16.1 million, or 12%, compared to \$132.2 million for the third quarter of 2017. The ratio of gross profit to net sales was 44.8% in the third quarter of 2018 compared to 44.6% in the same quarter last year. The higher gross profit ratio during the current quarter is attributable to improved price realization throughout our product portfolio and improved leverage on indirect costs which were then only partially offset by inflationary pressures and dilution associated with a less favorable product mix.

Selling, general and administrative expenses. Selling, general and administrative ("SG&A") expenses were \$78.0 million during the third quarter of 2018, an increase of \$5.1 million or 7%, compared to \$72.9 million in the third quarter of 2017. The increase is partially related to higher variable compensation cost due to stronger revenue performance as well as higher selling and marketing costs to invest resources in driving revenue growth. Overall, selling, general and administrative expenses were 23.6% of net sales in the third quarter of 2018, compared to 24.6% of net sales in the third quarter of 2017.

Research and development expense. Research and development expense was \$13.3 million during the third quarter of 2018, an increase of \$0.9 million, or 8%, compared to \$12.4 million during the third quarter of 2017. Research and development expense was 4.0% and 4.2% of net sales in the third quarter of 2018 and 2017, respectively. We expect research and development expense to be approximately 4.0% of sales for 2018 as we continue to develop new products for global safety markets, including the newly unveiled M1 SCBA for which we expect to begin production by the end of 2018 and the new jet-style fire helmet, called the Cairns XF1, which was available for shipment at the end of September 2018 for the fire service market, as well as the V Series product family of fall protection for the industrial market.

Restructuring, net of adjustments. During the third quarter of 2018, the Company recorded restructuring charges of \$2.6 million, primarily related to severance costs for staff reductions in our Northern North America region as well as staff reductions associated with our ongoing initiatives to drive profitable growth in Europe and the legal and operational realignment of our U.S. and Canadian operations. This compared to restructuring charges of \$3.2 million during the third quarter of 2017, primarily related to severance costs for staff reductions associated with our ongoing initiatives to right size our operations in Europe and Africa.

Currency exchange. Currency exchange gains were \$0.3 million in the third quarter of 2018, compared to losses of \$0.6 million in the third quarter of 2017. Currency exchange in both periods were related to foreign currency exposure on unsettled inter-company balances. Refer to Note 17—Derivative Financial Instruments to the unaudited condensed consolidated financial statements in Part I Item I of this Form 10-Q for information regarding our currency exchange rate risk management strategy.

Other operating expense. Other operating expense during the third quarter of 2018 of \$14.6 million relates primarily to an increase in our estimate for asserted cumulative trauma product liability reserve in the third quarter of 2018 as a result of additional information obtained by the Company as well as defense costs incurred. This compared to \$3.3 million in the third quarter of 2017 which relates primarily to defense costs incurred. Please refer to Note 19—Contingencies to the unaudited condensed consolidated financial statements in Part I Item 1 of this Form 10-Q for additional information.

GAAP operating income. Consolidated operating income for the third quarter of 2018 was \$40.0 million compared to operating income of \$39.9 million in the same period last year. The operating results remained relatively consistent as higher sales volumes were mostly offset by higher other operating expense both as discussed above.

Adjusted operating income. Americas adjusted operating income for the third quarter of 2018 was \$51.5 million, an increase of \$6.1 million, or 14%, compared to \$45.4 million in the prior year quarter. The increase was related to the higher level of sales, partially offset by higher selling, general and administrative expenses and increased investments in research and development.

International adjusted operating income for the third quarter of 2018 was \$13.3 million, an increase of \$3.1 million, or 30%, compared to \$10.2 million in the prior year quarter. The increase in adjusted operating income is primarily attributable to higher sales volumes and improvements associated with our ongoing initiatives to right size our operations in Europe.

Corporate segment adjusted operating loss for the third quarter of 2018 was \$7.8 million, an decrease of \$0.4 million, or 5%, compared to an adjusted operating loss of \$8.2 million in the third quarter of 2017 reflecting lower compensation and legal expenses.

The following tables represent a reconciliation from GAAP operating income to adjusted operating income (loss). Adjusted operating margin % is calculated as adjusted operating income (loss) divided by net sales.

