CTS CORP
Form 10-Q
July 27, 2017

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549
FORM 10-Q

(Mark One)
x QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For The Quarterly Period Ended June 30, 2017

OR

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

For the Transition Period from _______________ to _______________

Commission File Number: 1-4639

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

Indiana	35-0225010
(State or other jurisdiction of incorporation or organization)	(IRS Employer Identification Number)
2375 Cabot Drive, Lisle, IL	60532
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code: 630-577-8800

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

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

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

Large accelerated filer o Accelerated filer Non-accelerated filer o Smaller reporting company o

(Do not check if smaller reporting company)

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

Indicate the number of shares outstanding of each of the issuer's classes of common stock, as of July 24, 2017: 32,933,326.

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PART I - FINANCIAL INFORMATION
Item 1. Financial Statements
CTS CORPORATION AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF EARNINGS - UNAUDITED
(In thousands of dollars, except per share amounts)

	Three Months Ended		Six Months Ended	
	June 30, 2017	June 30, 2016	June 30, 2017	June 30, 2016
Net sales	$105,686	$98,693	$205,840	$195,398
Cost of goods sold	69,892	64,236	135,822	127,472
Gross Margin	35,794	34,457	70,018	67,926
Selling, general and administrative expenses	15,809	15,764	31,055	30,411
Research and development expenses	6,049	5,967	12,052	12,130
Restructuring charges	729	206	1,507	206
(Gain) loss on sale of assets	(1)	(11,577)	1	(11,351)
Operating earnings	13,208	24,097	25,403	36,530
Other income (expense):				
Interest expense	(752)	(1,009)	(1,436)	(1,829)
Interest income	298	331	551	879
Other income (expense)	1,170	(1,240)	1,631	(1,436)
Total other income (expense)	716	(1,918)	746	(2,386)
Earnings before income taxes	13,924	22,179	26,149	34,144
Income tax expense	3,958	7,692	7,699	11,794
Net earnings	$9,966	$14,487	$18,450	$22,350
Earnings per share:				
Basic	0.30	0.44	0.56	0.68
Diluted	0.30	0.44	0.55	0.67
Basic weighted – average common shares outstanding:	32,890	32,759	32,846	32,695
Effect of dilutive securities	461	466	493	485
Diluted weighted – average common shares outstanding	33,351	33,225	33,339	33,180
Cash dividends declared per share	0.04	0.04	0.08	0.08

See notes to unaudited condensed consolidated financial statements.

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CTS CORPORATION AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME UNAUDITED
(In thousands of dollars)

	Three Months Ended		Six Months Ended	
	June 30, 2017	June 30, 2016	June 30, 2017	June 30, 2016
Net earnings	$9,966	$14,487	$18,450	$22,350
Other comprehensive income (loss):				
Changes in fair market value of derivatives, net of tax	(152)	(67)	608	227
Changes in unrealized pension cost, net of tax	942	947	1,758	1,855
Cumulative translation adjustment, net of tax	200	(317)	288	(726)
Other comprehensive income	$990	$563	$2,654	$1,356
Comprehensive earnings	$10,956	$15,050	$21,104	$23,706

See notes to unaudited condensed consolidated financial statements.

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CTS CORPORATION AND SUBSIDIARIES
CONDENSED CONSOLIDATED BALANCE SHEETS
(In thousands of dollars)

	(Unaudited) June 30, 2017	December 31, 2016
ASSETS		
Current Assets		
Cash and cash equivalents	$ 107,814	$ 113,805
Accounts receivable, net	66,737	62,612
Inventories, net	36,094	28,652
Other current assets	11,925	10,638
Total current assets	222,570	215,707
Property, plant and equipment, net	85,174	82,111
Other Assets		
Prepaid pension asset	50,107	46,183
Goodwill	69,582	61,744
Other intangible assets, net	69,059	64,370
Deferred income taxes	40,373	45,839
Other	1,525	1,743
Total other assets	230,646	219,879
Total Assets	$ 538,390	$ 517,697
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current Liabilities		
Short-term notes payable	$ 1,059	$ 1,006
Accounts payable	42,660	40,046
Accrued payroll and benefits	8,631	11,369
Accrued liabilities	42,213	45,708
Total current liabilities	94,563	98,129
Long-term debt	92,800	89,100
Post-retirement obligations	6,913	7,006
Other long-term obligations	7,634	5,580
Total Liabilities	201,910	199,815
Commitments and Contingencies (Note 9)		
Shareholders' Equity		
Common stock	304,715	302,832
Additional contributed capital	38,764	40,521
Retained earnings	426,797	410,979
Accumulated other comprehensive loss	(90,540)	(93,194)
Total shareholders' equity before treasury stock	679,736	661,138
Treasury stock	(343,256)	(343,256)
Total shareholders' equity	336,480	317,882
Total Liabilities and Shareholders' Equity	$ 538,390	$ 517,697

See notes to unaudited condensed consolidated financial statements.

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CTS CORPORATION AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS UNAUDITED
(In thousands of dollars)

	Six Months Ended	
	June 30, 2017	June 30, 2016
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net earnings	$18,450	$22,350
Adjustments to reconcile net earnings to net cash provided by operating activities:		
Depreciation and amortization	9,673	8,925
Pension and other post-retirement plan income	(893)	(794)
Stock-based compensation	1,687	967
Deferred income taxes	4,497	2,877
Loss (gain) on sales of fixed assets	1	(11,351)
Loss on foreign currency hedges, net of cash	73	43
Changes in assets and liabilities:		
Accounts receivable	(1,950)	(5,805)
Inventories	(4,737)	842
Other assets	(76)	(2,115)
Accounts payable	1,616	169
Accrued payroll and benefits	(4,735)	3,553
Accrued expenses	(1,944)	(2,594)
Income taxes payable	(347)	800
Other liabilities	2,115	(1,466)
Pension and other post-retirement plans	(159)	(175)
Net cash provided by operating activities	23,271	16,226
CASH FLOWS FROM INVESTING ACTIVITIES:		
Capital expenditures	(9,110)	(7,483)
Proceeds from sale of assets	1	12,237
Payments for acquisitions, net of cash acquired	(19,265)	(73,063)
Net cash used in investing activities	(28,374)	(68,309)
CASH FLOWS FROM FINANCING ACTIVITIES:		
Payments of long-term debt	(790,600)	(1,462,100)
Proceeds from borrowings of long-term debt	794,300	1,482,200
Dividends paid	(2,624)	(2,612)
Taxes paid on behalf of equity award participants	(1,569)	(1,775)
Net cash (used in) provided by financing activities	(493)	15,713
Effect of exchange rate changes on cash and cash equivalents	(395)	(646)
Net decrease in cash and cash equivalents	(5,991)	(37,016)
Cash and cash equivalents at beginning of period	113,805	156,928
Cash and cash equivalents at end of period	$107,814	$119,912
Supplemental cash flow information:		
Cash paid for interest	$1,053	$1,547
Cash paid for income taxes, net	$3,515	$8,703

See notes to unaudited condensed consolidated financial statements.

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NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS - UNAUDITED
(in thousands except for share and per share data)
June 30, 2017
NOTE 1—Basis of Presentation

The accompanying condensed consolidated financial statements have been prepared by CTS Corporation (“CTS” "we", "our", "us" or the "Company”), without audit, pursuant to the rules and regulations of the Securities and Exchange Commission. Certain information and footnote disclosures normally included in financial statements prepared in accordance with generally accepted accounting principles have been omitted pursuant to such rules and regulations. The unaudited condensed consolidated financial statements should be read in conjunction with the financial statements, notes thereto, and other information included in the Company’s Annual Report on Form 10 K for the year ended December 31, 2016.

The accompanying unaudited condensed consolidated financial statements reflect, in the opinion of management, all adjustments (consisting of normal recurring items) necessary for a fair statement, in all material respects, of the financial position and results of operations for the periods presented. The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reported period. Actual results could differ materially from those estimates. The results of operations for the interim periods are not necessarily indicative of the results for the entire year.

Change in Estimate

Beginning in January 2017, we changed the method we use to calculate the service and interest cost components of net periodic benefit cost for our U.S. pension and other post-retirement benefit plans. Previously, we calculated the service and interest cost components using a single weighted-average discount rate derived from the yield curve to measure the benefit obligation at the beginning of the period. In 2017, we began using a full yield curve approach in the estimation of these components of benefit cost by applying the specific spot-rates along the yield curve to the relevant projected cash flows. This approach better aligns each of the projected benefit cash flows to the corresponding spot rates on the yield curve, resulting in a more precise measurement of service and interest costs. The change in method will result in a decrease in the service and interest components of pension costs in 2017. Any decrease to these components as a result of adoption of this approach is equally offset by a decrease in the actuarial losses included in our accumulated other comprehensive loss, with no impact on the measurement of the benefit obligation. This change is accounted for prospectively as a change in accounting estimate.

Subsequent Events

We have evaluated subsequent events and transactions for potential recognition or disclosure in the financial statements through the date the consolidated financial statements are issued.

