

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549**

FORM 10-Q

(Mark One)

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

For the quarterly period ended March 31, 2019

OR

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: 000-24612

ADTRAN, Inc.

(Exact Name of Registrant as Specified in its Charter)

Delaware

(State or other jurisdiction of
incorporation or organization)

901 Explorer Boulevard

Huntsville, Alabama

(Address of principal executive offices)

63-0918200

(I.R.S. Employer
Identification No.)

35806-2807

(Zip Code)

Registrant's telephone number, including area code: (256) 963-8000

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

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

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

Large accelerated filer	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Small reporting company	<input type="checkbox"/>
Emerging growth company	<input type="checkbox"/>		

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

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

Title of each class Trading Symbol Name of exchange on which registered

Common Stock, Par Value \$0.01 ADTN The NASDAQ Global Select Market

As of May 1, 2019, the registrant had 47,809,152 shares of common stock, \$0.01 par value per share, outstanding.

ADTRAN, Inc.

Quarterly Report on Form 10-Q
For the three months ended March 31, 2019

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FORWARD LOOKING STATEMENTS

The Private Securities Litigation Reform Act of 1995 provides a safe harbor for forward-looking statements made by or on behalf of ADTRAN. ADTRAN and its representatives may from time to time make written or oral forward-looking statements, including statements contained in this report, our other filings with the Securities and Exchange Commission (SEC) and other communications with our stockholders. Generally, the words, “believe”, “expect”, “intend”, “estimate”, “anticipate”, “will”, “may”, “could” and similar expressions identify forward-looking statements. We caution you that any forward-looking statements made by us or on our behalf are subject to uncertainties and other factors that could cause such statements to be wrong. A list of factors that could materially affect our business, financial condition or operating results is included under “Factors that Could Affect Our Future Results” in “Management’s Discussion and Analysis of Financial Condition and Results of Operations” contained in Item 2 of Part I of this report. They have also been discussed in Item 1A of Part I in our most recent Annual Report on Form 10-K for the year ended December 31, 2018, filed on February 28, 2019 with the SEC. Though we have attempted to list comprehensively these important factors, we caution investors that other factors may prove to be important in the future in affecting our operating results. New factors emerge from time to time, and it is not possible for us to predict all of these factors, nor can we assess the impact each factor or a combination of factors may have on our business.

You are further cautioned not to place undue reliance on these forward-looking statements because they speak only of our views as of the date that the statements were made. We undertake no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law.

PART I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

ADTRAN, INC.
CONSOLIDATED BALANCE SHEETS
(In thousands, except per share amounts)

	March 31, 2019 <u>(Unaudited)</u>	December 31, 2018 <u>(Audited)</u>
ASSETS		
Current Assets		
Cash and cash equivalents	\$ 109,119	\$ 105,504
Short-term investments	31,290	3,246
Accounts receivable, less allowance for doubtful accounts of \$82 and \$128 at March 31, 2019 and December 31, 2018, respectively	99,032	99,385
Other receivables	34,583	36,699
Inventory, net	93,609	99,848
Prepaid expenses and other current assets	9,683	10,744
Total Current Assets	377,316	355,426
Property, plant and equipment, net	79,505	80,635
Deferred tax assets, net	36,891	37,187
Goodwill	6,982	7,106
Intangibles, net	31,817	33,183
Other assets	14,885	5,668
Long-term investments	85,227	108,822
Total Assets	\$ 632,623	\$ 628,027
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current Liabilities		
Accounts payable	\$ 60,116	\$ 60,054
Bonds payable	25,600	1,000
Unearned revenue	15,230	17,940
Accrued expenses	14,039	11,746
Accrued wages and benefits	15,105	14,752
Income tax payable, net	11,785	12,518
Total Current Liabilities	141,875	118,010
Non-current unearned revenue	4,514	5,296
Other non-current liabilities	42,687	33,842
Bonds payable	—	24,600
Total Liabilities	189,076	181,748
Commitments and contingencies (see Note 17)		
Stockholders' Equity		
Common stock, par value \$0.01 per share; 200,000 shares authorized; 79,652 shares issued and 47,777 shares outstanding at March 31, 2019 and 79,652 shares issued and 47,751 shares outstanding at December 31, 2018	797	797
Additional paid-in capital	269,529	267,670
Accumulated other comprehensive loss	(14,885)	(14,416)
Retained earnings	879,180	883,975
Less treasury stock at cost: 31,875 and 31,901 shares at March 31, 2019 and December 31, 2018, respectively	(691,074)	(691,747)
Total Stockholders' Equity	443,547	446,279
Total Liabilities and Stockholders' Equity	\$ 632,623	\$ 628,027

See accompanying notes to consolidated financial statements.

ADTRAN, INC.
CONSOLIDATED STATEMENTS OF INCOME
(Unaudited)
(In thousands, except per share amounts)

	Three Months Ended March 31,	
	2019	2018
Sales		
Products	\$ 125,822	\$ 105,253
Services	17,969	15,553
Total Sales	143,791	120,806
Cost of Sales		
Products	70,734	68,612
Services	12,445	12,461
Total Cost of Sales	83,179	81,073
Gross Profit	60,612	39,733
Selling, general and administrative expenses	35,132	33,531
Research and development expenses	31,647	32,849
Operating Loss	(6,167)	(26,647)
Interest and dividend income	591	866
Interest expense	(127)	(132)
Net investment gain (loss)	5,926	(97)
Other income (expense), net	855	(57)
Gain on bargain purchase of a business, net	—	11,322
Income (Loss) Before Provision for Income Taxes	1,078	(14,745)
(Provision) benefit for income taxes	(308)	3,931
Net Income (Loss)	\$ 770	\$ (10,814)
Weighted average shares outstanding – basic	47,782	48,232
Weighted average shares outstanding – diluted	47,853	48,232
Earnings (loss) per common share – basic	\$ 0.02	\$ (0.22)
Earnings (loss) per common share – diluted	\$ 0.02	\$ (0.22)
Dividend per share	\$ 0.09	\$ 0.09

See accompanying notes to consolidated financial statements.

ADTRAN, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(Unaudited)
(In thousands)

	Three Months Ended March 31,	
	2019	2018
Net Income (Loss)	\$ 770	\$ (10,814)
Other Comprehensive Loss, net of tax		
Net unrealized gains (losses) on available-for-sale securities	185	(3,412)
Defined benefit plan adjustments	121	62
Foreign currency translation	(1,160)	842
Other Comprehensive Loss, net of tax	(854)	(2,508)
Comprehensive Loss, net of tax	\$ (84)	\$ (13,322)

See accompanying notes to consolidated financial statements.

ADTRAN, INC.
CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY
(Unaudited)
(In thousands)

	Common Shares	Common Stock	Additional Paid-In Capital	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
Balance at January 1, 2018	79,652	\$ 797	\$ 260,515	\$ 922,178	\$ (682,284)	\$ (3,295)	\$ 497,911
Net loss				(10,814)			(10,814)
Adoption of new accounting standards				3,499			3,499
Other comprehensive loss, net of tax						(2,508)	(2,508)
Dividend payments				(4,367)			(4,367)
Dividends accrued on unvested restricted stock units				(2)			(2)
Stock options exercised				(150)	519		369
PSUs, RSUs and restricted stock vested				(733)	733		—
Purchase of treasury stock					(10,171)		(10,171)
Stock-based compensation expense			1,819				1,819
Balance at March 31, 2018	<u>79,652</u>	<u>\$ 797</u>	<u>\$ 262,334</u>	<u>\$ 909,611</u>	<u>\$ (691,203)</u>	<u>\$ (5,803)</u>	<u>\$ 475,736</u>

	Common Shares	Common Stock	Additional Paid-In Capital	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
Balance at January 1, 2019	79,652	\$ 797	\$ 267,670	\$ 883,975	\$ (691,747)	\$ (14,416)	\$ 446,279
Net income				770			770
Adoption of new accounting standards (See Note 1)				(381)		385	4
Other comprehensive loss, net of tax						(854)	(854)
Dividend payments				(4,301)			(4,301)
Dividends accrued on unvested restricted stock units				(18)			(18)
PSUs, RSUs and restricted stock vested				(865)	857		(8)
Purchase of treasury stock					(184)		(184)
Stock-based compensation expense			1,859				1,859
Balance at March 31, 2019	<u>79,652</u>	<u>\$ 797</u>	<u>\$ 269,529</u>	<u>\$ 879,180</u>	<u>\$ (691,074)</u>	<u>\$ (14,885)</u>	<u>\$ 443,547</u>

See accompanying notes to consolidated financial statements.