Adjusted operating income (In thousands)	Three Months Ended September 30, 2018			
	Americas	International	Corporate	Consolidated
Net sales	\$ 209,343	\$ 121,753	\$ —	\$ 331,096
GAAP operating income				40,003
Restructuring charges (Note 5)				2,615
Currency exchange gains, net				(252)
Other operating expense (Note 19)				14,627
Strategic transaction costs (Note 15)				56
Adjusted operating income (loss)	51,532	13,329	(7,812)	57,049
Adjusted operating margin %	24.6%	10.9%		

Adjusted operating income (In thousands)	Three Months Ended September 30, 2017			
	Americas	International	Corporate	Consolidated
Net sales	\$ 186,898	\$ 109,231	\$ —	\$ 296,129
GAAP operating income				39,878
Restructuring and other charges				3,214
Currency exchange losses, net				562
Other operating expense (Note 19)				3,346
Strategic transaction costs (Note 15)				386
Adjusted operating income (loss)	45,365	10,229	(8,208)	47,386
Adjusted operating margin %	24.3%	9.4%		

Note: Adjusted operating income (loss) is a non-GAAP financial measure used by the chief operating decision maker to evaluate segment performance and allocate resources. Adjusted operating income (loss) is reconciled above to the nearest GAAP financial measure, Operating income (loss), and excludes restructuring, currency exchange, other operating expense and strategic transaction costs.

Total other expense, net. Other expense, net, for the third quarter of 2018 was \$1.7 million, compared to \$2.2 million for the same period in 2017 as higher interest income was partially offset by the loss on extinguishment of debt.

Income taxes. The reported effective tax rate for the third quarter of 2018 was 11.0% compared to a rate of 14.4% for the third quarter of 2017, which included a benefit of 6.6% associated with the reduction of exit taxes related to our European reorganization. The remaining effective tax rate change was primarily due to the decrease in the U.S. federal statutory rate and benefits associated with the reduction in the one-time transition tax, as discussed below, partially offset by increased profitability in less favorable tax jurisdictions and higher entity losses in jurisdictions where we cannot take tax benefits.

During the third quarter of 2018, the Company recorded \$5.1 million of foreign taxes related to the legal and operational realignment of our U.S. and Canadian operations. These taxes are expected to be fully offset by foreign tax credits.

On December 22, 2017, SAB 118 was issued to address the application of U.S. GAAP in situations when a registrant does not have the necessary information available, prepared or analyzed in reasonable detail to complete the accounting for certain income tax effects of the Tax Cuts and Jobs Act of 2017 ("the Act"). In accordance with SAB 118, the Company calculated its best estimate of the impact of the Act and recorded income tax expense of \$19.8 million during the fourth quarter of 2017. During the third quarter of 2018, we reduced our estimate for the one-time transition tax by \$2.0 million for updated regulations related to the Act. Changes to applicable tax law, regulations or interpretations of the Act may require further adjustments and changes in our estimates. The final determination of the transition tax and the revaluation of U.S. deferred assets and liabilities will be completed as additional information becomes available, but no later than one year from the enactment of the Act.

Net income attributable to MSA Safety Incorporated. Net income was \$33.7 million for the third quarter of 2018, or \$0.86 per diluted share compared to income of \$32.1 million, or \$0.83 per diluted share, for the same period last year.

Nine Months Ended September 30, 2018, Compared to Nine Months Ended September 30, 2017

Net Sales. Net sales for the nine months ended September 30, 2018, were \$996.3 million, an increase of \$145.6 million, or 17%, compared to \$850.7 million for the nine months ended September 30, 2017. Please refer to the Net Sales table for a reconciliation of the quarter over quarter sales change.

Net Sales (In millions)	Nine Months Ended September 30,		Dollar Increase	Percent Increase
	2018	2017		
Consolidated	\$996.3	\$850.7	\$145.6	17.1%
Americas	633.8	528.4	105.4	19.9%
International	362.5	322.3	40.2	12.5%

Net Sales (Percent Change)	Nine Months Ended September 30, 2018 versus September 30, 2017		
	Americas	International	Consolidated
GAAP reported sales change	19.9%	12.5%	17.1%
Less: Currency translation effects	(1.0)%	4.6%	1.1%
Constant currency sales change	20.9%	7.9%	16.0%
Less: Acquisitions	12.4%	—%	7.8%
Organic constant currency change	8.5%	7.9%	8.2%

Note: Organic constant currency sales change is a non-GAAP financial measure provided by the Company to give a better understanding of the Company's underlying business performance. Organic constant currency sales change is calculated by deducting the percentage impact from acquisitions and currency translation effects from the overall percentage change in net sales.

Net sales for the Americas segment were \$633.8 million for the nine months ended September 30, 2018, an increase of \$105.4 million, or 20%, compared to \$528.4 million for the same period in 2017 on stronger core sales. During the nine months ended September 30, 2018, constant currency sales in the Americas segment increased 21% compared to the prior year period, driven primarily by the acquisition of Globe, which increased sales in the Americas segment by 12% during the period. The 9% organic growth during the nine months ended September 30, 2018, was driven by growth throughout our core product portfolio.