NOTE 2 – Accounts Receivable
The components of accounts receivable are as follows:

	As of	
	June 30, 2017	December 31, 2016
Accounts receivable, gross	$66,918	$62,782
Less: Allowance for doubtful accounts	(181)	(170)

Accounts receivable, net	$66,737	$62,612

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NOTE 3 – Inventories

Inventories consist of the following:

	As of June 30, 2017	December 31, 2016
Finished goods	$8,042	$7,513
Work-in-process	13,684	9,596
Raw materials	21,552	17,680
Less: Inventory reserves	(7,184)	(6,137)
Inventories, net	$36,094	$28,652

NOTE 4 – Property, Plant and Equipment

Property, plant and equipment is comprised of the following:

	As of June 30, 2017	December 31, 2016
Land	$2,635	$2,330
Buildings and improvements	64,309	63,621
Machinery and equipment	220,995	213,198
Less: Accumulated depreciation	(202,765)	(197,038)
Property, plant and equipment, net	$85,174	$82,111
Depreciation expense for the six months ended June 30, 2017		$6,524
Depreciation expense for the six months ended June 30, 2016		$6,308

NOTE 5 – Retirement Plans

Pension Plans

Net pension income for our domestic and foreign plans was as follows:

	Three Months Ended		Six Months Ended	
	June 30, 2017	June 30, 2016	June 30, 2017	June 30, 2016
Net pension income	$(491)	$(402)	$(924)	$(794)

The components of net pension (income) expense for our domestic and foreign plans include the following:

	Domestic Pension Plans Three Months Ended		Foreign Pension Plans Three Months Ended	
	June 30, 2017	June 30, 2016	June 30, 2017	June 30, 2016
Service cost	$ —	$ 22	$ 12	$ 13
Interest cost	2,068	2,756	9	11
Expected return on plan assets (1)	(4,060)	(4,744)	(5)	7

Amortization of loss	1,446	1,498	39	35
(Income) expense, net	$ (546)	$ (468)	$ 55	$ 66

(1) Expected return on plan assets is net of expected investment expenses and certain administrative expenses.

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	Domestic Pension Plans Six Months Ended		Foreign Pension Plans Six Months Ended	
	June 30, 2017	June 30, 2016	June 30, 2017	June 30, 2016
Service cost	—	$ 44	$ 24	$ 25
Interest cost	4,136	5,512	17	22
Expected return on plan assets (1)	(8,121)	(9,488)	(10)	14
Amortization of loss	2,892	2,996	77	69
Other cost due to retirement	61	12	—	—
(Income) expense, net	(1,032)	(924)	108	130

(1) Expected return on plan assets is net of expected investment expenses and certain administrative expenses.

Other Post-retirement Benefit Plan

Net post-retirement expense for our other post-retirement plan includes the following components:

	Three Months Ended		Six Months Ended	
	June 30, 2017	June 30, 2016	June 30, 2017	June 30, 2016
Service cost	$—	$1	$1	$2
Interest cost	40	52	80	104
Amortization of gain	(25)	(37)	(50)	(75)
Post-retirement expense	$15	$16	$31	$31

NOTE 6 – Other Intangible Assets

Intangible assets consist of the following components:

	As of June 30, 2017		
	Gross Carrying Amount	Accumulated Amortization	Net Amount
Customer lists/relationships	$63,386	$ (31,972)	$ 31,414
Patents	10,319	(10,319)	—
Technology and other intangibles	44,093	(8,648)	35,445
In process research and development	2,200	—	2,200
Other intangible assets, net	$119,998	$ (50,939)	$ 69,059
Amortization expense for the three months ended June 30, 2017		$ 1,613	
Amortization expense for the six months ended June 30, 2017		$ 3,149	

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	As of December 31, 2016		
	Gross Carrying Amount	Accumulated Amortization	Net Amount
Customer lists/relationships	$63,386	$ (30,318)	$ 33,068
Patents	10,319	(10,319)	—
Technology and other intangibles	36,715	(7,613)	29,102
In process research and development	2,200	—	2,200
Other intangible assets, net	$112,620	$ (48,250)	$ 64,370
Amortization expense for the three months ended June 30, 2016		$ 1,522	
Amortization expense for the six months ended June 30, 2016		$ 2,617	

Amortization expense remaining for other intangible assets is as follows:

	Amortization expense
2017	$ 3,414
2018	6,756
2019	6,747
2020	6,747
2021	6,668
Thereafter	38,727
Total amortization expense	$ 69,059

NOTE 7 – Costs Associated with Exit and Restructuring Activities

Costs associated with exit and restructuring activities are recorded in the Condensed Consolidated Statement of Earnings as a separate component of Operating earnings.

Total restructuring charges, all related to the June 2016 Plan described below, were as follows:

	Three Months Ended	
	June 30, 2017	June 30, 2016
Restructuring charges	729	206

	Six Months Ended	
	June 30, 2017	June 30, 2016
Restructuring charges	1,507	206

In June 2016, we announced plans to restructure operations by phasing out production at our Elkhart facility by mid-2018 and transitioning it into a research and development center supporting our global operations ("June 2016 Plan"). Additional organizational changes will also occur in various other locations. The cost of the plan is expected to be approximately $12,300 and will impact approximately 230 employees. The total restructuring liability related to severance and other one-time benefit arrangements under the June 2016 Plan was $1,522 at June 30, 2017 and $1,739 at December 31, 2016. Additional costs related to line movements, equipment charges, and other costs will be expensed as incurred.

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The following table displays the planned restructuring charges associated with the June 2016 Plan as well as a summary of the actual costs incurred through June 30, 2017:

June 2016 Plan	Planned Costs	Actual costs incurred through June 30, 2017
Workforce reduction	3,075	2,687
Equipment relocation	7,925	1,522
Other charges	1,300	345
Total restructuring charges	12,300	4,554

In April 2014, we announced plans to restructure our operations and consolidate our Canadian operations into other existing facilities as part of our overall plan to simplify its business model and rationalize our global footprint ("April 2014 Plan"). These restructuring actions, which were completed during 2015, impacted approximately 120 positions. The remaining restructuring liability related to the April 2014 Plan was $441 at June 30, 2017 and $423 at December 31, 2016. The following table displays the restructuring liability activity for all plans for the six months ended June 30, 2017:

Combined Plans	
Restructuring liability at January 1, 2017	$2,162
Restructuring charges	1,507
Cost paid	(1,751)
Other activity (1)	45
Restructuring liability at June 30, 2017	$1,963

(1) Other activity includes the effects of currency translation and other charges that do not flow through restructuring expense.

NOTE 8 – Accrued Liabilities

The components of accrued liabilities are as follows:

	As of	
	June 30, 2017	December 31, 2016
Accrued product related costs	$5,274	$ 5,556
Accrued income taxes	9,542	9,826
Accrued property and other taxes	1,615	1,917
Accrued professional fees	1,413	1,633
Dividends payable	1,318	1,309
Remediation reserves	18,357	18,176
Other accrued liabilities	4,694	7,291
Total accrued liabilities	$42,213	$ 45,708

NOTE 9 – Contingencies

Certain processes in the manufacture of our current and past products create by-products classified as hazardous waste. We have been notified by the U.S. Environmental Protection Agency, state environmental agencies, and in some cases, groups of potentially responsible parties, that we may be potentially liable for environmental contamination at several sites currently and formerly owned or operated by us. Some sites, such as Asheville, North Carolina and Mountain View, California, are designated National Priorities List sites under the U.S. Environmental Protection Agency's Superfund program. We reserve for probable remediation activities and for claims and proceedings against us with respect to other environmental matters. We record reserves on an undiscounted basis. In the opinion of management, based upon presently available information relating to such matters, adequate provision for probable and estimable costs have been recorded. We do not have any known environmental obligations where a loss is probable or reasonably possible of occurring for which we do not have a reserve, nor do we have any amounts for which we have not reserved because the amount of the loss cannot be reasonably estimated. Due to the inherent nature of environmental obligations, we cannot provide assurance that our ultimate environmental liability will not materially exceed the amount of its current reserve. Our reserve and disclosures will be adjusted accordingly if additional information becomes available in the future.

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A roll forward of remediation reserves included in accrued liabilities on the balance sheet is comprised of the following:

	June 30, 2017	December 31, 2016
Balance at beginning of period	$18,176	$ 20,603
Remediation expense	130	556
Net remediation reimbursements (payments)	51	(2,983)
Balance at end of the period	$18,357	$ 18,176

During the quarter ended June 30, 2017, we received a reimbursement of remediation costs under a cost-allocation agreement that we entered into with an unrelated party in the amount of $811. This reimbursement has been reflected in the net remediation reimbursements above.

Unrelated to the environmental claims described above, certain other claims are pending against us with respect to matters arising in the ordinary conduct of our business. Although the ultimate outcome of any potential litigation resulting from these claims cannot be predicted with certainty, and some may be disposed of unfavorably to us, we believe that adequate provision for anticipated costs have been established based upon all presently available information. Except as noted herein, we do not believe we have any pending loss contingencies that are probable or reasonably possible of having a material impact on our consolidated financial position, results of operations, or cash flows.

NOTE 10 - Debt

Long-term debt was comprised of the following:

	As of	
	June 30, 2017	December 31, 2016
Revolving credit facility due in 2020	$92,800	$89,100
Weighted average interest rate	2.2 %	1.9 %
Amount available	$205,135	$208,735
Total credit facility	$300,000	$300,000
Standby letters of credit	$2,065	$2,165
Commitment fee percentage per annum	0.25 %	0.25 %

On August 10, 2015, we entered into a new five-year credit agreement (“Revolving Credit Facility”) with a group of banks in order to support our financing needs. The Revolving Credit Facility originally provided for a credit line of $200,000. On May 23, 2016, we requested and received a $100,000 increase in the aggregate revolving credit commitments under the existing credit agreement, which increased the credit line from $200,000 to $300,000.

The Revolving Credit Facility includes a swing line sublimit of $15,000 and a letter of credit sublimit of $10,000. Borrowings under the Revolving Credit Facility bear interest, at our option, at the base rate plus the applicable margin for base rate loans or LIBOR plus the applicable margin for LIBOR loans. We also pay a quarterly commitment fee on the unused portion of the Revolving Credit Facility. The commitment fee ranges from 0.20% to 0.40% based on the our total leverage ratio.

The Revolving Credit Facility requires, among other things, that we comply with a maximum total leverage ratio and a minimum fixed charge coverage ratio. Failure to comply with these covenants could reduce the borrowing availability under the Revolving Credit Facility. We were in compliance with all debt covenants at June 30, 2017.

The Revolving Credit Facility requires that we deliver quarterly financial statements, annual financial statements, auditor certifications, and compliance certificates within a specified number of days after the end of a quarter and year. Additionally, the Revolving Credit Facility contains restrictions limiting our ability to: dispose of assets; incur certain additional debt; repay other debt or amend subordinated debt instruments; create liens on assets; make investments, loans or advances; make acquisitions or engage in mergers or consolidations; engage in certain transactions with our subsidiaries and affiliates; and make stock repurchases and dividend payments. Interest rates on the Revolving Credit Facility fluctuate based upon the London Interbank Offered Rate and the Company's quarterly total leverage ratio.