ADTRAN, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited)
(In thousands)

	Three Months Ended March 31,	
	2019	2018
Cash flows from operating activities:		
Net income (loss)	\$ 770	\$ (10,814)
Adjustments to reconcile net income (loss) to net cash provided by operating activities:		
Depreciation and amortization	4,496	3,614
Amortization of net premium on available-for-sale investments	6	42
Net (gain) loss on long-term investments	(5,926)	97
Net (gain) loss on disposal of property, plant and equipment	(6)	67
Gain on bargain purchase of a business	—	(11,322)
Stock-based compensation expense	1,859	1,819
Deferred income taxes	235	(1,877)
Changes in operating assets and liabilities:		
Accounts receivable, net	170	63,904
Other receivables	2,001	(6,598)
Inventory, net	5,974	3,368
Prepaid expenses and other assets	2,809	10,583
Accounts payable, net	166	(10,233)
Accrued expenses and other liabilities	(2,355)	826
Income tax payable	(487)	2,753
Net cash provided by operating activities	9,712	46,229
Cash flows from investing activities:		
Purchases of property, plant and equipment	(1,872)	(1,950)
Proceeds from sales and maturities of debt and equity investments	17,039	49,074
Purchases of debt and equity investments	(15,318)	(75,960)
Acquisition of business	—	(7,806)
Net cash used in investing activities	(151)	(36,642)
Cash flows from financing activities:		
Proceeds from stock option exercises	—	369
Purchases of treasury stock	(184)	(10,171)
Dividend payments	(4,301)	(4,367)
Net cash used in financing activities	(4,485)	(14,169)
Net increase (decrease) in cash and cash equivalents	5,076	(4,582)
Effect of exchange rate changes	(1,461)	772
Cash and cash equivalents, beginning of period	105,504	86,433
Cash and cash equivalents, end of period	\$ 109,119	\$ 82,623
Supplemental disclosure of non-cash investing activities:		
Purchases of property, plant and equipment included in accounts payable	\$ 273	\$ 95

See accompanying notes to consolidated financial statements.

ADTRAN, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)
(In thousands, except per share amounts)

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Presentation

The accompanying unaudited consolidated financial statements of ADTRAN[®], Inc. and its subsidiaries (“ADTRAN” or the “Company”) have been prepared pursuant to the rules and regulations for reporting on Quarterly Reports on Form 10-Q. Accordingly, certain information and notes required by generally accepted accounting principles for complete financial statements are not included herein. The December 31, 2018 Consolidated Balance Sheet is derived from audited financial statements, but does not include all disclosures required by accounting principles generally accepted in the United States.

In the opinion of management, all adjustments necessary to fairly state these interim statements have been recorded and are of a normal and recurring nature. The results of operations for an interim period are not necessarily indicative of the results for the full year. The interim statements should be read in conjunction with the financial statements and notes thereto included in ADTRAN’s Annual Report on Form 10-K for the year ended December 31, 2018, filed on February 28, 2019 with the SEC.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America 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 revenue and expense during the reporting period. Our more significant estimates include the obsolete and excess inventory reserves, warranty reserves, customer rebates, determination of the deferred and accrued revenue components of multiple element sales agreements, estimated costs to complete obligations associated with deferred and accrued revenue, estimated income tax provision and income tax contingencies, the fair value of stock-based compensation, impairment of goodwill, valuation and estimated lives of intangible assets, estimated pension liability, fair value of investments and the evaluation of other-than-temporary declines in the value of investments. Actual amounts could differ significantly from these estimates.

Recent Accounting Pronouncements

In June 2016, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2016-13, *Financial Instruments – Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*. ASU 2016-13 requires the measurement and recognition of expected credit losses for financial instruments held at amortized cost. In November 2018, the FASB issued ASU 2018-19, *Codification Improvements to Topic 326 Financial Instruments – Credit Losses*, that clarifies receivables arising from operating leases are not within the scope of the credit losses standard, but rather, should be accounted for in accordance with the leases standard. ASU 2016-13 and ASU 2018-19 are effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019, with early adoption permitted. We are currently evaluating the effect ASU 2016-13 and ASU 2018-19 will have on our consolidated financial statements.

In January 2017, the FASB issued ASU 2017-04, *Intangibles – Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment*. ASU 2017-04 simplifies the measurement of goodwill by eliminating step 2 of the goodwill impairment test. Under ASU 2017-04, entities will be required to compare the fair value of a reporting unit to its carrying amount and recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit’s fair value. ASU 2017-04 is effective for annual or interim impairment tests performed in fiscal years beginning after December 15, 2019, with early adoption permitted for annual or interim impairment tests performed on testing dates after January 1, 2017. The amendments should be applied prospectively. We are currently evaluating whether to early adopt ASU 2017-04, but do not expect it will have a material effect on our consolidated financial statements.

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820) Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement*, which changes the fair value measurement disclosure requirements of ASC 820, *Fair Value Measurement*. The amendments in this ASU are the result of a broader disclosure project called, *Concepts Statement No. 8 - Conceptual Framework for Financial Reporting — Chapter 8, Notes to Financial Statements*, which the FASB finalized on August 28, 2018. The FASB used the guidance in the Concepts Statement to improve the effectiveness of ASC 820's disclosure requirements. ASU 2018-13 provides users of financial statements with information about assets and liabilities measured at fair value in the statement of financial position or disclosed in the notes to the financial statements. More specifically ASU 2018-13 requires disclosures about the valuation techniques and inputs that are used to arrive at measures of fair value, including judgments and assumptions that are made in determining fair value. In addition, ASU 2018-13 requires disclosures regarding the uncertainty in the fair value measurements as of the reporting date and how changes in fair value measurements affect performance and cash flows. ASU 2018-13 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019. We are currently evaluating the effect of ASU 2018-13, but do not expect it will have a material effect on our financial statement disclosures.

In August 2018, the FASB issued ASU 2018-14, *Compensation-Retirement Benefits-Defined Benefit Plans-General (Subtopic 715-20): Disclosure Framework—Changes to the Disclosure Requirements for Defined Benefit Plans*, which makes changes to and clarifies the disclosure requirements related to defined benefit pension and other postretirement plans. ASU 2018-14 requires additional disclosures related to the reasons for significant gains and losses affecting the benefit obligation and an explanation of any other significant changes in the benefit obligation or plan assets that are not otherwise apparent in other disclosures required by ASC 715. ASU 2018-14 also clarifies the guidance in ASC 715 to require disclosure of the projected benefit obligation (PBO) and fair value of plan assets for pension plans with PBOs in excess of plan assets and the accumulated benefit obligation (ABO) and fair value of plan assets for pension plans with ABOs in excess of plan assets. ASU 2018-14 is effective for public business entities for fiscal years ending after December 15, 2020. We are currently evaluating the effect of ASU 2018-14, but do not expect it will have a material effect on our financial statement disclosures.

In August 2018, the FASB issued ASU 2018-15, *Intangibles-Goodwill and Other-Internal-Use Software (Subtopic 350-40), Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract*. ASU 2018-15 clarifies certain aspects of ASU 2015-05, *Customer's Accounting for Fees Paid in a Cloud Computing Arrangement*. Specifically, ASU 2018-15 aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementations costs incurred to develop or obtain internal use software. ASU 2018-15 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019, with early adoption permitted. We are currently evaluating the effect of ASU 2018-15, but do not expect it will have a material effect on our consolidated financial statements.

During 2019, we adopted the following accounting standards, which had the following effects on our consolidated financial statements:

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)*. ASU 2016-02 requires an entity to recognize right-of-use assets and lease liabilities on the balance sheet and to disclose key information about the entity's leasing arrangements. In July 2018, the FASB issued ASU 2018-10, *Codification Improvements to Topic 842, Leases*, which clarified certain aspects of ASU 2016-02, as well as, ASU 2018-11, *Leases (Topic 842), Targeted Improvements*, which provided for an optional transition method which allowed for the application of the legacy lease guidance, including its disclosure requirements, for the comparative periods presented in the year of adoption, with the cumulative effect of initially applying the new lease standard recognized as an adjustment to retained earnings as of the date of adoption. In March 2019, the FASB issued ASU 2019-01, *Leases (Topic 842) Codification Improvements*, which removed the requirement for an entity to disclose in the interim periods after adoption, the effect of the change on income from continuing operations, net income, any other affected financial statement line item, and any affected per share amount. For lessors, the new leasing standard requires leases to be classified as a sales-type, direct financing or operating leases. These criteria focus on the transfer of control of the underlying lease asset. This standard and related updates were effective for fiscal years beginning after December 15, 2018, and interim periods within those fiscal years.

The Company adopted the new standard on January 1, 2019, the effective date of our initial application, using the optional transition method. The Company has elected to carry forward the legacy (ASC 840) disclosures for comparative periods and therefore, did not adjust the comparative period financial information prior to January 1, 2019. In addition, the Company elected the package of practical expedients which allows for companies to not reassess whether any expired or existing contracts are or contain leases, not reassess historical lease classifications for expired or existing contracts and not reassess initial direct costs for existing leases. Additionally, the Company elected the practical expedients which allow the use of hindsight when determining the lease term, the short-term lease recognition exemption and the option to not separate lease and non-lease components. The adoption of this standard resulted in the recognition of a right-of-use asset and corresponding right-of-use liability on our Consolidated Balance Sheet of \$10.3 million, mainly related to our operating leases for office space, automobiles and other equipment.