Net sales for the International segment were \$362.5 million for the nine months ended September 30, 2018, an increase of \$40.2 million, or 12%, compared to \$322.3 million for the same period in 2017. During the nine months ended September 30, 2018, constant currency sales in the International segment increased 8% during the quarter as we recognized stronger sales driven by growth throughout our product portfolio.

Gross profit. Gross profit for the nine months ended September 30, 2018, was \$449.5 million, an increase of \$64.6 million, or 17%, compared to \$384.9 million for the same period in 2017. The ratio of gross profit to net sales was 45.1% during the nine months ended September 30, 2018, compared to 45.2% in the same period last year. The lower gross profit ratio during the current period is primarily attributable to dilution from our Globe acquisition. Price realization from new product introductions more than offset higher input costs due to inflation.

Selling, general and administrative expenses. Selling, general and administrative expenses were \$240.2 million during the nine months ended September 30, 2018, an increase of \$16.5 million or 7%, compared to \$223.7 million during the same period in 2017. The increase is primarily related to increased SG&A expenses related to the Globe acquisition, higher variable compensation cost due to stronger revenue performance and higher selling and marketing costs to invest resources in driving revenue growth. Overall, selling, general and administrative expenses were 24.1% of net sales during the nine months ended September 30, 2018, compared to 26.3% of net sales during the same period in 2017, reflecting the continued benefits from our global cost reduction program and our focus on driving profitable growth. Please refer to the Selling, general and administrative expenses table for a reconciliation of the year over year expense change.

Selling, general, and administrative expenses (Percent Change)	Nine Months Ended September 30, 2018, versus September 30, 2017 Consolidated
GAAP reported change	7.4%
Less: Currency translation effects	0.1%
Constant currency change	7.3%
Less: Acquisitions and related strategic transaction costs	1.0%
Organic constant currency change	6.3%

Note: Organic constant currency change is a non-GAAP financial measure provided by the Company to give a better understanding of the Company's underlying business performance. Constant currency change in selling, general, and administrative expenses is calculated by deducting the percentage impact from acquisitions and related strategic transaction costs as well as the currency translation effects from the overall percentage change in selling, general, and administrative expense. Management believes excluding acquisitions and currency translation effects provides investors with a greater level of clarity into spending levels on a year-over-year basis.

Research and development expense. Research and development expense was \$39.8 million during the nine months ended September 30, 2018, an increase of \$4.5 million, or 13%, compared to \$35.3 million during the same period in 2017. Research and development expense was 4.0% of net sales during the nine months ended September 30, 2018, compared to 4.1% of net sales during the same period in 2017. We expect research and development expense to be approximately 4.0% of sales for 2018 as we continue to develop new products for global safety markets, including the newly unveiled M1 SCBA for which we expect to begin production by the end of 2018 and the new jet-style fire helmet, called the Cairns XF1, which was available for shipment at the end of September 2018, as well as the V Series product family of fall protection for the industrial market.

Restructuring, net of adjustments. During the nine months ended September 30, 2018, the Company recorded restructuring charges of \$10.2 million, primarily related to severance costs for staff reductions associated with our ongoing initiatives to drive profitable growth in Europe and the legal and operational realignment of our U.S. and Canadian operations. This compared to restructuring charges of \$16.9 million during the same period in 2017, primarily related to noncash special termination benefit expense of \$11.4 million for the voluntary retirement incentive package elected by certain employees in the Americas segment and severance costs for staff reductions associated with our ongoing initiatives to drive profitable growth in Europe and right size our operations in Australia and Africa.

Currency exchange. Currency exchange losses were \$2.6 million in the nine months ended September 30, 2018, compared to \$4.0 million during the same period in 2017. Currency exchange losses in both periods were related to foreign currency exposure on unsettled inter-company balances. Refer to Note 17—Derivative Financial Instruments to the unaudited condensed consolidated financial statements in Part I Item I of this Form 10-Q for information regarding our currency exchange rate risk management strategy.

Other operating expense. Other operating expense for the nine months ended September 30, 2018, was \$25.5 million, primarily related to an increase in our estimate for asserted cumulative trauma product liability reserve in the third quarter as a result of additional information obtained by the Company as well as defense costs incurred and an adjustment to our estimated insurance receivables to be collected under our Coverage-In-Place agreements in the second quarter as we obtained further information on the claims composition of the settlements reached in August 2017. This compared to \$33.0 million during the same period in 2017, primarily related to certain asserted cumulative trauma product liability claims which MSA LLC agreed to resolve in August 2017. Please refer to Note 19—Contingencies to the unaudited condensed consolidated financial statements in Part I Item 1 of this Form 10-Q for additional information.