We have debt issuance costs related to our long-term debt that is being amortized using the straight-line method over the life of the debt. These costs are included in interest expense in our Condensed Consolidated Statement of Earnings. Amortization expense

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was approximately $46 and $38 for the three months ended June 30, 2017 and June 30, 2016, respectively, and approximately $93 and $70 for the six months ended June 30, 2017 and June 30, 2016, respectively.

Note 11 - Derivative Financial Instruments

Our earnings and cash flows are subject to fluctuations due to changes in foreign currency exchange rates and interest rates. We selectively use derivative financial instruments including foreign currency forward contracts and interest rate swaps to manage our exposure to these risks.

The use of derivative financial instruments exposes the Company to credit risk, which relates to the risk of nonperformance by a counterparty to the derivative contracts. We manage our credit risk by entering into derivative contracts with only highly rated financial institutions and by using netting agreements.

Foreign Currency Hedges

In January of 2016, we began using forward contracts to mitigate currency risk related to a portion of our forecasted foreign currency revenues and costs. The currency forward contracts are designed as cash flow hedges and are recorded in the Condensed Consolidated Balance Sheets at fair value. At least quarterly, we assess the effectiveness of these hedging relationships based on the total change in their fair value using regression analysis. The effective portion of derivative gains and losses are recorded in accumulated other comprehensive income (loss) until the hedged transaction affects earnings upon settlement, at which time they are reclassified to cost of goods sold or net sales. Ineffectiveness is recorded in other income (expense) in our Condensed Consolidated Statement of Earnings. If it becomes probable that an anticipated transaction that is hedged will not occur by the end of the originally specified time period, we reclassify the gains or losses related to that hedge from accumulated other comprehensive income (loss) to other income (expense).

We continue to monitor the Company’s overall currency exposure and may elect to add cash flow hedges in the future. At June 30, 2017, we had a net unrealized gain of $428 in accumulated other comprehensive income, of which $428 is expected to be reclassified to income within the next 12 months. At June 30, 2016 we had a net unrealized gain of $77 in accumulated other comprehensive income (loss). The notional amount of foreign currency forward contracts outstanding was $11.5 million at June 30, 2017.

Interest Rate Swaps

We use interest rate swaps to convert the revolving credit facility’s variable rate of interest into a fixed rate. In the second quarter of 2012, CTS entered into four separate interest rate swap agreements to fix interest rates on $50,000 of long-term debt for the periods January 2013 to January 2017. In the third quarter of 2012, we entered into four additional interest rate swap agreements to fix interest rates on $25,000 of long-term debt for the periods January 2013 to January 2017. In the third quarter of 2016, we entered into three additional forward-starting interest rate swap agreements to fix interest rates on $50,000 of long-term debt for the periods August 2017 to August 2020. The difference to be paid or received under the terms of the swap agreements will be recognized as an adjustment to interest expense when settled.

These swaps are treated as cash flow hedges and consequently, the changes in fair value were recorded in other comprehensive income (loss). The estimated net amount of the existing gains or losses that are reported in accumulated other comprehensive income (loss) that is expected to be reclassified into earnings within the next twelve months is approximately $114.

The location and fair values of derivative instruments designated as hedging instruments in the Condensed Consolidated Balance Sheets as of June 30, 2017, are shown in the following table:

	As of	
	June 30,	December 31,

	2017	2016
Foreign currency hedges reported in Accrued liabilities	$—	$ 601
Foreign currency hedges reported in Other current assets	$390	$ —
Interest rate swaps reported in Other current assets	$114	$ 2
Interest rate swaps reported in Other assets	$529	$ 751

The Company has elected to net its foreign currency derivative assets and liabilities in the balance sheet in accordance with ASC 210-20 (Balance Sheet, Offsetting). On a gross basis, there were foreign currency derivative assets of $712 and foreign currency derivative liabilities of $322.

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The effect of derivative instruments on the Condensed Consolidated Statements of Earnings is as follows:

	Three Months Ended		Six Months Ended	
	June 30, 2017	June 30, 2016	June 30, 2017	June 30, 2016
Foreign Exchange Contracts:				
Loss recognized in Net Sales	$(57)	$(84)	$(59)	$(91)
Gain (loss) recognized in Cost of Goods Sold	58	88	(86)	88
Gain recognized in Selling, General and Administrative expense	13	6	10	10
Loss recognized in Other (expenses) income	(1)	—	(9)	(1)
Interest Rate Swaps:				
Benefit recorded in Interest Expense	$—	$161	$—	$313
Total gain / (loss)	$13	$171	$(144)	$319

NOTE 12 – Accumulated Other Comprehensive (Loss) Income

Shareholders’ equity includes certain items classified as accumulated other comprehensive (loss) income (“AOCI”) in the Condensed Consolidated Balance Sheets, including:

Unrealized gains (losses) on hedges relate to interest rate swaps to convert the revolving credit facility's variable rate of interest into a fixed rate and foreign currency forward contracts used to hedge our exposure to changes in exchange rates affecting certain revenues and costs denominated in foreign currencies. These hedges are designated as cash flow hedges, and we have deferred income statement recognition of gains and losses until the hedged transactions occur, at which time amounts are reclassified into earnings. Further information related to CTS’ derivative financial instruments is included in Note 11 - Derivative Financial Instruments and Note 15 – Fair Value Measurements.

Unrealized gains (losses) on pension obligations are deferred from income statement recognition until the gains or losses are realized. Amounts reclassified to income from AOCI are included in net periodic pension income / (expense). Further information related to our pension obligations is included in Note 5 – Retirement Plans.

Cumulative translation adjustment relates to our non-U.S. subsidiary companies that have designated a functional currency other than the U.S. dollar. We are required to translate the subsidiary functional currency financial statements to dollars using a combination of historical, period-end, and average foreign exchange rates. This combination of rates creates the foreign currency translation adjustment component of other comprehensive (loss) income.

Changes in exchange rates between the functional currency and the currency in which a transaction is denominated are foreign exchange transaction gains or losses. Transaction gains for the three and six months ended June 30, 2017 were $1,162 and $1,557, respectively and transaction losses for the three and six months ended June 30, 2016 were $1,260 and $1,491, respectively, which have been included in other income (expense) in the Condensed Consolidated Statement of Earnings.

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The components of accumulated other comprehensive (loss) income for the three months ended June 30, 2017, are as follows:

	As of March 31, 2017	Gain (Loss) Recognized in OCI	Gain (Loss) Reclassified from AOCI to Income	As of June 30, 2017
Changes in fair market value of hedges:				
Gross	$1,308	$ (223)	$ (15)	$1,070
Income tax (benefit) expense	(474)	81	5	(388)
Net	834	(142)	(10)	682
Changes in unrealized pension cost:				
Gross	(150,322)	—	1,466	(148,856)
Income tax expense (benefit)	60,192	—	(524)	59,668
Net	(90,130)	—	942	(89,188)
Cumulative translation adjustment:				
Gross	(2,328)	196	—	(2,132)
Income tax expense	94	4	—	98
Net	(2,234)	200	—	(2,034)
Total accumulated other comprehensive (loss) income	$(91,530)	$ 58	$ 932	$(90,540)

The components of accumulated other comprehensive (loss) income for the three months ended June 30, 2016, are as follows:

	As of March 31, 2016	Gain (Loss) Recognized in OCI	Gain (Loss) Reclassified from AOCI to Income	As of June 30, 2016
Changes in fair market value of hedges:				
Gross	$(295)	$ (337)	$ 229	$(403)
Income tax expense (benefit)	110	127	(86)	151
Net	(185)	(210)	143	(252)
Changes in unrealized pension cost:				
Gross	(160,268)	—	1,505	(158,763)
Income tax expense (benefit)	63,818	—	(558)	63,260
Net	(96,450)	—	947	(95,503)
Cumulative translation adjustment:				
Gross	(1,685)	(310)	—	(1,995)
Income tax expense (benefit)	108	(7)	—	101
Net	(1,577)	(317)	—	(1,894)
Total accumulated other comprehensive (loss) income	$(98,212)	$ (527)	$ 1,090	$(97,649)

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The components of accumulated other comprehensive (loss) income for the six months ended June 30, 2017, are as follows:

	As of December 31, 2016	Gain (Loss) Recognized in OCI	Gain (Loss) reclassified from AOCI to income	As of June 30, 2017
Changes in fair market value of hedges:				
Gross	$ 116	$ 819	$ 135	$ 1,070
Income tax benefit	(42)	(297)	(49)	(388)
Net	74	522	86	682
Changes in unrealized pension cost:				
Gross	(151,618)	—	2,762	(148,856)
Income tax expense (benefit)	60,672	—	(1,004)	59,668
Net	(90,946)	—	1,758	(89,188)
Cumulative translation adjustment:				
Gross	(2,414)	282	—	(2,132)
Income tax expense	92	6	—	98
Net	(2,322)	288	—	(2,034)
Total accumulated other comprehensive (loss) income	$ (93,194)	$ 810	$ 1,844	$ (90,540)

The components of accumulated other comprehensive (loss) income for the six months ended June 30, 2016, are as follows:

	As of December 31, 2015	Gain (Loss) Recognized in OCI	Gain (Loss) reclassified from AOCI to income	As of June 30, 2016
Changes in fair market value of hedges:				
Gross	$ (768)	$ (95)	$ 460	$ (403)
Income tax expense (benefit)	289	36	(174)	151
Net	(479)	(59)	286	(252)
Changes in unrealized pension cost:				
Gross	(161,719)	—	2,956	(158,763)
Income tax expense (benefit)	64,361	—	(1,101)	63,260
Net	(97,358)	—	1,855	(95,503)
Cumulative translation adjustment:				
Gross	(1,279)	(716)	—	(1,995)
Income tax expense (benefit)	111	(10)	—	101
Net	(1,168)	(726)	—	(1,894)
Total accumulated other comprehensive (loss) income	$ (99,005)	$ (785)	$ 2,141	$ (97,649)

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NOTE 13 – Shareholders’ Equity

Share count and par value data related to shareholders’ equity are as follows:

	As of	
	June 30, 2017	December 31, 2016
Preferred Stock		
Par value per share	No par value	No par value
Shares authorized	25,000,000	25,000,000
Shares outstanding	—	—
Common Stock		
Par value per share	No par value	No par value
Shares authorized	75,000,000	75,000,000
Shares issued	56,627,348	56,456,516
Shares outstanding	32,933,326	32,762,494
Treasury stock		
Shares held	23,694,022	23,694,022

No common stock repurchases were made during the six months ended June 30, 2017. Through June 30, 2017, we had purchased an aggregate of $7,446 under a previously board-authorized share repurchase plan allowing for up to $25,000 in stock repurchases. Approximately $17,554 is available for future purchases.