As a lessee, the adoption of this standard did not have a material impact on our Consolidated Statement of Income or Statement of Cash Flow. See Note 12 for additional information.

As a lessor, the adoption of this standard did not have a material impact on the Company's Consolidated Balance Sheet, Consolidated Statement of Income or Statement of Cash Flow. Prior to and after adoption, all of our leases in which we are the lessor were classified as sales-type leases.

In March 2017, the FASB issued ASU 2017-08, *Receivables – Nonrefundable Fees and Other Costs (Subtopic 310-20): Premium Amortization on Purchased Callable Debt Securities*, which shortened the amortization period for the premium on certain purchased callable debt securities to the earliest call date. ASU 2017-08 was effective for fiscal years and interim periods within those fiscal years, beginning after December 15, 2018. The amendments were required to be applied through a modified-retrospective transition approach that required a cumulative-effect adjustment directly to retained earnings as of the beginning of the period of adoption. The Company adopted ASU 2017-08 on January 1, 2019, and the adoption of this standard did not have a material effect on our consolidated financial statements.

In August 2017, the FASB issued ASU 2017-12, *Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities*. ASU 2017-12 expanded and refined hedge accounting for both financial and non-financial risk components, aligned the recognition and presentation of the effects of hedging instruments and hedge items in the financial statements, and included certain targeted improvements to ease the application of current guidance related to the assessment of hedge effectiveness. In October 2018, the FASB issued ASU 2018-16, *Derivatives and Hedging (Topic 815): Inclusion of the Secured Overnight Financing Rate (SOFR) Overnight Index Swap (OIS) Rate as a Benchmark Interest Rate for Hedge Accounting*, which permits the OIS rate based on SOFR as a U.S. benchmark interest rate. Both ASU 2017-12 and ASU 2018-16 were effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018. The Company adopted ASU 2017-12 on January 1, 2019, and the adoption of this standard did not have a material effect on our consolidated financial statements as we currently do not have any hedging instruments.

In February 2018, the FASB issued ASU 2018-02, *Income Statement – Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Comprehensive Income*. ASU 2018-02 allowed for an optional reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the Tax Cuts and Jobs Act of 2017. ASU 2018-02 was effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018. The Company adopted ASU 2018-02 on January 1, 2019, and upon adoption reclassified \$0.4 million of stranded tax effects created by rate changes related to the Tax Cuts and Jobs Act of 2017 to retained earnings. See Note 13 for additional information.

2. BUSINESS COMBINATIONS

On November 30, 2018, we acquired SmartRG, Inc., a provider of carrier-class, open-source connected home platforms and cloud services for broadband service providers in exchange for cash consideration. This transaction was accounted for as a business combination. We have included the financial results of this acquisition in our consolidated financial statements since the date of acquisition. This revenue is included in the Subscriber Solutions & Experience category within the Network Solutions and Services & Support reportable segments.

Contingent liabilities with a fair value totaling \$1.2 million were recognized at the acquisition date, the payments of which are dependent upon SmartRG achieving future revenue, EBIT or customer purchase order milestones during the first half of 2019. The contingent payments are subject to arbitration and the final payouts, if applicable, are expected to occur during the third quarter of 2019. The minimum and maximum potential payment under the total of the contingent liabilities ranges from no payment to \$1.5 million. As of March 31, 2019, the fair value of the contingent liability was re-assessed and was determined to be \$1.2 million, based on the expected probable outcomes. No change in fair value was recognized during the three months ended March 31, 2019.

An escrow in the amount of \$2.8 million was set up at the acquisition date, to fund post-closing working capital settlements and to indemnify the Company from any inaccuracy or breach of representations, warranties, covenants, agreements or obligations of the sellers. The escrow is subject to arbitration with final settlement expected during the fourth quarter of 2020. The minimum and maximum potential release of funds to the seller ranges from no payment to \$2.8 million.

We recorded goodwill of \$3.5 million as a result of this acquisition, which represents the excess of the purchase price over the fair value of net assets acquired. We assessed the recognition and measurement of the assets acquired and liabilities assumed based on historical and forecasted data for future periods and concluded that our valuation procedures and resulting measures were appropriate.

On March 19, 2018, we acquired Sumitomo Electric Lightwave Corp.'s (SEL) North American EPON business and entered into a technology license and OEM supply agreement with Sumitomo Electric Industries, Ltd. (SEI). This transaction was accounted for as a business combination. We have included the financial results of this acquisition in our consolidated financial statements since the date of acquisition. This revenue is included in the Access & Aggregation and Subscriber Solutions & Experience categories within the Network Solutions reportable segment.

We recorded a bargain purchase gain, net of income taxes, of \$11.3 million during the first quarter of 2018, which represents the difference between the fair value of the net assets acquired over the cash paid. We assessed the recognition and measurement of the assets acquired and liabilities assumed based on historical and forecasted data for future periods and concluded that our valuation procedures and resulting measures were appropriate.

The final allocation of the purchase price to the estimated fair value of the assets acquired and liabilities assumed at the acquisition date for SmartRG and Sumitomo are as follows:

<i>(In thousands)</i>	<u>SmartRG</u>	<u>Sumitomo</u>
Assets		
Tangible assets acquired	\$ 8,594	\$ 1,006
Intangible assets	9,960	22,100
Goodwill	3,489	—
Total assets acquired	22,043	23,106
Liabilities		
Liabilities assumed	(6,001)	(3,978)
Total liabilities assumed	(6,001)	(3,978)
Total net assets	16,042	19,128
Gain on bargain purchase of a business, net of tax	—	(11,322)
Total purchase price	\$ 16,042	\$ 7,806

The actual revenue and net loss included in the Consolidated Statements of Income for SmartRG and Sumitomo for the three months ended March 31, 2019 and from March 19, 2018 to March 31, 2018 are as follows:

<i>(In thousands)</i>	<u>Three Months Ended March 31, 2019</u>	<u>March 19 to March 31, 2018</u>
Revenue	\$ 7,348	\$ —
Net loss	\$ (1,684)	\$ (77)

The details of the acquired intangible assets from these acquisitions are as follows:

<i>(In thousands)</i>	<u>Value</u>	<u>Life (years)</u>
Customer relationships	\$ 15,190	3 – 12
Developed technology	7,400	7
Licensed technology	5,900	9
Supplier relationship	2,800	2
Licensing agreements	560	5 – 10
Trade name	210	3
Total	\$ 32,060	

The following unaudited supplemental pro forma information presents the financial results of the Company as if the acquisition of SmartRG and Sumitomo had occurred on January 1, 2018. This unaudited supplemental pro forma information does not purport to be indicative of what would have occurred had the acquisition been completed on January 1, 2018, nor is it indicative of any future results. Aside from revising the 2018 net income for the effect of the bargain purchase gain, there were no material, non-recurring adjustments to this unaudited pro forma information.

<i>(In thousands)</i>	For the Three Months Ended March 31, 2018	
Pro forma revenue	\$	129,584
Pro forma net loss	\$	(23,400)
Pro forma loss per share - basic	\$	(0.49)
Pro forma loss per share - diluted	\$	(0.49)

For the three months ended March 31, 2019 and 2018, we incurred acquisition and integration related expenses and amortization of acquired intangibles of \$1.3 million and \$0.2 million respectively, related to these acquisitions.

3. REVENUE

The following is a description of the principal activities from which we generate our revenue by reportable segment.

Network Solutions Segment

Network Solutions includes hardware products and software-defined next-generation virtualized solutions used in service provider or business networks, as well as prior generation products. The majority of the revenue from this segment is from hardware sales. In certain transactions, we are also the lessor in sales-type lease arrangements for network equipment. These arrangements typically include network equipment, network implementation services and maintenance services. See Note 12 for additional information.

Services & Support Segment

To complement our Network Solutions segment, we offer a complete portfolio of maintenance, network implementation and solutions integration and managed services, which include hosted cloud services and subscription services.

In addition to our reporting segments, we also report revenue in the following three categories – Access & Aggregation, Subscriber Solutions & Experience, and Traditional & Other Products.

The following table disaggregates our revenue by major source for the three months ended March 31, 2019:

<i>(In thousands)</i>	Network Solutions		Services & Support		Total	
Access & Aggregation	\$	85,673	\$	14,105	\$	99,778
Subscriber Solutions & Experience ⁽¹⁾		34,719		2,034		36,753
Traditional & Other Products		5,430		1,830		7,260
Total	\$	125,822	\$	17,969	\$	143,791

- (1) Subscriber Solutions & Experience was formerly reported as Customer Devices. With the increasing focus on enhancing the customer experience for both our business and consumer broadband customers and the addition of SmartRG during the fourth quarter of 2018, Subscriber Solutions & Experience more accurately represents this revenue category.