GAAP operating income. Consolidated operating income for the nine months ended September 30, 2018, was \$131.2 million compared to operating income of \$72.0 million in the same period in 2017. The increase in operating results was primarily driven by higher sales volumes as discussed above as well as lower restructuring and other operating expense and our continued focus on controlled spending.

Adjusted operating income. Americas adjusted operating income for the nine months ended September 30, 2018, was \$151.5 million, an increase of \$26.4 million, or 21%, compared to \$125.1 million during the same period in 2017. The increase was related to the higher level of sales as well as our continued focus on controlled spending.

International adjusted operating income for the nine months ended September 30, 2018, was \$42.0 million, an increase of \$11.9 million, or 39%, compared to \$30.1 million during the same period in 2017. The increase in adjusted operating income is primarily attributable to higher sales volumes and our ongoing initiatives to right size our operations in Europe.

Corporate segment adjusted operating loss for the nine months ended September 30, 2018, was \$23.7 million, a decrease of \$2.3 million, or 9%, compared to an adjusted operating loss of \$26.0 million during the same period in 2017, reflecting lower stock-based compensation and legal expense.

The following tables represent a reconciliation from GAAP operating income to adjusted operating income (loss). Adjusted operating margin % is calculated as adjusted operating income (loss) divided by net sales.

Adjusted operating income (In thousands)	Nine Months Ended September 30, 2018			
	Americas	International	Corporate	Consolidated
Net sales	\$ 633,812	\$ 362,508	\$ —	\$ 996,320
GAAP operating income				131,235
Restructuring charges (Note 5)				10,223
Currency exchange losses, net				2,571
Other operating expense (Note 19)				25,469
Strategic transaction costs (Note 15)				208
Adjusted operating income (loss)	151,456	41,960	(23,710)	169,706
Adjusted operating margin %	23.9%	11.6%		

Adjusted operating income (In thousands)	Nine Months Ended September 30, 2017			
	Americas	International	Corporate	Consolidated
Net sales	\$ 528,426	\$ 322,243	\$ —	\$ 850,669
GAAP operating income				71,996
Restructuring and other charges				16,920
Currency exchange losses, net				3,994
Other operating expense (Note 19)				32,956
Strategic transaction costs (Note 15)				3,365
Adjusted operating income (loss)	125,087	30,146	(26,002)	129,231
Adjusted operating margin %	23.7%	9.4%		

Note: Adjusted operating income (loss) is a non-GAAP financial measure used by the chief operating decision maker to evaluate segment performance and allocate resources. Adjusted operating income (loss) is reconciled above to the nearest GAAP financial measure, Operating income (loss), and excludes restructuring, currency exchange, other operating expense and strategic transaction costs.

Total other expense, net. Other expense, net, during the nine months ended September 30, 2018, was \$7.7 million, compared to \$6.2 million during the same period in 2017 related to higher interest expense and the loss on extinguishment of debt which were only partially offset by higher interest income.

Income taxes. The reported effective tax rate for the nine months ended September 30, 2018, was 19.1%, which included a benefit of 1.9% for certain share-based payments related to the application of ASU 2016-09 09 as described in Note 2 to the condensed consolidated financial statements in Part I Item 1 of this Form 10-Q, compared to 9.6% for the same period in 2017, which included a benefit of 10.5% related to share-based payments and a benefit of 3.8% associated with the reduction of exit taxes related to our European reorganization. The remaining effective tax rate change was primarily due to the decrease in the U.S. federal statutory rate and benefits associated with the reduction in the one-time transition tax, as discussed below, partially offset by the increased profitability in less favorable tax jurisdictions and higher entity losses in jurisdictions where we cannot take tax benefits.

During the third quarter of 2018, the Company recorded \$5.1 million of foreign taxes related to the legal and operational realignment of our U.S. and Canadian operations. These taxes are expected to be fully offset by foreign tax credits.

On December 22, 2017, SAB 118 was issued to address the application of U.S. GAAP in situations when a registrant does not have the necessary information available, prepared or analyzed in reasonable detail to complete the accounting for certain income tax effects of the Act. In accordance with SAB 118, the Company calculated its best estimate of the impact of the Act and recorded income tax expense of \$19.8 million during the fourth quarter of 2017. During the nine months ended September 30, 2018, we reduced our estimate for the one-time transition tax by \$2.0 million for updated regulations related to the Act. Changes to applicable tax law, regulations or interpretations of the Act may require further adjustments and changes in our estimates. The final determination of the transition tax and the revaluation of U.S. deferred assets and liabilities will be completed as additional information becomes available, but no later than one year from the enactment of the Act.