A roll-forward of common shares outstanding is as follows:

	Six Months Ended	
	June 30, 2017	June 30, 2016
Balance at the beginning of the year	32,762,494	32,548,477
Repurchases	—	—
Shares issued upon exercise of stock options	—	—
Restricted share issuances	170,832	210,484
Balance at the end of the period	32,933,326	32,758,961

Certain potentially dilutive restricted stock units are excluded from diluted earning per share because they are anti-dilutive. The number of awards that were anti-dilutive at June 30, 2017 and June 30, 2016 were 32,507 and 11,600, respectively.

NOTE 14 - Stock-Based Compensation

At June 30, 2017, we had four active stock-based compensation plans: the Nonemployee Directors’ Stock Retirement Plan (“Directors’ Plan”), the 2004 Omnibus Long-Term Incentive Plan (“2004 Plan”), the 2009 Omnibus Equity and Performance Incentive Plan (“2009 Plan”), and the 2014 Performance & Incentive Plan (“2014 Plan”). Future grants can only be made under the 2014 Plan.

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The following table summarizes the compensation expense included in selling, general and administrative expenses in the Condensed Consolidated Statements of Earnings related to stock-based compensation plans:

	Three Months Ended		Six Months Ended	
	June 30, 2017	June 30, 2016	June 30, 2017	June 30, 2016
Service-Based RSUs	$465	$436	$1,015	$948
Performance-Based RSUs	297	213	680	31
Cash-settled RSUs	46	36	(8)	(12)
Total	$808	$685	$1,687	$967
Income tax benefit	304	257	634	363
Net	$504	$428	$1,053	$604

The following table summarizes the unrecognized compensation expense related to non-vested RSUs by type and the weighted-average period in which the expense is to be recognized:

	Unrecognized compensation expense at June 30, 2017	Weighted-average period
Service-Based RSUs	$ 1,297	1.25
Performance-Based RSUs	3,248	2.03
Total	$ 4,545	1.81

We recognize expense on a straight-line basis over the requisite service period for each separately vesting portion of the award as if the award was, in substance, multiple awards.

The following table summarizes the status of these plans as of June 30, 2017:

	2014 Plan	2009 Plan	2004 Plan	Directors' Plan
Awards originally available	1,500,000	3,400,000	6,500,000	N/A
Performance-based options outstanding	315,000	—	—	—
Maximum potential RSU and cash settled awards outstanding	731,143	125,257	57,391	9,620
Maximum potential awards outstanding	1,046,143	125,257	57,391	9,620
RSUs and cash settled awards vested and released	171,118	—	—	—
Awards available for grant	282,739	—	—	—

Stock Options

We have no stock options exercisable or outstanding as of June 30, 2017, other than the performance-based stock options described below.

Performance-Based Stock Options

During 2015 and 2016, the Compensation Committee of the Board of Directors of the Company (the “Committee”) granted a total of 350,000 performance-based stock option awards (“Performance-Based Option Awards”) for certain employees under the 2014 Plan, of which 315,000 remain outstanding after considering forfeitures. The Performance-Based Option Awards have an exercise price of $18.37, a term of five years, and generally will become exercisable (provided the optionee remains employed by the Company or an affiliate) upon our attainment of at least

$600,000 in revenues during any of our four-fiscal-quarter trailing periods (as determined by the Committee) during the term. We have not recognized any expense on these Performance-Based Option Awards for the six-month periods ended June 30, 2017 and 2016, since the revenue target was not deemed likely to be attained based on our current forecast.

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Service-Based Restricted Stock Units

The following table summarizes the service-based RSU activity as of and for the six months ended June 30, 2017:

	Six Months Ended June 30, 2017	
	Units	Weighted Average Grant Date Fair Value
Outstanding at January 1, 2017	554,478	$ 13.37
Granted	33,040	23.00
Vested and released	(197,439)	13.75
Forfeited	(4,141)	17.40
Outstanding at June 30, 2017	385,938	$ 13.95
Releasable at June 30, 2017	228,290	$ 11.42

Performance and Market-Based Restricted Stock Units

The following table summarizes the performance and market-based RSU activity as of and for the six months ended June 30, 2017:

	Units	Weighted Average Grant Date Fair Value
Outstanding at January 1, 2017	201,900	$ 16.48
Granted	123,919	23.83
Attained by performance	15,285	21.66
Released	(41,264)	21.66
Forfeited	(15,070)	21.66
Outstanding at June 30, 2017	284,770	$ 18.99
Releasable at June 30, 2017	2,011	$ 21.66

The following table summarizes each grant of performance awards outstanding at June 30, 2017.

Description	Grant Date	Vesting Year	Vesting Dependency	Target Units Outstanding	Maximum Number of Units to be Granted
2015 - 2017 Performance RSUs	February 5, 2015	2017	35% RTSR, 35% sales growth, 30% cash flow	62,000	124,000
2016 - 2018 Performance RSUs	February 16, 2016	2018	35% RTSR, 35% sales growth, 30% cash flow	92,840	185,680
2017 - 2019 Performance RSUs	February 9, 2017	2019	35% RTSR, 35% sales growth, 30% cash flow	78,341	156,682
			Operating Income	45,578	45,578

2017 - 2019 Performance RSUs	February 9, 2017	2018 - 2020			
Single Crystal Performance RSUs	March 31, 2016	2018	Various	4,000	8,000

Cash-Settled Restricted Stock Units

Cash-Settled RSUs entitle the holder to receive the cash equivalent of one share of common stock for each unit when the unit vests. These RSUs are issued to key employees residing in foreign locations as direct compensation. Generally, these RSUs vest over a three-year period. Cash-Settled RSUs are classified as liabilities and are remeasured at each reporting date until settled. At June 30, 2017 and June 30, 2016 we had 15,522 and 12,074 cash-settled RSUs outstanding, respectively. At June 30, 2017 and June 30, 2016, liabilities of $161 and $82, respectively were included in Accrued liabilities on our Condensed Consolidated Balance Sheets.

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NOTE 15 — Fair Value Measurements

We use interest rate swaps to convert our Revolving Credit Facility's variable rate of interest into a fixed rate and foreign currency forward contracts to hedge the effect of foreign currency changes on certain revenues and costs denominated in foreign currencies. These derivative financial instruments are measured at fair value on a recurring basis.

The table below summarizes our financial assets that were measured at fair value on a recurring basis at June 30, 2017:

	Asset Carrying Value at June 30, 2017	Quoted Prices in Active Markets for Identical Instruments (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Interest rate swaps	$ 643	$ —	$ 643	$ —
Foreign currency hedges	$ 390	$ —	$ 390	$ —

The table below summarizes the financial assets (liabilities) that were measured at fair value on a recurring basis as of December 31, 2016:

	Asset (Liability) Carrying Value at December 31, 2016	Quoted Prices in Active Markets for Identical Instruments (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Interest rate swaps	$ 753	$ —	$ 753	$ —
Foreign currency hedges	$ (601)	$ —	$ (601)	$ —

The fair value of our interest rate swaps and foreign currency hedges were measured using standard valuation models using market-based observable inputs over the contractual terms, including forward yield curves, among others. There is a readily determinable market for these derivative instruments, but that market is not active and therefore they are classified within level 2 of the fair value hierarchy.
The table below provides a reconciliation of the recurring financial assets (liabilities) for our derivative instruments:

	Interest Rate Swaps	Foreign Currency Hedges
Balance at January 1, 2016	$ (768)	$ —
Settled in cash	—	54
Included in earnings	928	(18)
Included in other comprehensive earnings	593	(637)
Balance at December 31, 2016	$ 753	$ (601)
Settled in cash	—	(71)
Included in earnings	—	144
Included in other comprehensive earnings	(110)	918
Balance at June 30, 2017	$ 643	$ 390

Our long-term debt consists of the Revolving Credit Facility which is recorded at its carrying value. There is a readily determinable market for our long-term debt and it is classified within Level 2 of the fair value hierarchy as the market is not deemed to be active. The fair value of long-term debt approximates carrying value and was determined by valuing a similar hypothetical coupon bond and attributing that value to our long-term debt under the Revolving Credit Facility.

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NOTE 16 — Income Taxes

The effective tax rates for the three and six-month periods ended June 30, 2017 and 2016 were:

	Three Months Ended		Six Months Ended	
	June 30, 2017	June 30, 2016	June 30, 2017	June 30, 2016
Effective tax rate	28.4 %	34.7 %	29.4%	34.5%

Our effective income tax rate was 28.4% and 34.7% in the second quarter of 2017 and 2016, respectively and 29.4% and 34.5% for the six months ended June 30, 2017 and 2016, respectively. The tax rate for the three and six months ended June 30, 2017 was lower than the U.S. statutory tax rate due primarily to tax benefits recorded upon vesting of restricted stock units, a release of valuation allowances recorded against realizable foreign NOLs, and favorable tax rates on foreign earnings, offset by the impact of state taxes, tax expense for withholding taxes on the anticipated distribution of earnings in China, and other various permanent items.