The following table disaggregates our revenue by major source for the three months ended March 31, 2018:

<i>(In thousands)</i>	Network Solutions		Services & Support		Total	
Access & Aggregation	\$	69,385	\$	12,295	\$	81,680
Subscriber Solutions & Experience ⁽¹⁾		28,777		1,324		30,101
Traditional & Other Products		7,091		1,934		9,025
Total	\$	105,253	\$	15,553	\$	120,806

- (1) Subscriber Solutions & Experience was formerly reported as Customer Devices. With the increasing focus on enhancing the customer experience for both our business and consumer broadband customers and the addition of SmartRG during the fourth quarter of 2018, Subscriber Solutions & Experience more accurately represents this revenue category.

As of March 31, 2019, we did not have any significant performance obligations related to customer contracts that had an original expected duration of one year or more, other than maintenance services, which are satisfied over time.

The following table provides information about receivables, contract assets and unearned revenue from contracts with customers:

<i>(In thousands)</i>	March 31, 2019		December 31, 2018	
Accounts receivable, net	\$	99,032	\$	99,385
Contract assets	\$	2,333	\$	3,766
Unearned revenue	\$	15,230	\$	17,940
Non-current unearned revenue	\$	4,514	\$	5,296

\$6.9 million of the outstanding unearned revenue balance at December 31, 2018 was recognized as revenue during the three months ended March 31, 2019.

4. INCOME TAXES

Our effective tax rate increased from an expense of 15.1%, excluding the tax effect of the bargain purchase gain, in the three months ended March 31, 2018, to an expense of 28.6% in the three months ended March 31, 2019. The increase in the effective tax rate between the two periods is primarily driven by the shift to profitability in the current quarter.

The Company continually reviews the adequacy of the valuation allowance and recognizes the benefits of deferred tax assets only as the reassessment indicates that it is more likely than not that the deferred tax assets will be recognized in accordance with ASC 740, Income Taxes (ASC 740). As of March 31, 2019, we had net deferred tax assets of \$36.9 million. Since management continues to assess the realization of these deferred tax assets and related valuation allowance(s), as such, we may release a portion of the valuation allowance or establish a new valuation allowance based on operations in the jurisdictions in which these assets arose. Our assessment includes the evaluation of evidence, some of which requires significant judgment, including historical operating results, the evaluation of three-year cumulative income, future taxable income and tax planning strategies. Should management determine a valuation allowance is needed in the future due to not being able to absorb loss carryforwards, it could have a material effect on our consolidated financial statements.

5. PENSION BENEFIT PLAN

We maintain a defined benefit pension plan covering employees in certain foreign countries.

The following table summarizes the components of net periodic pension cost for the three months ended March 31, 2019 and 2018:

<i>(In thousands)</i>	Three Months Ended	
	March 31,	
	2019	2018
Service cost	\$ 375	\$ 308
Interest cost	162	187
Expected return on plan assets	(355)	(399)
Amortization of actuarial losses	203	64
Net periodic pension cost	\$ 385	\$ 160

The components of net periodic pension cost other than the service cost component are included in other income (expense), net in the Consolidated Statements of Income. Service cost are included in cost of sales, selling, general and administrative expenses and research and development expenses in the Consolidated Statements of Income.

6. STOCK-BASED COMPENSATION

The following table summarizes stock-based compensation expense related to stock options, performance stock units (PSUs), restricted stock units (RSUs) and restricted stock for the three months ended March 31, 2019 and 2018, which was recognized as follows:

<i>(In thousands)</i>	Three Months Ended	
	March 31,	
	2019	2018
Stock-based compensation expense included in cost of sales	\$ 104	\$ 95
Selling, general and administrative expense	1,063	1,035
Research and development expense	692	689
Stock-based compensation expense included in operating expenses	1,755	1,724
Total stock-based compensation expense	1,859	1,819
Tax benefit for expense associated with non-qualified options, PSUs, RSUs and restricted stock	(443)	(384)
Total stock-based compensation expense, net of tax	\$ 1,416	\$ 1,435

Stock Options

The following table is a summary of our stock options outstanding as of December 31, 2018 and March 31, 2019, and the changes that occurred during the three months ended March 31, 2019:

	Number of Stock Options (in thousands)	Weighted Avg. Exercise Price (per share)	Weighted Avg. Remaining Contractual Life (in years)	Aggregate Intrinsic Value (in thousands)
Stock options outstanding, December 31, 2018	4,382	\$ 22.91	4.10	\$ —
Stock options granted	—	\$ —		
Stock options exercised	—	\$ —		
Stock options forfeited	(8)	\$ 15.33		
Stock options expired	(33)	\$ 23.13		
Stock options outstanding, March 31, 2019	4,341	\$ 22.93	3.80	\$ —
Stock options exercisable, March 31, 2019	4,098	\$ 23.37	3.63	\$ —

At March 31, 2019, total unrecognized compensation expense related to non-vested stock options was approximately \$0.6 million, which is expected to be recognized over an average remaining recognition period of 0.7 years.

All of the options above were issued at exercise prices that approximated fair market value at the date of grant. At March 31, 2019, 2.4 million options were available for grant under the shareholder-approved plans.

The aggregate intrinsic values in the table above represent the total pre-tax intrinsic value (the difference between ADTRAN's closing stock price on the last trading day of the quarter and the exercise price, multiplied by the number of in-the-money options) that would have been received by the option holders had all option holders exercised their options on March 31, 2019. The amount of aggregate intrinsic value will change based on the fair market value of ADTRAN's stock. The total pre-tax intrinsic value of options exercised during the three months ended March 31, 2019 was zero.

The fair value of our stock options is estimated using the Black-Scholes model. The determination of the fair value of stock options on the date of grant using the Black-Scholes model is affected by our stock price, as well as assumptions regarding a number of complex and subjective variables that may have a significant impact on the fair value estimate. The stock option pricing model requires the use of several assumptions that impact the fair value estimate. These variables include, but are not limited to, the volatility of our stock price and employee exercise behaviors.

There were no stock options granted during the three months ended March 31, 2019 or 2018.

The following table is a summary of our PSUs, RSUs and restricted stock outstanding as of December 31, 2018 and the changes that occurred during the three months ended March 31, 2019:

	Number of Shares (in thousands)	Weighted Avg. Grant Date Fair Value (per share)
Unvested PSUs, RSUs and restricted stock outstanding, December 31, 2018	1,570	\$ 18.52
PSUs, RSUs and restricted stock granted	59	\$ 12.54
PSUs, RSUs and restricted stock vested	(1)	\$ 18.86
PSUs, RSUs and restricted stock forfeited	(44)	\$ 17.88
Unvested PSUs, RSUs and restricted stock outstanding, March 31, 2019	1,584	\$ 18.32

The fair value of our PSUs with market conditions is calculated using a Monte Carlo simulation valuation method. The fair value of RSUs and restricted stock is equal to the closing price of our stock on the business day immediately preceding the grant date.

At March 31, 2019, total unrecognized compensation expense related to the non-vested portion of market-based PSUs, RSUs and restricted stock was approximately \$16.1 million, which is expected to be recognized over an average remaining recognition period of 2.8 years. In addition, there was \$9.0 million of unrecognized compensation expense related to the unvested 2017 performance-based PSUs, which will be recognized over the remaining requisite service period of 0.8 years if achievement of the performance obligation becomes probable. For the three months ending March 31, 2019 and 2018, no compensation expense was recognized related to these performance-based PSUs.

7. INVESTMENTS

Debt Securities and Other Investments

At March 31, 2019, we held the following debt securities and other investments, recorded at either fair value or cost:

(In thousands)	Amortized	Gross Unrealized		Carrying
	Cost	Gains	Losses	Value
Corporate bonds	\$ 15,964	\$ 69	\$ (24)	\$ 16,009
Municipal fixed-rate bonds	951	—	(13)	938
Asset-backed bonds	7,171	13	(9)	7,175
Mortgage/Agency-backed bonds	4,561	6	(26)	4,541
U.S. government bonds	4,238	—	(11)	4,227
Foreign government bonds	2,159	—	(2)	2,157
Available-for-sale debt securities held at fair value	\$ 35,044	\$ 88	\$ (85)	\$ 35,047
Restricted investment held at cost				25,600
Other investments held at cost				1,180
Total carrying value of available-for-sale investments				\$ 61,827

At December 31, 2018, we held the following debt securities and other investments, recorded at either fair value or cost:

(In thousands)	Amortized	Gross Unrealized		Carrying
	Cost	Gains	Losses	Value
Corporate bonds	\$ 20,777	\$ 19	\$ (112)	\$ 20,684
Municipal fixed-rate bonds	1,339	—	(26)	1,313
Asset-backed bonds	5,230	5	(14)	5,221
Mortgage/Agency-backed bonds	3,833	2	(44)	3,791
U.S. government bonds	9,271	1	(66)	9,206
Foreign government bonds	592	—	(8)	584
Available-for-sale debt securities held at fair value	\$ 41,042	\$ 27	\$ (270)	\$ 40,799
Restricted investment held at cost				25,600
Other investments held at cost				397
Total carrying value of available-for-sale investments				\$ 66,796

As of March 31, 2019, our debt securities had the following contractual maturities:

<i>(In thousands)</i>	Corporate bonds	Municipal fixed-rate bonds	Asset- backed bonds	Mortgage / Agency- backed bonds	U.S. government bonds	Foreign government bonds
Less than one year	\$ 3,127	\$ —	\$ 872	\$ —	\$ 1,691	\$ —
One to two years	8,389	—	387	289	—	1,196
Two to three years	4,493	938	976	—	1,324	961
Three to five years	—	—	3,105	827	1,212	—
Five to ten years	—	—	1,038	303	—	—
More than ten years	—	—	797	3,122	—	—
Total	\$ 16,009	\$ 938	\$ 7,175	\$ 4,541	\$ 4,227	\$ 2,157

Actual maturities may differ from contractual maturities because some borrowers have the right to call or prepay obligations with or without call or prepayment penalties.