Net income attributable to MSA Safety Incorporated. Net income was \$99.3 million for the nine months ended September 30, 2018, or \$2.55 per diluted share compared to income of \$59.0 million, or \$1.52 per diluted share, for the same period last year.

Non-GAAP Financial Information

We may provide information regarding organic constant currency changes, financial measures excluding the impact of acquisitions and related strategic transaction costs, adjusted operating income and adjusted operating margin percentage, which are not recognized terms under U.S. GAAP and do not purport to be alternatives to net sales, selling, general and administrative expense, operating income or net income as a measure of operating performance. We believe that the use of these non-GAAP financial measures provide investors with additional useful information and provide a more complete understanding of the underlying results. Because not all companies use identical calculations, these presentations may not be comparable to similarly titled measures from other companies. For more information about these non-GAAP measures and a reconciliation to the nearest U.S. GAAP measure, please refer to the reconciliations referenced above in Management's Discussion & Analysis section and in Note 9—Segment Information to the unaudited condensed consolidated financial statements in Part I Item 1 of this Form 10-Q.

We may also provide financial information on a constant currency basis, which is a non-GAAP financial measure. These references to a constant currency basis do not include operational impacts that could result from fluctuations in foreign currency rates, which are outside of management's control. To provide information on a constant currency basis, the applicable financial results are adjusted by translating current and prior period results in local currency to a fixed foreign exchange rate. This approach is used for countries where the functional currency is the local country currency. This information is provided so that certain financial results can be viewed without the impact of fluctuations in foreign currency rates, thereby facilitating period-to-period comparisons of business performance. Constant currency information is not recognized under U.S. GAAP and it is not intended as an alternative to U.S. GAAP measures.

LIQUIDITY AND CAPITAL RESOURCES

Our primary source of liquidity is operating cash flows, supplemented by borrowings. Our principal liquidity requirements are for working capital, capital expenditures, principal and interest payments on debt, dividend payments and acquisitions. At September 30, 2018, approximately 40% of our long-term debt is at fixed interest rates with repayment schedules through 2031. The remainder of our long-term debt is at variable rates on an unsecured revolving credit facility that is due in 2020. At September 30, 2018, approximately 80% of our borrowings are denominated in US dollars, which limits our exposure to currency exchange rate fluctuations.

At September 30, 2018, we had cash, cash equivalents and restricted cash totaling \$118.6 million, which included \$86.4 million of cash and cash equivalents held by our foreign subsidiaries. Cash, cash equivalents and restricted cash decreased \$19.3 million during the nine months ended September 30, 2018, compared to decreasing \$2.0 million during the same period in 2017. During the nine months ended September 30, 2018, we repatriated \$59 million of cash from our foreign affiliates and expect to repatriate \$75 million to \$100 million for the full year 2018. While cash repatriation allows us to tap into our offshore cash more efficiently, our business continues to generate strong cash flow, and this improvement in cash flow has enabled us to continue to fund our dividend and de-lever. In July 2018, we reached a settlement on the disputed portion of our insurance receivable as discussed in Note 19—Contingencies to the unaudited condensed consolidated financial statements. The settlement ensures collection of the full amount of the insurance receivable that was previously subject to litigation. Payment was received in the third quarter of 2018. We plan to continue to employ a balanced capital allocation strategy that prioritizes growth investments and also funding our dividend and servicing debt obligations.

Operating activities. Operating activities provided cash of \$186.2 million during the nine months ended September 30, 2018, compared to providing \$189.2 million during the same period in 2017. The decrease in operating cash flows during the period was primarily attributable to reduced insurance receivable collection, net of product liability settlements paid, mostly offset by an improvement in operating results during the period. We collected \$50.8 million from insurance companies, net of product liability settlements paid, in the nine months ended September 30, 2018, while we collected \$88.5 million from insurance companies, net of product liability settlements paid, in the same period of 2017. Historically, cumulative trauma liability payments were funded with the Company's operating cash flow, pending resolution of disputed insurance coverage. For more than a decade, we have funded product liability settlements from operating cash flow. We continue to make good progress collecting insurance proceeds and establishing cash flow streams for the future. We received \$74.8 million in the third quarter of 2018 from all previously settled insurance policies. Although cash flows may vary from quarter to quarter, we do not expect there to be a material impact on our capital allocation priorities.

Investing activities. Investing activities used cash of \$71.7 million during the nine months ended September 30, 2018, compared to using \$225.0 million during the same period in 2017. Purchase of short-term investments and capital expenditures drove cash outflows from investing activities during the nine months ended September 30, 2018 while the acquisition of Globe drove cash outflows from investing in the same period in 2017.