Our continuing practice is to recognize interest and/or penalties related to income tax matters as income tax expense. For the three months ended June 30, 2017, and June 30, 2016, we recorded $176 and $186, respectively, and for the six months ended June 30, 2017 and June 30, 2016, we recorded $352 and $370, respectively, of interest or penalties in income tax expense.

Note 17 - Business Combinations

On May 15, 2017, we acquired 100% of the equity interest in Noliac A/S, a privately-held company, for $19.3 million in cash. Noliac A/S is a designer and manufacturer of tape cast and bulk piezoelectric material as well as transducers for use in the telecommunications, industrial, medical, and defense industries. This acquisition will enable us to increase our product base within our ceramics product lines as well as expand our presence in the European market.

The purchase price of $19,265, net of cash acquired of $55, has been preliminarily allocated based on our estimates and assumptions of the approximate fair values of assets acquired and liabilities assumed on the acquisition date. We are still in the process of completing our valuation, and accordingly our estimates and assumptions are subject to change within the measurement period.

	Preliminary Fair Values at May 15, 2017
Current assets	$ 3,606
Property, plant and equipment	725
Other assets	72
Goodwill	7,838
Intangible assets	7,838
Fair value of assets acquired	20,079
Less fair value of liabilities acquired	(814)
Net cash paid	$ 19,265

On March 11, 2016, we acquired all of the outstanding membership interests in CTG Advanced Materials, LLC ("CTG-AM"), a privately-held company, for $73 million in cash plus a working capital adjustment. CTG-AM, formerly operated as H.C. Materials, is the market leading designer and manufacturer of single crystal piezoelectric materials, serving major original equipment manufacturers throughout the medical marketplace. These materials enable high definition ultrasound imaging (3D and 4D), as well as intravascular ultrasound applications. Other applications for these materials include wireless pacemakers, implantable hearing aids, and defense technologies.

With the CTG-AM acquisition, we gain technology and proprietary manufacturing methods that expand our offering of piezoelectric materials. This allows us to become the leading large-scale commercial producer of both single crystal materials and traditional piezoelectric ceramics.

The purchase price of $73,063, net of cash acquired of $4, has been allocated to the fair values of assets and liabilities acquired as of March 11, 2016.

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The following table summarizes the fair values of the assets acquired and the liabilities assumed at the date of acquisition:

	Fair Values at March 11, 2016
Current assets	$4,215
Property, plant and equipment	6,173
Other assets	37
Goodwill	27,879
Intangible assets	35,427
Fair value of assets acquired	73,731
Less fair value of liabilities acquired	(668)
Net cash paid	$73,063

Goodwill represents value the Company expects to be created by combining the operations of the acquired business with the Company's operations, including the expansion into markets within our existing business, access to new customers, and potential cost savings and synergies. Goodwill related to the acquisition is expected to be deductible for tax purposes.

The following table summarizes the carrying amounts and weighted average lives of the acquired intangible assets:

Intangible Asset Type	Fair Value	Weighted Average Amortization Period (in years)
Developed Technology	$23,730	15.0
Customer Relationships and Contracts	11,502	14.6
Other	195	0.8
Total	$35,427	14.8

We incurred $804 in transaction related costs during the year ended December 31, 2016. These costs are included in selling, general, and administrative costs in our Condensed Consolidated Statement of Earnings.

Results of operations for CTG-AM are included in our consolidated condensed financial statements beginning on March 11, 2016. The amount of net sales and net loss from CTG-AM in the quarter ended June 30, 2016 that have been included in the Condensed Consolidated Statement of Earnings are as follows:

	For the period March 11, 2016 through June 30, 2016
Net sales	$ 3,876
Net earnings	$ 111

NOTE 18 — Recent Accounting Pronouncements

ASU 2017-07 "Compensation - Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Post-retirement Benefit Cost"

In March 2017, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2017-07 "Compensation - Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and net Periodic Post-retirement Benefit Cost". This ASU is meant to improve the presentation of net periodic pension and net periodic post-retirement benefits costs. Currently, pension and post-retirement benefit costs are comprised of several components reflecting the different aspects of an employer's financial arrangements and cost of providing benefits to employees. These components are aggregated for reporting, but prior guidance does not prescribe where the net cost should be presented in the income statement or capitalized in assets. This ASU requires disaggregation of the service cost component from other components of net benefit cost and provides explicit guidance on how to present the service cost and other components in the income statement, allowing only the service cost component of net benefit costs to be eligible for capitalization. This ASU is effective for annual periods beginning after December

15, 2017, including interim periods within those periods. Early adoption is permitted as of the beginning of an annual period for which financial statements have not been issued or made available for issuance. These amendments should be applied retrospectively for the presentation of the service cost and other components of net periodic pension and net post-retirement benefit cost in the income statement and prospectively for the capitalization of the service cost and net periodic pension cost and periodic post-retirement benefit in assets. This ASU is not expected to have a material impact on our financial statements because the service cost component of our pension cost is expected to be immaterial to our financial results on a prospective basis.

ASU 2017-04 "Intangibles -Goodwill and Other (Topic 305): Simplifying the Test for Goodwill Impairment"

In January 2017, the FASB issued ASU No. 2017-04 "Intangibles - Goodwill and Other (Topic 305): Simplifying the Test for Goodwill Impairment". This ASU is meant to simplify the subsequent measurement of goodwill for impairment by eliminating the current Step 2 analysis in computing the implied fair value of goodwill. In addition, this ASU requires an entity to consider income tax effects on any tax deductible goodwill on the carrying amount of the reporting unit when measuring an impairment loss, if applicable. Under this ASU, impairment is determined by comparing the reporting unit's fair value to the carrying value. This amendment is effective for fiscal years beginning after December 15, 2019, with early adoption permitted for interim or annual goodwill impairment tests performed on testing dates after January 1, 2017. We do not expect this guidance to have an impact on our financial statements.

ASU 2017-01 "Business Combinations (Topic 805): Clarifying the Definition of Business"

In January 2017, the FASB issued ASU No. 2017-01 "Business Combinations (Topic 805): Clarifying the Definition of Business". This ASU is meant to clarify the definition of a business to add guidance when determining when an acquisition or disposal should be accounted for as a sale of assets or business. This ASU provides a more robust framework to use in determining when a set of assets or activities should be classified as a business, providing more consistency in accounting for business or asset acquisitions. This ASU is effective for public companies, for fiscal years beginning after December 15, 2017, including interim periods within those periods. The ASU will be applied prospectively.

ASU 2016-16 "Income Taxes (Topic 740) Intra-Entity Transfers of Assets Other Than Inventory"

In October 2016, the FASB issued ASU No. 2016-16, "Intra-Entity Transfers of Assets Other Than Inventory". This ASU is meant to improve the accounting for the income tax effect of intra-entity transfers of assets other than inventory. Currently, US GAAP prohibits the recognition of current and deferred income taxes for intra-entity asset transfers until the asset is sold to a third party. This ASU will now require companies to recognize the income tax effect of an intra-entity asset transfer (other than inventory) when the transaction occurs. This ASU is effective for public companies, for fiscal years beginning after December 15, 2019 and interim periods within those annual reporting periods. Early adoption is permitted and is to be applied on a modified retrospective basis through a cumulative-effect adjustment to retained earnings as of the beginning of the period of adoption. This guidance is not expected to have a material impact on our consolidated financial statements.

ASU 2016-15 "Statement of Cash Flows (Topic 230) Classification of Certain Cash Receipts and Cash Payments"

In August 2016, the FASB issued ASU No. 2016-15, "Classification of Certain Cash Receipts and Cash Payments". This ASU reduces the diversity in reporting of eight specific cash flow issues due to accounting guidance that is unclear or does not exist. The eight issues relate to certain debt activities, business combination activities, insurance settlements and other various activities. This guidance is effective for fiscal years beginning after December 15, 2017 and interim periods within those fiscal years. Early adoption is permitted and is to be applied retrospectively using a transition method for each period presented. An entity that elects early adoption of the amendment under this ASU must adopt all aspects of the amendment in the same period. This guidance is not expected to have a material impact on our consolidated financial statements.

ASU 2016-02 "Leases (Topic 842)"

In February 2016, the FASB issued ASU 2016-02, "Leases (Topic 842)". This amendment created a new Topic under the accounting standards codification to account for the provisions of the ASU. This amendment is meant to provide transparency and to improve comparability between entities. The ASU requires companies to record an asset and liability on the balance sheet for leases that were formerly designated as operating leases as well as leases designated as financing leases. The provisions of the ASU predominately change the recognition of leases for lessees, the

provisions do not substantially change the accounting for lessors. This ASU will supersede the provisions of Topic 840 Leases.
The liability recorded for a lease is meant to recognize the lease payments and the asset as a right to use the underlying asset for the lease, including optional periods if it is reasonably certain the option will be exercised. Recording of the liability should be based on the present value of the lease payments. If a lease term is less than twelve months, a company is allowed to elect not to record the asset and liability. Expense related to these leases are to be amortized straight-line over the expected term of the lease.

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Additionally, the provisions of this ASU provide additional guidance on separating lease terms from maintenance and other type of provisions that provide a good or service, accounting for sale-leaseback provisions, and leveraged leases. Reporting in the cash flow statement remains virtually unchanged. Additional qualitative and quantitative disclosures are required.

These updates are required to be applied under a modified retrospective approach from the beginning of the earlier period presented. The modified approach provides optional practical expedients that may be elected, which will allow companies to continue to account for leases under the previous guidance for leases that commenced prior to the effective date.

The provisions of this ASU are effective for fiscal years beginning after December 15, 2018, and interim periods within those periods. Early adoption is allowed. We have not yet commenced the process for evaluating the impact of this ASU on our financial statements, and therefore it's impact has not yet been determined.