Realized gains and losses on sales of debt securities are computed under the specific identification method. The following table presents gross realized gains and losses related to our debt securities:

<i>(In thousands)</i>	Three Months Ended March 31,	
	2019	2018
Gross realized gains on debt securities	\$ 41	\$ —
Gross realized losses on debt securities	(19)	(73)
Total gain (loss) recognized, net	\$ 22	\$ (73)

Our investment policy provides limitations for issuer concentration, which limits, at the time of purchase, the concentration in any one issuer to 5% of the market value of our total investment portfolio.

At March 31, 2019, we held a \$25.6 million restricted certificate of deposit that is carried at cost. This investment serves as a collateral deposit against the principal amount outstanding under loans made to ADTRAN pursuant to an Alabama State Industrial Development Authority revenue bond (the Bond), which totaled \$25.6 million at March 31, 2019 and December 31, 2018. At March 31, 2019 and December 31, 2018, the estimated fair value of the Bond using a level 2 valuation technique was approximately \$25.5 million and \$25.4 million, respectively, based on a debt security with a comparable interest rate and maturity and a Standard and Poor's credit rating of AAA. We have the right to set-off the balance of the Bond with the collateral deposit in order to reduce the balance of the indebtedness. The Bond matures on January 1, 2020, and bears interest at the rate of 2% per annum. In conjunction with this program, we are eligible to receive certain economic incentives from the state of Alabama that reduce the amount of payroll withholdings we are required to remit to the state for those employment positions that qualify under this program. We are required to make payments in the amounts necessary to pay the interest on the amounts currently outstanding. It is our intent to make annual principal payments in addition to the interest amounts that are due. The restricted funds held as collateral against the principal amount of the Bond will be used to pay the outstanding principal and interest upon the Bond's maturity on January 1, 2020.

Marketable Equity Securities

Our marketable equity securities consist of publicly traded stock, funds and certain other investments measured at fair value or cost (where appropriate).

On January 1, 2018, we adopted ASU 2016-01, which requires us to measure all equity investments that do not result in consolidation and are not accounted for under the equity method at fair value, with any changes in fair value recognized in net investment gain (loss). Upon adoption, we reclassified \$3.2 million of net unrealized gains related to marketable equity securities from accumulated other comprehensive income (loss) to retained earnings.

ASU 2016-01 also provides a measurement alternative for equity investments that do not have a readily determinable fair value in which investments can be recorded at cost less impairment, if any, adjusted for observable price changes for an identical or similar investment. We elected to record our equity investment that does not have a readily determinable fair value using the measurement alternative method. The carrying value of this investment was \$3.4 million and \$0 as of March 31, 2019 and December 31, 2018, respectively.

Realized and unrealized gains and losses for our marketable equity securities for the three months ended March 31, 2019 and 2018 were as follows:

<i>(In thousands)</i>	Three Months Ended March 31,	
	2019	2018
Realized gains (losses) on equity securities sold	\$ (14)	\$ 398
Unrealized gains (losses) on equity securities held	5,918	(422)
Total gain (loss) recognized, net	\$ 5,904	\$ (24)

As of March 31, 2019 and 2018, gross unrealized losses related to individual investments in a continuous loss position for twelve months or longer were not significant.

We have categorized our cash equivalents and our investments held at fair value into a three-level fair value hierarchy based on the priority of the inputs to the valuation technique for the cash equivalents and investments as follows: Level 1 - Values based on unadjusted quoted prices for identical assets or liabilities in an active market; Level 2 - Values based on quoted prices in markets that are not active or model inputs that are observable either directly or indirectly; Level 3 - Values based on prices or valuation techniques that require inputs that are both unobservable and significant to the overall fair value measurement. These inputs include information supplied by investees.

<i>(In thousands)</i>	Fair Value Measurements at March 31, 2019 Using			
	Cost or Fair Value	Quoted Prices in Active Market for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Cash equivalents				
Money market funds	\$ 1,279	\$ 1,279	\$ —	\$ —
Commercial paper	6,547	—	6,547	—
Cash equivalents	7,826	1,279	6,547	—
Available-for-sale debt securities				
Corporate bonds	16,009	—	16,009	—
Municipal fixed-rate bonds	938	—	938	—
Asset-backed bonds	7,175	—	7,175	—
Mortgage/Agency-backed bonds	4,541	—	4,541	—
U.S. government bonds	4,227	4,227	—	—
Foreign government bonds	2,157	—	2,157	—
Marketable equity securities				
Marketable equity securities – various industries	30,725	30,725	—	—
Equity in escrow	174	174	—	—
Deferred compensation plan assets	20,416	20,416	—	—
Total debt and equity securities at fair value	86,362	55,542	30,820	—
Other investments held at cost				
Other investments	3,375	—	—	—
Total other investments held at cost	3,375	—	—	—
Total	\$ 97,563	\$ 56,821	\$ 37,367	\$ —

Fair Value Measurements at December 31, 2018 Using

<i>(In thousands)</i>	Cost or Fair Value	Quoted Prices in Active Market for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Cash equivalents				
Money market funds	\$ 1,554	\$ 1,554	\$ —	\$ —
Cash equivalents	1,554	1,554	—	—
Available-for-sale debt securities				
Corporate bonds	20,684	—	20,684	—
Municipal fixed-rate bonds	1,313	—	1,313	—
Asset-backed bonds	5,221	—	5,221	—
Mortgage/Agency-backed bonds	3,791	—	3,791	—
U.S. government bonds	9,206	9,206	—	—
Foreign government bonds	584	—	584	—
Marketable equity securities				
Marketable equity securities – various industries	26,763	26,763	—	—
Equity in escrow	253	253	—	—
Deferred compensation plan assets	18,256	18,256	—	—
Total debt and equity securities at fair value	86,071	54,478	31,593	—
Total	\$ 87,625	\$ 56,032	\$ 31,593	\$ —

The fair value of our Level 2 securities is calculated using a weighted average market price for each security. Market prices are obtained from a variety of industry standard data providers, security master files from large financial institutions, and other third-party sources. These multiple market prices are used as inputs into a distribution-curve-based algorithm to determine the daily market value of each security.

8. DERIVATIVE INSTRUMENTS AND HEDGING ACTIVITIES

We participate in foreign exchange forward contracts in connection with the management of exposure to fluctuations in foreign exchange rates.

Cash Flow Hedges

Our cash flow hedging activities utilize foreign exchange forward contracts to reduce the risk that movements in exchange rates will adversely affect the net cash flows resulting from the planned purchase of products from foreign suppliers. Purchases of U.S. denominated inventory by our European subsidiary represent our primary exposure. Changes in the fair value of derivatives designated as cash flow hedges are not recognized in current operating results, but are recorded in accumulated other comprehensive income. Amounts related to cash flow hedges are reclassified from accumulated other comprehensive income when the underlying hedged item impacts earnings. This reclassification is recorded in cost of sales, the same line item of the Consolidated Statements of Income at which the effects of the hedged item are recorded.

Undesignated Hedges

We have certain customers and suppliers who are invoiced or pay in a non-functional currency. Changes in the monetary exchange rates may adversely affect our results of operations and financial condition, as outstanding non-functional balances are revalued to the functional currency through profit and loss. When appropriate, we utilize foreign exchange forward contracts to help manage the volatility relating to these valuation exposures. All changes in the fair value of our derivative instruments that do not qualify for, or are not designated for hedged accounting transactions, are recognized as other income (expense), net in the Consolidated Statements of Income.

We do not hold or issue derivative instruments for trading or other speculative purposes. Our derivative instruments are recorded in the Consolidated Balance Sheets at their fair values. Our derivative instruments are not subject to master netting arrangements and are not offset in the Consolidated Balance Sheets.

As of March 31, 2019, we had no foreign exchange forward contracts.