Financing activities. Financing activities used cash of \$123.9 million during the nine months ended September 30, 2018, compared to providing \$32.1 million during the same period in 2017. During the nine months ended September 30, 2018, we had net payments on long-term debt of \$80.7 million as compared to net proceeds of \$75.9 million during the same period in 2017. We paid cash dividends of \$42.6 million during the nine months ended September 30, 2018, compared to \$39.2 million in the same period in 2017.

In August 2018, we repaid our 5.41% 2006 Senior Notes in the amount of \$28.0 million, which included \$1.5 million related to a make-whole provision and accrued interest through the date of repayment.

CUMULATIVE TRANSLATION ADJUSTMENTS

The position of the U.S. dollar relative to international currencies at September 30, 2018, resulted in a translation loss of \$18.9 million being recorded to the cumulative translation adjustments shareholders' equity account during the nine months ended September 30, 2018, compared to a gain of \$32.2 million during the same period in 2017. The translation loss during the nine months ended September 30, 2018, was primarily related to the strengthening of the U.S. dollar relative to the euro, British pound and Brazilian real. The translation gain during the nine months ended September 30, 2017, was primarily related to the strengthening of the euro, British pound and Mexican peso relative to the U.S. dollar.

Inflation in Argentina in the second quarter of 2018 increased at an accelerated rate and effective June 30, 2018, Argentina's economy is considered highly inflationary. Beginning July 1, 2018, under a highly-inflationary basis of accounting, the Company's monetary assets (such as cash and receivables) and monetary liabilities (such as payables and accruals) at its operations in Argentina will be remeasured at the end of each reporting period with such entries recorded to the income statement rather than to accumulated other comprehensive loss on the balance sheet. Because the Argentinian peso is subject to fluctuation, such remeasurement would increase the volatility of reported results of operations in future periods. However, as the Company has a small presence, including one manufacturing plant, in the country, the impact from the highly-inflationary basis of accounting is not expected to be material.

COMMITMENTS AND CONTINGENCIES

We made contributions of \$3.7 million to our pension plans during the nine months ended September 30, 2018. We expect to make total contributions of approximately \$5.0 million to our pension plans in 2018 which are primarily associated with our International segment.

The Company had outstanding bank guarantees and standby letters of credit with banks as of September 30, 2018, totaling \$11.1 million, of which \$3 million related to the senior revolving credit facility. These letters of credit serve to cover customer requirements in connection with certain sales orders and insurance companies. No amounts were drawn on these arrangements at September 30, 2018. The Company is also required to provide cash collateral in connection with certain arrangements. At September 30, 2018, the Company has \$0.4 million of restricted cash in support of these arrangements.

We have purchase commitments for materials, supplies, services, and property, plant and equipment as part of our ordinary conduct of business.

Please refer to Note 19—Contingencies to the unaudited condensed consolidated financial statements in Part I Item 1 of this Form 10-Q for further discussion on the Company's product liabilities.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

We prepare our consolidated financial statements in accordance with accounting principles generally accepted in the United States of America (U.S. GAAP). The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and the related disclosures. We evaluate these estimates and judgments on an on-going basis based on historical experience and various assumptions that we believe to be reasonable under the circumstances. However, different amounts could be reported if we had used different assumptions and in light of different facts and circumstances. Actual amounts could differ from the estimates and judgments reflected in our consolidated financial statements.

The more critical judgments and estimates used in the preparation of our consolidated financial statements are discussed in Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations in our Annual Report on Form 10-K for the year ended December 31, 2017.

Refer to Note 3—Significant Accounting Policies Update to the unaudited condensed consolidated financial statements for an update to the accounting policy for revenue recognition as a result of the adoption of 2014-09, *Revenue with Contracts from Customers*, on January 1, 2018, as well as the inclusion of our new investment securities policy.

Effective December 31, 2017, the Company changed the method it uses to estimate the service and interest cost components of net periodic benefit cost for pension and other post-retirement benefits for a majority of its U.S. and foreign plans. Historically, the service and interest cost components for these plans were estimated using a single weighted-average discount rate derived from the yield curve used to measure the projected benefit obligation at the beginning of the period. The Company has elected to utilize a spot rate approach, which discounts the individual plan specific expected cash flows underlying the service and interest cost using the applicable spot rates derived from a yield curve used in the determination of the benefit obligation to the relevant projected cash flows. Refer to Note 16—Pensions and Other Post-retirement Benefits to the unaudited condensed consolidated financial statements for additional information.