ASU 2014-09, "Revenue from Contracts with Customers (Topic 606)"

In May 2014, the FASB issued ASU 2014-09, "Revenue from Contracts with Customers (Topic 606)". The guidance in this ASU affects any entity that either enters into contracts with customers to transfer goods or services or enters into contracts for the transfer of nonfinancial assets unless those contracts are within the scope of other standards (for example, insurance contracts or lease contracts). The new revenue recognition guidance more closely aligns U.S. GAAP with International Financial Reporting Standards ("IFRS"). The core principle of the guidance is that an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services.

To achieve that core principle, an entity should apply the following steps:

Step 1: Identify the contract(s) with a customer.

Step 2: Identify the performance obligations in the contract.

Step 3: Determine the transaction price.

Step 4: Allocate the transaction price to the performance obligations in the contract.

Step 5: Recognize revenue when (or as) the entity satisfies a performance obligation.

In August 2015, the FASB issued ASU 2015-14: Accounting for Revenue from Contracts with Customers (Topic 606)" The amended guidance deferred the effective date of ASU 2014-9 to annual periods beginning after December 15, 2017 and interim periods within those fiscal years. Early adoption is permitted for annual periods beginning after December 15, 2016 and interim periods within those fiscal years. In addition, four other ASUs have been issued amending and clarifying ASU 2014-09 and must be adopted concurrently.

- ASU 2016-08 "Revenue from Contracts with Customers (Topic 606): Principal versus Agent Considerations (Reporting Revenue Gross versus Net)
- ASU 2016-10 "Revenue from Contracts with Customers (Topic 606): Identifying Performance Obligations and Licensing"
- ASU 2016-12 "Revenue from Contracts with Customers (Topic 606): Narrow-Scope Improvements and Practical Expedients"
- ASU 2016-20 "Revenue from Contracts with Customers (Topic 606): Technical Corrections and Improvements"

This update can either be applied under a cumulative effect or retrospective method. We are in the process of reviewing customer contracts and agreements, based on a sampling of total 2016 revenue by customer, to determine the potential effects of the standard based on our revenue streams and current revenue recognition practices. Following review of customer contracts, we will summarize contract terms, reference the findings to the applicable new guidance, determine the financial statement impact, and then update policies and controls to ensure application of the new provisions will be applied consistently throughout the Company. While the impact of the adoption of this ASU has not yet been determined, we expect there to be minor differences in the timing of revenue recognition, due primarily to changes in how variable consideration is estimated. The Company expects to adopt the provisions of this standard using the modified retrospective approach, which requires a cumulative effect adjustment to the opening balance of retained earnings on the date of adoption. The Company will adopt ASU 2014-09 effective January 1, 2018.

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Item 2. Management’s Discussion and Analysis of Financial Condition and Results of Operations (“MD&A”)
(in thousands, except percentages and per share amounts)

The following discussion should be read in conjunction with our unaudited Condensed Consolidated Financial Statements and notes included under Item 1, as well as our Consolidated Financial Statements and notes and related Management’s Discussion and Analysis of Financial Condition and Results of Operations included in our Annual Report on Form 10-K for the year ended December 31, 2016.

Overview

CTS Corporation (“CTS”, “we”, “our” or “us”) is a leading designer and manufacturer of products that Sense, Connect and Move. We manufacture sensors, actuators and electronic components in North America, Europe, and Asia, and supply these products to OEMs in the aerospace, communications, defense, industrial, information technology, medical and transportation markets.

Results of Operations: Second Quarter 2017 versus Second Quarter 2016

The following table highlights changes in significant components of the Unaudited Condensed Consolidated Statements of Earnings for the quarters ended June 30, 2017, and June 30, 2016:

	Three Months Ended June 30, 2017	June 30, 2016	Percent Change	Percent of Net Sales – 2017	Percent of Net Sales – 2016
Net sales	$105,686	$98,693	7.1	100.0	100.0
Cost of goods sold	69,892	64,236	8.8	66.1	65.1
Gross margin	35,794	34,457	3.9	33.9	34.9
Selling, general and administrative expenses	15,809	15,764	0.3	15.0	16.0
Research and development expenses	6,049	5,967	1.4	5.7	6.0
Restructuring charges	729	206	253.9	0.7	0.2
(Gain) loss on sale of assets	(1)	(11,577)	(100.0)	—	(11.7)
Total operating expenses	22,586	10,360	118.0	21.4	10.5
Operating earnings	13,208	24,097	(45.2)	12.5	24.4
Total other income (expense)	716	(1,918)	(137.3)	0.7	(1.9)
Earnings before income taxes	13,924	22,179	(37.2)	13.2	22.5
Income tax expense	3,958	7,692	(48.5)	3.7	7.8
Net earnings	$9,966	$14,487	(31.2)	9.5	14.7
Earnings per share:					
Diluted net earnings per share	0.30	0.44			

Sales were $105,686 in the second quarter of 2017, an increase of $6,993 or 7.1% from the second quarter of 2016. Sales to automotive markets increased $3,657 or 5.6%. Other sales increased $3,336 or 9.9%, which included $1,543 in sales from the Noliac acquisition. Changes in foreign exchange rates reduced sales by $794 year-over-year due to the U.S. Dollar appreciating compared to the Chinese Renminbi and Euro and relating mostly to sales of automotive products.

Gross margin as a percent of sales was 33.9% in the second quarter of 2017 compared to 34.9% in the second quarter of 2016. The decrease in gross margin was driven mainly by additional costs identified in the second quarter relating to certain production rework issues that were resolved during the first quarter, and an unfavorable impact of foreign exchange rate movements.

Selling, general and administrative ("SG&A") expenses were $15,809 or 15.0% of sales in the second quarter of 2017 versus $15,764 or 16.0% of sales in the second quarter of 2016. The incremental SG&A costs includes amortization of intangibles and other operating costs associated with our Noliac acquisition, partially offset by other expense reductions.

Research and development expenses were $6,049 or 5.7% of sales in the second quarter of 2017 compared to $5,967 or 6.0% of sales in the comparable quarter of 2016. Research and development expenses are focused on expanded applications of existing products and new product development as well as current product and process enhancements.

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Restructuring charges were $729 or 0.7% of sales in the second quarter of 2017. The charges were mainly for equipment relocation, severance, and travel costs related to the restructuring of certain operations as part of the 2016 Restructuring Plan. Restructuring charges were $206 or 0.2% of sales in the second quarter of 2016.

The gain on sale of assets in the second quarter of 2016 was driven primarily by the gain on sale of a building in Canada in June 2016.

Operating earnings were $13,208 or 12.5% of sales in the second quarter of 2017 compared to operating earnings of $24,097 or 24.4% of sales in the comparable quarter of 2016 as a result of the items discussed above.

Other income and expense items are summarized in the following table:

	Three Months Ended	
	June 30, 2017	June 30, 2016
Interest expense	$(752)	$(1,009)
Interest income	298	331
Other income (expense)	1,170	(1,240)
Total other income (expense)	$716	$(1,918)

Interest expense decreased in the second quarter of 2017 versus the same quarter of 2016 primarily as a result of a reduction in interest related to interest rate swaps. Interest income decreased due to lower cash balances. Other income in the second quarter of 2017 was principally driven by foreign currency translation gains, mainly due to the depreciation of the U.S. Dollar compared to the Chinese Renminbi and Euro during the quarter.

	Three Months Ended	
	June 30, 2017	June 30, 2016
Effective tax rate	28.4%	34.7%

Our effective income tax rate was 28.4% and 34.7% in the second quarter of 2017 and 2016, respectively. The tax rate in the second quarter of 2017 was lower than the U.S. statutory tax rate due primarily to tax benefits recorded upon vesting of restricted stock units, a release of valuation allowances recorded against realizable foreign NOLs, and favorable tax rates on foreign earnings, offset by the impact of state taxes, tax expense for withholding taxes on the anticipated distribution of earnings in China, and other various permanent items.

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Results of Operations: Six Months Ended June 30, 2017 versus Six Months Ended June 30, 2016

The following table highlights changes in significant components of the Unaudited Condensed Consolidated Statements of Earnings for the six months ended June 30, 2017, and June 30, 2016:

	Six Months Ended June 30, 2017	June 30, 2016	Percent Change	Percent of Net Sales – 2017	Percent of Net Sales – 2016
Net sales	$205,840	$195,398	5.3	100.0	100.0
Cost of goods sold	135,822	127,472	6.6	66.0	65.2
Gross margin	70,018	67,926	3.1	34.0	34.8
Selling, general and administrative expenses	31,055	30,411	2.1	15.1	15.6
Research and development expenses	12,052	12,130	(0.6)	5.9	6.2
Restructuring charges	1,507	206	631.6	0.7	0.1
Loss (gain) on sale of assets	1	(11,351)	(100.0)	—	(5.8)
Total operating expenses	44,615	31,396	42.1	21.7	16.1
Operating earnings	25,403	36,530	(30.5)	12.3	18.7
Total other income (expense)	746	(2,386)	(131.3)	0.4	(1.2)
Earnings before income taxes	26,149	34,144	(23.4)	12.7	17.5
Income tax expense	7,699	11,794	(34.7)	3.7	6.0
Net earnings	$18,450	$22,350	(17.4)	9.0	11.4
Earnings per share:					
Diluted net earnings per share	$0.55	$0.67			

Sales were $205,840 in the six months ended June 30, 2017, an increase of $10,442 or 5.3% from the six months ended June 30, 2016. Sales to automotive markets increased $3,899 or 3.0%. Other sales increased $6,543 or 10.2%, which included $1,543 in sales from the Noliac acquisition. Changes in foreign exchange rates reduced sales by $1,647 year-over-year due to the U.S. Dollar appreciating compared to the Chinese Renminbi and Euro and relating mostly to sales of automotive products.

Gross margin as a percent of sales was 34.0% in the first half of 2017 compared to 34.8% in the first half of 2016. The decrease in gross margin was driven mainly by additional costs identified in the second quarter relating to certain production rework issues that were resolved during the first quarter, and an unfavorable impact of foreign exchange rate movements.