The changes in the fair values of our derivative instruments recorded in the Consolidated Statements of Income during the three months ended March 31, 2019 and 2018 were as follows:

<i>(In thousands)</i>	Income Statement Location	Three Months Ended March 31,	
		2019	2018
Derivatives not designated as hedging instruments:			
Foreign exchange contracts	Other income (expense), net	\$ —	\$ 13

9. INVENTORY

At March 31, 2019 and December 31, 2018, inventory consisted of the following:

<i>(In thousands)</i>	March 31, 2019	December 31, 2018
Raw materials	\$ 40,841	\$ 45,333
Work in process	1,513	1,638
Finished goods	51,255	52,877
Total	\$ 93,609	\$ 99,848

We establish reserves for estimated excess, obsolete, or unmarketable inventory equal to the difference between the cost of the inventory and the estimated fair value of the inventory based upon assumptions about future demand and market conditions. At March 31, 2019 and December 31, 2018, raw materials reserves totaled \$17.1 million and \$17.6 million, respectively, and finished goods inventory reserves totaled \$12.8 million and \$12.4 million, respectively.

10. GOODWILL

Goodwill, all of which relates to our acquisitions of Bluesocket, Inc. and SmartRG, was \$7.0 million and \$7.1 million at March 31, 2019 and December 31, 2018, of which \$6.6 million and \$0.4 million is allocated to our Network Solutions and Services & Support reportable segments, respectively, as of March 31, 2019, and of which \$6.7 million and \$0.4 million was allocated to our Network Solutions and Services & Support reportable segments, respectively, as of December 31, 2018. Goodwill related to our SmartRG acquisition was adjusted during the three months ended March 31, 2019, as a result of filing the SmartRG income tax returns during the quarter.

We evaluate the carrying value of goodwill during the fourth quarter of each year and between annual evaluations if events occur or circumstances change that would more likely than not reduce the fair value of the reporting unit below its carrying amount. We have elected to first assess the qualitative factors to determine whether it is more likely than not that the fair value of the reporting unit to which the goodwill is assigned is less than its carrying amount as a basis for determining whether it is necessary to perform the two-step impairment test. If we determine that it is more likely than not that its fair value is less than its carrying amount, then the two-step impairment test will be performed. Based on the results of our qualitative assessment in 2018, we concluded that it was not necessary to perform the two-step impairment test.

11. INTANGIBLE ASSETS

Intangible assets include intangibles acquired in conjunction with several acquisitions since 2011, with the most recent being SmartRG, Inc. in November 2018 and SEI's North American EPON business and technology license and OEM supply agreement with SEI in March 2018.

The following table presents our intangible assets as of March 31, 2019 and December 31, 2018:

<i>(In thousands)</i>	March 31, 2019			December 31, 2018		
	Gross Value	Accumulated Amortization	Net Value	Gross Value	Accumulated Amortization	Net Value
Customer relationships	\$ 22,363	\$ (5,797)	\$ 16,566	\$ 22,455	\$ (5,380)	\$ 17,075
Developed technology	10,170	(2,526)	7,644	12,801	(4,867)	7,934
Licensed technology	5,900	(683)	5,217	5,900	(520)	5,380
Supplier relationships	2,800	(1,458)	1,342	2,800	(1,108)	1,692
Licensing agreements	560	(24)	536	560	(5)	555
Patents	500	(174)	326	500	(157)	343
Trade names	310	(124)	186	310	(106)	204
Total	\$ 42,603	\$ (10,786)	\$ 31,817	\$ 45,326	\$ (12,143)	\$ 33,183

Amortization expense was \$1.3 million and \$0.4 million for the three months ended March 31, 2019 and 2018 respectively.

As of March 31, 2019, the estimated future amortization expense of our intangible assets is as follows:

<i>(In thousands)</i>	Amount
Remainder of 2019	\$ 3,994
2020	4,444
2021	4,096
2022	3,472
2023	3,320
Thereafter	12,491
Total	\$ 31,817

12. LEASES

Operating Lease Arrangements

We have operating leases for office space, automobiles, and other equipment in the United States and in various international locations in which we do business. We also have other contracts such as, manufacturing agreements and service agreements, which we review to determine if they contain an embedded lease. We specifically review these other contracts to determine whether we have the right to substantially all of the economic benefit from the use of any specified assets or the right to direct the use of any specified assets, either of which would indicate the existence of a lease.

As of March 31, 2019, our leases have remaining lease terms of one month to six years, some of which include options to extend the leases for up to 3 years, and some of which include options to terminate the leases within 3 months. For those leases that are reasonably assured to be renewed, we have included the option to extend as part of our right of use asset and right of use liability included on the Consolidated Balance Sheet. Leases with an initial term of 12 months or less are not recorded on the balance sheet and lease expense for these leases is recognized on a straight-line basis over the lease term. Lease expense related to these short-term leases was \$0.2 million for the three months ended March 31, 2019, and is included in selling, general and administrative expenses on the Consolidated Statement of Income. For lease agreements entered into or reassessed after the adoption of Topic 842, we elected the practical expedient which allows us to not separate lease and non-lease components. None of our lease agreements contain any material residual value guarantees or material restrictive covenants.

Supplemental balance sheet information related to operating leases is as follows:

<i>(In thousands)</i>	Classification	March 31, 2019	January 1, 2019
Assets			
Operating lease asset	Other assets	\$ 9,502	\$ 10,322
Total lease assets		\$ 9,502	\$ 10,322
Liabilities			
Current operating lease liability	Accrued expenses	\$ 2,718	\$ 2,948
Non-current operating lease liability	Other non-current liabilities	6,801	7,374
Total lease liability		\$ 9,519	\$ 10,322

The components of lease expense included in the Consolidated Statement of Income for the three months ended March 31, 2019 are as follows:

<i>(In thousands)</i>	Classification	Three Months Ended March 31, 2019
Operating lease expense	Selling, general and administrative expenses	\$ 349
Operating lease expense	Research and development expenses	454
Operating lease expense	Cost of sales	16
Total lease expense		\$ 819

As of March 31, 2019, the maturity of lease liabilities included on the Consolidated Balance Sheet are as follows:

<i>(In thousands)</i>	Amount
Remainder of 2019	\$ 2,363
2020	2,185
2021	2,032
2022	1,544
2023	1,163
Thereafter	747
Total lease payments	10,034
Less: Interest	(515)
Present value of lease liabilities	\$ 9,519

Operating lease payments include \$1.2 million related to options to extend lease terms that are reasonably certain of being exercised and there are no legally binding leases that have not yet commenced.

As of December 31, 2018, future minimum rental payments under non-cancelable operating leases, including renewals determined to be reasonably assured as of December 31, 2018, with original maturities of greater than 12 months are as follows:

<i>(In thousands)</i>	Amount ⁽¹⁾
2019	\$ 3,873
2020	3,580
2021	2,771
2022	2,053
2023	1,317
Thereafter	762
Total	\$ 14,356

⁽¹⁾ Certain renewal options were subsequently determined to not be reasonably assured of renewal upon adoption of the new lease standard.

Our leases do not provide an implicit borrowing rate and therefore we use an incremental borrowing rate based on the information available at commencement date in determining the present value of lease payments. We used the incremental borrowing rate on January 1, 2019, for operating leases that commenced on or prior to that date. The incremental borrowing rate was determined on a portfolio basis by grouping leases with similar terms as well as grouping leases based on a U.S. dollar or Euro functional currency. The actual rate is then determined based on a credit spread over LIBOR as well as the Bloomberg Curve Matrix for the U.S. Communications section.

	<u>As of March 31, 2019</u>
Weighted average remaining lease term (years)	
Operating leases with USD functional currency	3.0
Operating leases with Euro functional currency	5.1
Weighted average discount rate	
Operating leases with USD functional currency	4.61%
Operating leases with Euro functional currency	1.85%

Supplemental cash flow information related to leases were as follows:

<i>(In thousands)</i>	<u>As of March 31, 2019</u>
Cash paid for amounts included in the measurement of lease liabilities / assets	
Cash used in operating activities related to operating leases	\$ (811)
Right-of-use assets obtained in exchange for lease obligations	\$ 10,387

Sales-Type Lease Arrangements

We are the lessor in sales-type lease arrangements for network equipment, which have initial terms of up to five years. Our sales-type lease arrangements contain either a provision whereby the network equipment reverts back to us upon the expiration of the lease or a provision that allows the lessee to purchase the network equipment at a bargain purchase amount. In addition, our sales-type lease arrangements do not contain any residual value guarantees or material restrictive covenants. The allocation of the consideration between lease and non-lease components is determined by standalone sales price by component. The net investment in sales-type leases consists of lease receivables less unearned income. Collectability of sales-type leases is evaluated periodically at an individual customer level. At March 31, 2019 and December 31, 2018, we had no allowance for credit losses for our net investment in sales-type leases. As of March 31, 2019 and December 31, 2018, the components of the net investment in sales-type leases were as follows:

<i>(In thousands)</i>	<u>March 31, 2019</u>	<u>December 31, 2018</u>
Current minimum lease payments receivable (included in other receivables)	\$ 9,349	\$ 11,339
Non-current minimum lease payments receivable (included in other assets)	1,494	1,670
Total minimum lease payments receivable	10,843	13,009
Less: Current unearned revenue	573	631
Less: Non-current unearned revenue	343	473
Net investment in sales-type leases	\$ 9,927	\$ 11,905

The components of sales-type lease gross profit recognized at the lease commencement date and interest income, included in the Consolidated Statement of Income for the three months ended March 31, 2019 are as follows:

<i>(In thousands)</i>	<u>Classification</u>	<u>Three Months Ended March 31, 2019</u>
Sales type leases	Sales - products	\$ 1,512
Sales type leases	Cost of sales - products	591
Sales type leases	Gross profit	\$ 921
Sales type leases	Interest and dividend income	\$ 87

Future minimum lease payments to be received from sales-type leases as of March 31, 2019 are as follows:

<i>(In thousands)</i>	<u>Amount ⁽¹⁾</u>
Remainder of 2019	\$ 9,005
2020	1,056
2021	493
2022	209
2023	78
Thereafter	2
Total	<u>\$ 10,843</u>

- ⁽¹⁾ A significant portion of these future minimum lease payments relates to one of our customers who filed for Chapter 11 bankruptcy in February 2019. In March 2019, we reached an agreement with this customer and they continue to make payments as outlined in the lease agreements. Therefore, we believe there is no potential risk of uncollectibility related to these outstanding balances.