RECENTLY ADOPTED AND RECENTLY ISSUED ACCOUNTING STANDARDS

Please refer to Note 2— Recently Adopted and Recently Issued Accounting Standards to the unaudited condensed consolidated financial statements in Part I Item 1 of this Form 10-Q.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

Market risk represents the risk of adverse changes in the value of a financial instrument caused by changes in currency exchange rates, interest rates and equity prices. We are exposed to market risks related to currency exchange rates and interest rates.

Currency exchange rate sensitivity. We are subject to the effects of fluctuations in currency exchange rates on various transactions and on the translation of the reported financial position and operating results of our non-U.S. companies from local currencies to U.S. dollars. A hypothetical 10% strengthening or weakening of the U.S. dollar would decrease or increase our reported sales and net income by approximately \$15.4 million or 4.7% and \$1.5 million or 4.4%, respectively, for the three months ended September 30, 2018.

When appropriate, we may attempt to limit our transactional exposure to changes in currency exchange rates through contracts or other actions intended to reduce existing exposures by creating offsetting currency exposures. At September 30, 2018, we had open foreign currency forward contracts with a U.S. dollar notional value of \$73.0 million. A hypothetical 10% increase in September 30, 2018, forward exchange rates would result in a \$7.3 million increase in the fair value of these contracts.

Interest rates. We are exposed to changes in interest rates primarily as a result of borrowing and investing activities used to maintain liquidity and fund business operations. Because of the relatively short maturities of temporary investments, these financial instruments are reported at carrying values that approximate fair values.

At September 30, 2018, we had \$151.6 million of fixed rate debt which matures at various dates through 2031. The incremental increase in the fair value of fixed rate long-term debt resulting from a hypothetical 10% decrease in interest rates would be approximately \$11.7 million. However, our sensitivity to interest rate declines and the corresponding increase in the fair value of our debt portfolio would unfavorably affect earnings and cash flows only to the extent that we elected to repurchase or retire all or a portion of our fixed rate debt portfolio at prices above carrying values.

At September 30, 2018, we had \$240.6 million of variable rate borrowings under our revolving credit facility. A 100 basis point increase or decrease in interest rates could impact our future earnings under our current capital structure.

Item 4. Controls and Procedures

- (a) *Evaluation of disclosure controls and procedures.* Based on their evaluation as of the end of the period covered by this Form 10-Q, the Company's principal executive officer and principal financial officer have concluded that the Company's disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934 (the "Exchange Act")) are effective to ensure that information required to be disclosed by the Company in reports that it files or submits under the Exchange Act is (i) recorded, processed, summarized and reported within the time periods specified in Securities and Exchange Commission rules and forms and (ii) accumulated and communicated to our management, including the principal executive officer and principal financial officer, as appropriate to allow timely decisions regarding disclosure.
- (b) *Changes in internal control.* There were no changes in the Company's internal control over financial reporting that occurred during the most recent fiscal quarter that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

PART II. OTHER INFORMATION

Item 1A. Risk Factors

Claims of injuries from our products, product defects or recalls of our products could have a materially adverse effect on our business, operating results, financial condition and liquidity.

MSA and its subsidiaries face an inherent business risk of exposure to product liability claims arising from the alleged failure of our products to prevent the types of personal injury or death against which they are designed to protect. In the event the parties using our products are injured or any of our products prove to be defective, we could be subject to claims with respect to such injuries. In addition, we may be required to or may voluntarily recall or redesign certain products that could potentially be harmful to end users. Any claim or product recall that results in significant expense or negative publicity against us could have a material adverse effect on our business, operating results, financial condition and liquidity, including any successful claim brought against us in excess or outside of available insurance coverage.

Our subsidiary, Mine Safety Appliances Company, LLC, may experience losses from cumulative trauma product liability claims. The inability to collect insurance receivables and the transition to becoming largely self-insured for cumulative trauma product liability claims could have a material adverse effect on our business, operating results, financial condition and liquidity.

Our subsidiary, Mine Safety Appliances Company, LLC (“MSA LLC”) was named as a defendant in 1,517 cumulative trauma lawsuits comprised of 2,392 claims at September 30, 2018. Cumulative trauma product liability claims involve exposures to harmful substances (e.g., silica, asbestos and coal dust) that occurred years ago and may have developed over long periods of time into diseases such as silicosis, asbestosis, mesothelioma or coal worker’s pneumoconiosis. The products at issue were manufactured many years ago and are not currently offered by MSA LLC. A reserve has been established with respect to cumulative trauma product liability claims currently asserted and estimated incurred but not reported (“IBNR”) cumulative trauma product liability claims. Because our cumulative trauma product liability risk is subject to inherent uncertainties, including unfavorable trial rulings or developments, an increase in newly filed claims, or more aggressive settlement demands, and since MSA LLC is largely self-insured, there can be no certainty that MSA LLC may not ultimately incur losses in excess of presently recorded liabilities. These losses could have a material adverse effect on our business, operating results, financial condition and liquidity. We will adjust the reserve relating to cumulative trauma product liability claims from time to time based on whether the actual numbers, types and settlement values of claims asserted differ from current projections and estimates or there are significant changes in the facts underlying the assumptions used in establishing the reserve. These adjustments may be material and could materially impact future periods in which the reserve is adjusted.