Selling, general and administrative expenses were $31,055 or 15.1% of sales in the six months ended June 30, 2017 versus $30,411 or 15.6% of sales in the comparable year-to-date period in 2016. The increase was primarily attributable to incremental costs resulting from the recent Noliac acquisition and the single crystal acquisition in 2016, including amortization of intangibles, which were partially offset by other expense reductions and the timing of certain expenses.

Research and development expenses were $12,052 or 5.9% of sales in the six months ended June 30, 2017 compared to $12,130 or 6.2% of sales in the comparable prior year period. Research and development expenses are focused on expanded applications of existing products and new product development as well as current product and process enhancements.

Restructuring charges were $1,507 or 0.7% of sales in the first half of 2017. The charges were mainly for equipment relocation, severance, and travel costs related to the restructuring of certain operations as part of the 2016 Restructuring Plan. Restructuring charges were $206 or 0.1% of sales in the first half of 2016.

The gain on sale of assets in the first half of 2016 was driven primarily by the gain on sale of a building in Canada in June 2016.

Operating earnings were $25,403 or 12.3% of sales in the six months ended June 30, 2017, compared to operating earnings of $36,530 or 18.7% of sales in the six months ended June 30, 2016, as a result of the items discussed above.

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Other income and expense items are summarized in the following table:

	Six Months Ended	
	June 30, 2017	June 30, 2016
Interest expense	$(1,436)	$(1,829)
Interest income	551	879
Other income (expense)	1,631	(1,436)
Total other income (expense)	$746	$(2,386)

Interest expense decreased in the first six months of 2017 versus the same period of 2016 primarily as a result of a reduction in interest related to interest rate swaps. Interest income decreased due to lower cash balances. Other income in the first six months of 2017 was principally driven by foreign currency translation gains, mainly due to the depreciation of the U.S. Dollar compared to the Chinese Renminbi and Euro during the period.

	Six Months Ended	
	June 30, 2017	June 30, 2016
Effective tax rate	29.4%	34.5%

Our effective income tax rate was 29.4% and 34.5% in the first half of 2017 and 2016, respectively. The tax rate in the first half of 2017 was lower than the U.S. statutory tax rate due primarily to tax benefits recorded upon vesting of restricted stock units, a release of valuation allowances recorded against realizable foreign NOLs, and favorable tax rates on foreign earnings, offset by the impact of state taxes, tax expense for withholding taxes on the anticipated distribution of earnings in China, and other various permanent items.

Liquidity and Capital Resources

Cash and cash equivalents were $107,814 at June 30, 2017, and $113,805 at December 31, 2016, of which $106,421 and $112,736, respectively, were held outside the United States. The decrease in cash and cash equivalents of $5,991 was primarily driven by the payment for the Noliac acquisition of $19,265 and capital expenditures of $9,110 which were partially offset by cash generated from operating activities of $23,271. Total long-term debt was $92,800 as of June 30, 2017 and $89,100 as of December 31, 2016. Total debt as a percentage of total capitalization, defined as the sum of notes payable and long-term debt as a percentage of total debt and shareholders' equity, was 21.8% at June 30, 2017, compared to 22.1% at December 31, 2016.

Working capital increased by $10,429 during the six months ended June 30, 2017, primarily due to an increase in inventory of $7,442, increase in accounts receivable of $4,125 and a decrease in accrued payroll & benefits and accrued liabilities of $6,233, which were partially offset by a decrease in cash and cash equivalents of $5,991.

Cash Flows from Operating Activities

Net cash provided by operating activities was $23,271 during the first six months of 2017. Components of net cash provided by operating activities included net earnings of $18,450, depreciation and amortization expense of $9,673 and other net non-cash items of $5,365, offset by the net cash outflow from changes in assets and liabilities of $10,217.

Cash Flows from Investing Activities

Net cash used in investing activities for the first six months of 2017 was $28,374, driven by the net payment for our Noliac acquisition of $19,265 and capital expenditures of $9,110.

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Cash Flows from Financing Activities

Net cash used in financing activities for the first six months of 2017 was $493. These cash outflows were the result of dividend payments of $2,624 and taxes paid on behalf of employees for equity awards in the amount of $1,569, offset by net borrowings under our credit facility totaling $3,700.

Capital Resources

Long term debt was comprised of the following:

	As of June 30, 2017	December 31, 2016
Revolving credit facility due in 2020	$92,800	$89,100
Weighted average interest rate	2.2 %	1.5 %
Amount available	$205,135	$208,735
Total credit facility	$300,000	$300,000
Standby letters of credit	$2,065	$2,165
Commitment fee percentage per annum	0.25 %	0.25 %

On August 10, 2015, we entered into a new five-year credit agreement (“Revolving Credit Facility”) with a group of banks in order to support our financing needs. The Revolving Credit Facility originally provided for a credit line of $200,000. On May 23, 2016, we requested and received a $100,000 increase in the aggregate revolving credit commitments under the existing credit agreement, which increased the credit line from $200,000 to $300,000.

The Revolving Credit Facility requires, among other things, that CTS comply with a maximum total leverage ratio and a minimum fixed charge coverage ratio. Failure to comply with these covenants could reduce the borrowing availability under the Revolving Credit Facility. We were in compliance with all debt covenants at June 30, 2017.

We use interest rate swaps to convert the Revolving Credit Facility’s variable rate of interest into a fixed rate. In the second quarter of 2012, we entered into four separate interest rate swap agreements to fix interest rates on $50,000 of long-term debt for the periods January 2013 to January 2017. In the third quarter of 2012, we entered into four additional interest rate swap agreements to fix interest rates on $25,000 of long-term debt for the periods January 2013 to January 2017. In the third quarter of 2016, we entered into three additional forward-starting interest rate swap agreements to fix interest rates on $50,000 of long-term debt for the periods August 2017 to August 2020. The difference to be paid or received under the terms of the swap agreements will be recognized as an adjustment to interest expense when settled.

Generally, our practice and intention is to reinvest the earnings of our non-U.S. subsidiaries outside the U.S. However, we determined during 2015 that as a result of changes in the business, the foreign earnings of our subsidiaries in Canada and the U.K. were no longer permanently reinvested. Therefore, a provision for the expected taxes on repatriation of those earnings was recorded at that time. Any repatriation may not result in significant cash income tax payments as the taxable event would likely be offset by the utilization of our available tax credits, resulting in no significant net cash taxes being incurred. We do not provide for U.S. income taxes on undistributed earnings of our foreign subsidiaries that are intended to be permanently reinvested.

We have historically funded our capital and operating needs primarily through cash flows from operating activities, supported by available credit under our Revolving Credit Facility. We believe that cash flows from operating activities and available borrowings under our Revolving Credit Facility will be adequate to fund our working capital, capital expenditures and debt service requirements for at least the next twelve months. However, we may choose to pursue additional equity and debt financing to provide additional liquidity or to fund acquisitions.

Critical Accounting Policies and Estimates

Management prepared the consolidated financial statements of CTS under accounting principles generally accepted in the United States of America. These principles require the use of estimates, judgments, and assumptions. We believe that the estimates, judgments, and assumptions we used are reasonable, based upon the information available.

Our estimates and assumptions affect the reported amounts in our financial statements. The following accounting policies comprise those that we believe are the most critical in understanding and evaluating our reported financial results.

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Revenue Recognition

Product revenue is recognized once four criteria are met: (1) we have persuasive evidence that an arrangement exists; (2) delivery has occurred and title has passed to the customer, which generally happens at the point of shipment, provided that no significant obligations remain; (3) the price is fixed and determinable; and (4) collectability is reasonably assured.

Product Warranties

Provisions for estimated warranty expenses related to our automotive products are made at the time products are sold. These estimates are established using a quoted industry rate. We adjust our warranty reserve for any known or anticipated warranty claims as new information becomes available. We evaluate our warranty obligations at least quarterly and adjust our accruals if it is probable that future costs will be different than our current reserve.

Accounts Receivable

We have standardized credit granting and review policies and procedures for all customer accounts, including:

- Credit reviews of all new customer accounts,
- Ongoing credit evaluations of current customers,
- Credit limits and payment terms based on available credit information,
- Adjustments to credit limits based upon payment history and the customer's current credit worthiness,
- An active collection effort by regional credit functions, reporting directly to the corporate financial officers, and;
- Limited credit insurance on the majority of our international receivables.

We reserve for estimated credit losses based on historical experience and specific customer collection issues. Over the last three years, accounts receivable reserves have been approximately 0.2% to 0.3% of total accounts receivable. We believe our reserve level is appropriate considering the quality of the portfolio. While credit losses have historically been within expectations and the reserves established, we cannot guarantee that our credit loss experience will continue to be consistent with historical experience.

Inventories

We value our inventories at the lower of the actual cost to purchase or manufacture using the first-in, first-out ("FIFO") method, or net realizable value. We review inventory quantities on hand and record a provision for excess and obsolete inventory based on forecasts of product demand and production requirements.

Over the last three years, our reserves for excess and obsolete inventories have ranged from 16.6% to 19.5% of gross inventory. We believe our reserve level is appropriate considering the quantities and quality of the inventories.

Retirement Plans

Actuarial assumptions are used in determining pension income and expense and our pension benefit obligation. We utilize actuaries from consulting companies in each applicable country to develop our discount rates that match high-quality bonds currently available and expected to be available during the period to maturity of the pension benefit in order to provide the necessary future cash flows to pay the accumulated benefits when due. After considering the recommendations of our actuaries, we have assumed a discount rate, expected rate of return on plan assets and a rate of compensation increase in determining our annual pension income and expense and the projected benefit obligation. During the fourth quarter of each year, we review our actuarial assumptions in light of current economic factors to determine if the assumptions need to be adjusted. Changes in the actuarial assumptions could have a material effect on our results of operations.