13. STOCKHOLDERS' EQUITY

Stock Repurchase Program

Since 1997, our Board of Directors has approved multiple share repurchase programs that have authorized open market repurchase transactions of our common stock, which are implemented through open market or private purchases from time to time as conditions warrant. During the three months ended March 31, 2019, we repurchased 13,000 shares of our common stock at an average price of \$14.06 per share. As of March 31, 2019, we have the authority to purchase an additional 2.5 million shares of our common stock under the current authorization of up to 5.0 million shares.

Other Comprehensive Income

Other comprehensive income consists of unrealized gains (losses) on available-for-sale debt securities; reclassification adjustments for amounts included in net income related to impairments of available-for-sale debt securities, realized gains (losses) on available-for-sale debt securities, realized gains (losses) on cash flow hedges, amortization of actuarial gains (losses) related to our defined benefit plan, defined benefit plan adjustments, and foreign currency translation adjustments.

The following tables present the changes in accumulated other comprehensive income (loss), net of tax, by component for the three months ended March 31, 2019 and 2018:

<i>(In thousands)</i>	<u>Three Months Ended March 31, 2019</u>				
	Unrealized Gains (Losses) on Available- for-Sale Securities	Defined Benefit Plan Adjustments	Foreign Currency Adjustments	ASU 2018-02 Adoption	Total
Beginning balance	\$ (563)	\$ (8,041)	\$ (5,812)	\$ —	\$ (14,416)
Other comprehensive income (loss) before reclassifications	231	—	(1,160)	—	(929)
Amounts reclassified from accumulated other comprehensive income (loss)	(46)	121	—	—	75
Amounts reclassified to retained earnings ⁽¹⁾	—	—	—	385	385
Net current period other comprehensive income (loss)	185	121	(1,160)	385	(469)
Ending balance	<u>\$ (378)</u>	<u>\$ (7,920)</u>	<u>\$ (6,972)</u>	<u>\$ 385</u>	<u>\$ (14,885)</u>

- ⁽¹⁾ With the adoption of ASU 2018-02, the stranded tax effects related to the Tax Cuts and Jobs Act of 2017 were reclassified to retained earnings. See Note 1.

Three Months Ended March 31, 2018

<i>(In thousands)</i>	Unrealized Gains (Losses) on Available- for-Sale Securities	Defined Benefit Plan Adjustments	Foreign Currency Adjustments	Total
Beginning balance	\$ 2,567	\$ (4,286)	\$ (1,576)	\$ (3,295)
Other comprehensive income (loss) before reclassifications	(257)	—	842	585
Amounts reclassified from accumulated other comprehensive income (loss)	65	62	—	127
Amounts reclassified to retained earnings ⁽¹⁾	(3,220)	—	—	(3,220)
Net current period other comprehensive income (loss)	(3,412)	62	842	(2,508)
Ending balance	\$ (845)	\$ (4,224)	\$ (734)	\$ (5,803)

- (1) With the adoption of ASU 2016-01, the unrealized gains on our equity investments were reclassified to retained earnings. See Note 7.

The following tables present the details of reclassifications out of accumulated other comprehensive income (loss) for the three months ended March 31, 2019 and 2018:

Three Months Ended March 31, 2019

Details about Accumulated Other Comprehensive Income (Loss) Components	Amount Reclassified from Accumulated Other Comprehensive Income (Loss)	Affected Line Item in the Statement Where Net Income Is Presented
Unrealized gains on available-for-sale securities:		
Net realized gain on sales of securities	\$ 62	Net investment gain (loss)
Defined benefit plan adjustments – actuarial losses	(175)	(1)
Total reclassifications for the period, before tax	(113)	
Tax benefit	38	
Total reclassifications for the period, net of tax	\$ (75)	

- (1) Included in the computation of net periodic pension cost. See Note 5.

Three Months Ended March 31, 2018

Details about Accumulated Other Comprehensive Income (Loss) Components	Amount Reclassified from Accumulated Other Comprehensive Income (Loss)	Affected Line Item in the Statement Where Net Income Is Presented
Unrealized losses on available-for-sale securities:		
Net realized loss on sales of securities	\$ (73)	Net investment gain (loss)
Defined benefit plan adjustments – actuarial losses	(90)	(1)
Total reclassifications for the period, before tax	(163)	
Tax benefit	36	
Total reclassifications for the period, net of tax	\$ (127)	

- (1) Included in the computation of net periodic pension cost. See Note 5.

The following table presents the tax effects related to the change in each component of other comprehensive income (loss) for the three months ended March 31, 2019 and 2018:

<i>(In thousands)</i>	Three Months Ended March 31, 2019			Three Months Ended March 31, 2018		
	Before-Tax Amount	Tax (Expense) Benefit	Net-of-Tax Amount	Before-Tax Amount	Tax (Expense) Benefit	Net-of-Tax Amount
Unrealized gains (losses) on available-for-sale securities	\$ 312	\$ (81)	\$ 231	\$ (347)	\$ 90	\$ (257)
Reclassification adjustment for amounts related to available-for-sale investments included in net income	(62)	16	(46)	73	(8)	65
Reclassification adjustment for amounts related to cash flow hedges included in net income	—	—	—	(3,220)	—	(3,220)
Reclassification adjustment for amounts related to defined benefit plan adjustments included in net income	175	(54)	121	90	(28)	62
Foreign currency translation adjustment	(1,160)	—	(1,160)	842	—	842
Total Other Comprehensive Income (Loss)	\$ (735)	\$ (119)	\$ (854)	\$ (2,562)	\$ 54	\$ (2,508)

14. EARNINGS (LOSS) PER SHARE

A summary of the calculation of basic and diluted earnings (loss) per share for the three months ended March 31, 2019 and 2018 is as follows:

<i>(In thousands, except per share amounts)</i>	Three Months Ended March 31,	
	2019	2018
Numerator		
Net income (loss)	\$ 770	\$ (10,814)
Denominator		
Weighted average number of shares – basic	47,782	48,232
Effect of dilutive securities		
Stock options	—	—
PSUs, RSUs and restricted stock	71	—
Weighted average number of shares – diluted	47,853	48,232
Earnings (loss) per share – basic	\$ 0.02	\$ (0.22)
Earnings (loss) per share – diluted	\$ 0.02	\$ (0.22)

For the three months ended March 31, 2019 and 2018, 2.9 million and 4.8 million stock options were outstanding but were not included in the computation of diluted earnings (loss) per share because the stock options' exercise prices were greater than the average market price of the common shares, therefore making them anti-dilutive under the treasury stock method.

15. SEGMENT INFORMATION

We operate in two reportable segments: (1) Network Solutions and (2) Services & Support. Network Solutions includes hardware products and software defined next-generation virtualized solutions used in service provider or business networks, as well as prior-generation products. Services & Support includes our suite of ProCloud managed services, network installation, engineering and maintenance services and fee-based technical support and equipment repair/replacement plans.

We evaluate the performance of our segments based on gross profit; therefore, selling, general and administrative expenses, research and development expenses, interest and dividend income, interest expense, net investment gain (loss), other income (expense) and (provision) benefit for income taxes are reported on a company-wide, functional basis only. There is no inter-segment revenue.

The following table presents information about the reported sales and gross profit of our reportable segments for the three months ended March 31, 2019 and 2018. We do not produce asset information by reportable segment; therefore, it is not reported.

<i>(In thousands)</i>	Three Months Ended March 31,			
	2019		2018	
	Sales	Gross Profit	Sales	Gross Profit
Network Solutions	\$ 125,822	\$ 55,088	\$ 105,253	\$ 36,641
Services & Support	17,969	5,524	15,553	3,092
Total	\$ 143,791	\$ 60,612	\$ 120,806	\$ 39,733

Sales by Category

In addition to our reporting segments, we also report revenue for the following three categories – Access & Aggregation, Subscriber Solutions & Experience (formerly Customer Devices) and Traditional & Other Products.