In the normal course of business, MSA LLC makes payments to settle these types of cumulative trauma product liability claims and for related defense costs, and records receivables for the estimated amounts believed to be recoverable under insurance. MSA LLC has recorded insurance receivables totaling \$61.8 million and notes receivables of \$64.2 million at September 30, 2018. Since MSA LLC is now largely self-insured for cumulative trauma claims, additional amounts recorded as insurance receivables will be limited and based on calculating the amounts to be reimbursed pursuant to negotiated Coverage-In-Place Agreements. Various factors could affect the timing and amount of recovery of the insurance receivable, including assumptions regarding claims composition (which are relevant to calculating reimbursement under the terms of certain Coverage-In-Place Arrangements) and the extent to which the issuing insurers may become insolvent in the future.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

(c) Issuer Purchases of Equity Securities

Period	Total Number of Shares Purchased	Average Price Paid Per Share	Total Number of Shares Purchased As Part of Publicly Announced Plans or Programs	Maximum Number of Shares That May Yet Be Purchased Under the Plans or Programs
July 1 - 31, 2018	2,722	\$ 99.91	—	804,076
August 1 - 31, 2018	1,759	101.09	—	802,405
September 1 - 30, 2018	136	106.44	—	762,074

The share repurchase program authorizes up to \$100.0 million in repurchases of MSA common stock in the open market and in private transactions. The share purchase program has no expiration date. The maximum shares that may be purchased is calculated based on the dollars remaining under the program and the respective month-end closing share price.

Shares purchased during the quarter relate to stock compensation transactions.

We do not have any other share repurchase programs.

Item 6. Exhibits

(a) Exhibits

- 31.1 [Certification of Chief Executive Officer pursuant to Rule 13a-14\(a\)](#)
- 31.2 [Certification of Chief Financial Officer pursuant to Rule 13a-14\(a\)](#)
- 32 [Certification of Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. \(S\)1350](#)
- 101.INS XBRL Instance Document
- 101.SCH XBRL Taxonomy Extension Schema Document
- 101.CAL XBRL Taxonomy Extension Calculation Linkbase Document
- 101.DEF XBRL Taxonomy Extension Definition Linkbase Document
- 101.LAB XBRL Taxonomy Extension Label Linkbase Document
- 101.PRE XBRL Taxonomy Extension Presentation Linkbase Document

SIGNATURE

Pursuant to the requirements 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.

MSA SAFETY INCORPORATED

October 25, 2018

/s/ Kenneth D. Krause

Kenneth D. Krause

Sr. Vice President, Chief Financial Officer and Treasurer
Duly Authorized Officer and Principal Financial Officer

CERTIFICATION OF CHIEF EXECUTIVE OFFICER PURSUANT TO RULE 13a-14(a)

I, Nishan J. Vartanian, certify that:

1. I have reviewed this quarterly report on Form 10-Q of MSA Safety Incorporated;
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 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 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.

October 25, 2018

/s/ Nishan J. Vartanian

Nishan J. Vartanian

President and Chief Executive Officer

CERTIFICATION OF CHIEF FINANCIAL OFFICER PURSUANT TO RULE 13a-14(a)

I, Kenneth D. Krause certify that:

1. I have reviewed this quarterly report on Form 10-Q of MSA Safety Incorporated;
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 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 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.

October 25, 2018

/s/ Kenneth D. Krause

Kenneth D. Krause

Sr. Vice President, Chief Financial Officer and Treasurer

CERTIFICATION

Pursuant to 18 U.S.C. (S) 1350, the undersigned officers of MSA Safety Incorporated (the “Company”), hereby certify, to the best of their knowledge, that the Company’s Quarterly Report on Form 10-Q for the quarter ended September 30, 2018 (the “Report”) fully complies with the requirements of Section 13 (a) or 15 (d), as applicable, of the Securities Exchange Act of 1934 and that the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

October 25, 2018

/s/ Nishan J. Vartanian

Nishan J. Vartanian

President and Chief Executive Officer

/s/ Kenneth D. Krause

Kenneth D. Krause

Sr. Vice President, Chief Financial Officer and Treasurer