Valuation of Goodwill

Goodwill of a reporting unit is tested for impairment annually, or more frequently, if an event occurs or circumstances change that would more-likely-than-not reduce the fair value of a reporting unit below its carrying amount. Examples of such events or circumstances include, but are not limited to, the following:

- Significant decline in market capitalization relative to net book value,
- Significant adverse change in legal factors or in the business climate,
- Adverse action or assessment by a regulator,
- Unanticipated competition,

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- More-likely-than-not expectation that a reporting unit or a significant portion of a reporting unit will be sold or otherwise disposed of,
- Testing for recoverability of a significant asset group within a reporting unit, and
- Allocation of a portion of goodwill to a business to be disposed.

If we believe that one or more of the above indicators of impairment have occurred, we perform an impairment test. The test involves a two-step process. The first step of the impairment test involves comparing the fair values of the applicable reporting units with their aggregate carrying values, including goodwill. We generally determine the fair value of our reporting units using two valuation methods: "Income Approach — Discounted Cash Flow Method" and "Market Approach — Guideline Public Company Method". The approach defined below is based upon our last impairment test conducted as of October 1, 2016.

Under the "Income Approach — Discounted Cash Flow Method", the key assumptions include sales, cost of sales, and operating expense projections through the year 2021. These assumptions were determined by management utilizing our internal operating plan and assuming growth rates for revenues, operating expenses, and gross margin assumptions. The fourth key assumption under this approach is the discount rate, which is determined by looking at current risk-free rates, current market interest rates and the evaluation of risk premium relevant to the business segment. If any of our assumptions were to change or were incorrect, our fair value calculation may change, which could result in impairment.

Under the "Market Approach — Guideline Public Company Method", we identified eight publicly traded companies which we believe have significant relevant similarities to CTS. For these eight companies, we calculated a range of EBITDA multiples derived from the ratio of enterprise value to EBITDA and compared these multiples to the corresponding multiples for each of our reporting units. Similar to the income approach discussed above, sales, cost of sales, operating expenses and growth rates were key assumptions utilized in developing projected EBITDA levels for each of our reporting units. The market prices of CTS and the other guideline company's shares are also key assumptions as they are used to calculate enterprise value.

The results of these two methods are weighted based upon management's determination. The Market approach is based upon historical and current economic conditions, which might not reflect the long-term prospects or opportunities for our reporting units being evaluated.

If the carrying amount of a reporting unit exceeds the reporting unit's fair value, we perform the second step of the goodwill impairment test to determine the amount of impairment loss, if any. This involves comparing the implied fair value of the affected reporting unit's goodwill with the carrying value of that goodwill.

There have not been any significant changes to our impairment testing methodology other than updates to the assumptions to reflect the current market environment. Based upon our latest assessment, we determined that our goodwill was not impaired as of October 1, 2016. We will monitor future results and will perform a test if indicators trigger an impairment review.

Valuation of Other Intangible and Long-Lived Assets

We evaluate the impairment of identifiable intangibles and other long-lived assets whenever events or changes in circumstances indicate that the carrying value may not be recoverable. Factors considered that may trigger an impairment review consist of, but are not limited to, the following:

- Significant decline in market capitalization relative to net book value,
- Significant underperformance relative to expected historical or projected future operating results,
- Significant changes in the manner of use of the acquired assets or the strategy for the overall business,
- Significant negative industry or economic trends.

If we believe that one or more indicators of impairment have occurred, we perform a recoverability test by comparing the carrying amount of an asset or asset group to the sum of the undiscounted cash flows expected to result from the use and the eventual disposition of the asset or asset group. If such assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the carrying amount of the assets exceeds the fair value. No indicators of impairment were identified as of June 30, 2017.

Income Taxes

Our income tax expense, deferred tax assets and liabilities, and liabilities for unrecognized tax benefits reflect management’s best estimate of current and future taxes to be paid. We are subject to income taxes in the United States and numerous foreign jurisdictions. Significant judgments and estimates are required in the determination of the consolidated income tax expense.

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Deferred income taxes arise from temporary differences between the tax basis of assets and liabilities and their reported amounts in the financial statements, which will result in taxable or deductible amounts in the future. In evaluating our ability to recover our deferred tax assets in the jurisdiction from which they arise, we consider all available positive and negative evidence, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax-planning strategies, and results of recent operations. The assumptions about future taxable income require the use of significant judgment and are consistent with the plans and estimates we are using to manage the underlying businesses.

The calculation of our tax liabilities involves dealing with uncertainties in the application of complex tax laws and regulations in a multitude of jurisdictions across our global operations. ASC 740 states that a tax benefit from an uncertain tax position may be recognized when it is more-likely-than-not that the position will be sustained upon examination, including resolutions of any related appeals or litigation processes, on the basis of its technical merits. We record unrecognized tax benefits as liabilities in accordance with ASC 740 and adjust these liabilities when our judgment changes as a result of the evaluation of new information not previously available. Because of the complexity of some of these uncertainties, the ultimate resolution may result in a payment that is materially different from our current estimate of the unrecognized tax benefit liabilities. These differences will be reflected as increases or decreases to income tax expense in the period in which new information is available.

Our practice is to recognize interest and penalties related to income tax matters as part of income tax expense.

We earn a significant amount of our operating income outside of the U.S., which is generally deemed to be permanently reinvested in foreign jurisdictions. However, we determined during 2015 that as a result of changes in the business, the foreign earnings of our subsidiaries in Canada and the U.K. were no longer permanently reinvested. Therefore, a provision for the expected taxes on repatriation of those earnings was recorded. We do not intend to repatriate funds beyond the amount from our Canadian and U.K. subsidiaries; however, should we require more capital in the U.S. than is generated by our domestic operations, we could elect to repatriate funds held in foreign jurisdictions or raise capital in the U.S. through debt or equity issuances. Repatriation would result in a higher effective tax rate. Borrowing in the U.S. would result in increased interest expense.

Significant Customers

Our net sales to customers representing at least 10% of total net sales were as follows:

	Three Months Ended		Six Months Ended	
	June 30, 2017	June 30, 2016	June 30, 2017	June 30, 2016
Cummins Inc.	13.2%	9.6 %	13.0%	10.0%
Toyota Motor Corporation	10.0%	10.8%	10.4%	10.7%
Honda Motor Co.	10.7%	10.3%	10.3%	11.0%

Forward Looking Statements

This document contains statements that are, or may be deemed to be, forward looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. These forward looking statements include, but are not limited to, any financial or other guidance, statements that reflect our current expectations concerning future results and events, and any other statements that are not based solely on historical fact. Forward looking statements are based on management's expectations, certain assumptions and currently available information. Readers are cautioned not to place undue reliance on these forward looking statements, which speak only as of the date hereof and are based on various assumptions as to future events, the occurrence of which necessarily are subject to uncertainties. These forward looking statements are made subject to certain risks, uncertainties and other factors, which could cause our actual results, performance or achievements to differ materially from those presented in the forward looking statements. Examples of factors that may affect future operating results and financial condition include, but are not limited to: changes in the economy generally and in respect to the business in which CTS operates; unanticipated issues in integrating acquisitions; the results of actions to reposition our business; rapid technological change; general market conditions in the automotive, communications, and computer industries, as well as conditions in the industrial, defense and aerospace, and medical markets; reliance on key customers; unanticipated natural disasters or other events; the ability to protect our intellectual property; pricing pressures and demand for our products; unanticipated developments that could occur with respect to contingencies such as litigation and environmental matters as well as any product liability claims; and risks associated with our international operations, including trade and tariff barriers, exchange rates and political and geopolitical risks. Many of these and other risks and uncertainties are discussed in further detail in Item 1A. of CTS' Annual Report on Form 10 K for the fiscal year ended December 31, 2016. We undertake no obligation to publicly update our forward looking statements to reflect new information or events or circumstances that arise after the date hereof, including market or industry changes.

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Item 3. Quantitative and Qualitative Disclosures About Market Risk
There have been no material changes in our market risk since December 31, 2016.

Item 4. Controls and Procedures
Pursuant to Rule 13a-15(e) of the Securities and Exchange Act of 1934, management, under the direction of our Chief Executive Officer and Chief Financial Officer, evaluated our disclosure controls and procedures. Based on such evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of June 30, 2017.
Changes in Internal Control Over Financial Reporting
There were no changes in our internal control over financial reporting for the quarter ended June 30, 2017, that have materially affected or are reasonably likely to materially affect our internal control over financial reporting.

PART II - OTHER INFORMATION

Not applicable

Item 1. Legal Proceedings
From time to time we are involved in litigation with respect to matters arising from the ordinary conduct of our business, and currently certain claims are pending against us. In the opinion of management, based upon presently available information, either adequate provision for anticipated costs have been accrued or the ultimate anticipated costs will not materially affect our consolidated financial position, results of operations, or cash flows.
Item 1A. Risk Factors
There have been no significant changes to our risk factors since December 31, 2016.
Item 2. Unregistered Sales of Equity Securities and Use of Proceeds
On April 27, 2015, we announced that our Board of Directors authorized an expansion to its repurchase program by authorizing the purchase of an additional $25 million dollars of its common stock in the open market. This authorization has no expiration. As shown in the following table, there were no stock repurchases during the quarter ended June 30, 2017.

	(a) Total Number of Shares Purchased	(b) Average Price Paid per Share	(c) Total Number of Shares Purchased as Part of Plans or Program	(d) Maximum Dollar Value of Shares That May Yet Be Purchased Under the Plans or Programs(2)
Balance at December 31, 2016				$ 17,554
Jan 1, 2017 - June 30, 2017	—	—	—	$ —
Total	—	—	—	$ 17,554

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Item 6. Exhibits

(31)(a)	Certification pursuant to Section 302 of the Sarbanes Oxley Act of 2002.
(31)(b)	Certification pursuant to Section 302 of the Sarbanes Oxley Act of 2002.
(32)(a)	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes Oxley Act of 2002.
(32)(b)	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes Oxley Act of 2002.
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

SIGNATURES

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

CTS Corporation	CTS Corporation
/s/ Luis F. Machado	/s/ Ashish Agrawal
Luis F. Machado	Ashish Agrawal
Vice President, General Counsel and Secretary	Vice President and Chief Financial Officer
Dated: July 27, 2017	Dated: July 27, 2017