The table below presents sales information by category for the three months ended March 31, 2019 and 2018:

<i>(In thousands)</i>	Three Months Ended March 31,	
	2019	2018
Access & Aggregation	\$ 99,778	\$ 81,680
Subscriber Solutions & Experience	36,753	30,101
Traditional & Other Products	7,260	9,025
Total	\$ 143,791	\$ 120,806

The following table represents sales information by geographic area for the three months ended March 31, 2019 and 2018:

<i>(In thousands)</i>	Three Months Ended March 31,	
	2019	2018
United States	\$ 72,528	\$ 62,086
International	71,263	58,720
Total	\$ 143,791	\$ 120,806

16. LIABILITY FOR WARRANTY RETURNS

Our products generally include warranties of 90 days to five years for product defects. We accrue for warranty returns at the time revenue is recognized based on our estimate of the cost to repair or replace the defective products. We engage in extensive product quality programs and processes, including actively monitoring and evaluating the quality of our component suppliers. Our products continue to become more complex in both size and functionality as many of our product offerings migrate from line card applications to total systems. The increasing complexity of our products will cause warranty incidences, when they arise, to be more costly. Our estimates regarding future warranty obligations may change due to product failure rates, material usage and other rework costs incurred in correcting a product failure. In addition, from time to time, specific warranty accruals may be recorded if unforeseen problems arise. Should our actual experience relative to these factors be worse than our estimates, we will be required to record additional warranty expense. Alternatively, if we provide for more reserves than we require, we will reverse a portion of such provisions in future periods. The liability for warranty obligations totaled \$8.8 million and \$8.6 million at March 31, 2019 and December 31, 2018, which are included in accrued expenses in the accompanying Consolidated Balance Sheet.

A summary of warranty expense and write-off activity for the three months ended March 31, 2019 and 2018 is as follows:

<i>(In thousands)</i>	Three Months Ended March 31,	
	2019	2018
Balance at beginning of period	\$ 8,623	\$ 9,724
Plus: Amounts charged to cost and expenses	1,131	1,822
Less: Deductions	(952)	(1,859)
Balance at end of period	\$ 8,802	\$ 9,687

17. COMMITMENTS AND CONTINGENCIES

In the ordinary course of business, we may be subject to various legal proceedings and claims, including employment disputes, patent claims, disputes over contract agreements and other commercial disputes. In some cases, claimants seek damages or other relief, such as royalty payments related to patents, which, if granted, could require significant expenditures. Although the outcome of any claim or litigation can never be certain, it is our opinion that the outcome of all contingencies of which we are currently aware will not materially affect our business, operations, financial condition or cash flows.

We have committed to invest up to an aggregate of \$7.9 million in two private equity funds, and we have contributed \$8.4 million as of March 31, 2019, of which \$7.7 million has been applied to these commitments.

18. RESTRUCTURING

In February 2019, we announced the restructuring of our workforce predominantly in Germany, which included the closure of the office location in Munich, Germany accompanied by relocation or severance benefits for the affected employees. The restructuring is expected to be completed in the fourth quarter of 2019. The cumulative amount incurred during the three months ended March 31, 2019 related to this restructuring program is \$1.8 million. We also offered a voluntary early retirement offering to certain other employees which was announced to employees in March 2019. As of March 31, 2019, we did not have sufficient information on which to estimate an additional liability associated with the voluntary early retirement program.

In January 2018, we announced an early retirement incentive program for employees that met certain requirements. The cumulative amount incurred during the year ended December 31, 2018 related to this restructuring program was \$7.3 million, of which \$6.0 million was incurred during the three months ended March 31, 2018. We do not expect to incur any additional expenses related to this restructuring program.

A reconciliation of the beginning and ending restructuring liability, which is included in accrued wages and benefits on the Consolidated Balance Sheet, is as follows:

<i>(In thousands)</i>	Three Months Ended March 31,	
	2019	
Balance as of December 31, 2018	\$	185
Plus: Amounts charged to cost and expense		2,063
Less: Costs paid		(277)
Balance as of March 31, 2019	\$	1,971

The components of restructuring expense in the Consolidated Statements of Income are as follows:

<i>(In thousands)</i>	Classification	Three Months Ended March 31,	
		2019	2018
Restructuring expenses	Selling, general and administrative expenses	\$ 844	\$ 1,766
Restructuring expenses	Research and development expenses	584	1,814
Restructuring expenses	Cost of sales	635	2,370
Total restructuring expenses		\$ 2,063	\$ 5,950

19. SUBSEQUENT EVENTS

On April 17, 2019, we announced that our Board of Directors declared a quarterly cash dividend of \$0.09 per common share to be paid to stockholders of record at the close of business on May 2, 2019. The payment date will be May 16, 2019. The quarterly dividend payment will be approximately \$4.3 million. In July 2003, our Board of Directors elected to begin declaring quarterly dividends on our common stock considering the tax treatment of dividends and adequate levels of Company liquidity.

A voluntary early retirement offering was communicated to certain of our employees in Germany in March 2019. These employees were given until April 28, 2019 to accept the early retirement offering. Therefore, as of March 31, 2019, we did not have sufficient information on which to estimate the liability associated with this program. The Company expects to incur approximately \$0.8 million in restructuring expense during the second quarter of 2019 related to the early retirement program.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion should be read in conjunction with the Consolidated Financial Statements and the related notes that appear in Item 1 of this document.

OVERVIEW

ADTRAN is a leading global provider of networking and communications equipment, serving a diverse domestic and international customer base in 68 countries that includes Tier-1, 2 and 3 service providers, Cable/MSOs and distributed enterprises. Our innovative solutions and services enable voice, data, video and internet communications across a variety of network infrastructures and are currently in use by millions worldwide. We support our customers through our direct global sales organization and our distribution networks. Our success depends upon our ability to increase unit volume and market share through the introduction of new products and succeeding generations of products having lower selling prices and increased functionality as compared to both the prior generation of a product and to the products of competitors. In order to service our customers and build revenue, we are constantly conducting research and development (R&D) of new products addressing customer needs and testing those products for the particular specifications of the particular customers. In addition to our corporate headquarters in Huntsville, Alabama, we have R&D facilities in strategic global locations.

We are focused on being a top global supplier of access infrastructure and related value-added solutions from the cloud edge to the subscriber edge. We offer a broad portfolio of flexible software and hardware network solutions and services that enable service providers to meet today's service demands, while enabling them to transition to the fully-converged, scalable, highly-automated, cloud-controlled voice, data, internet and video network of the future.

An important part of our strategy is to reduce the cost of each succeeding product generation and then lower the product's selling price based on the cost savings achieved in order to gain market share and/or improve gross margins. As a part of this strategy, we seek to be a high-quality, and in most instances the low-cost provider of products in our markets. Our success to date is attributable in large measure to our ability to design our products initially with a view to their subsequent redesign, allowing both increased functionality and reduced manufacturing costs in each succeeding product generation. This strategy enables us to sell succeeding generations of products to existing customers, while increasing our market share by selling these enhanced products to new customers.

Our business is global. We supply different sets of products to different customers in different regions around the world. Our financial results in any period reflect the activities of our various customers in their respective regions at any given time. The lead times to revenue for new products vary.

The Company made two acquisitions in 2018, strengthening its position in both the Cable/MSO and connected home markets. In the first quarter of 2018, we acquired the market-leading EPON business and certain assets for North America from Sumitomo Electric Industries Ltd. These solutions, combined with our organic fiber access product portfolio and our distributed access expertise, present new opportunities in the Cable/MSO market. Also, in the fourth quarter of 2018, we acquired U.S.-based SmartRG, an industry-leading provider of carrier-class, connected-home software platforms and cloud services for broadband service providers. With this acquisition, ADTRAN now offers a complete cloud-to-consumer portfolio of virtualized management, data analytics, Wi-Fi-enabled residential gateways and software platforms. For more information, see Note 2 of the Notes to Consolidated Financial Statements included in Item 1 of this report.

We review our financial performance, specifically revenue and gross profit, based on two reportable segments – Network Solutions and Services & Support. Network Solutions software and hardware products provide solutions supporting fiber-, copper- and coaxial-based infrastructures and a growing number of wireless solutions, lowering the overall cost to deploy advanced services across a wide range of applications for Carrier, Cable/MSO networks and business networks, as well as for prior-generation products. Our Services & Support enables our customers to accelerate time to market, reduce costs and improve customer satisfaction through a complete portfolio of services, including maintenance, turnkey network implementation, solutions integration, and managed services. ADTRAN's comprehensive network implementation services include engineering design and documentation (pre-construction), construction and installation (construction), and test, turn-up and provisioning (post-construction). Additionally, we partner with customers to tailor a program to each specific service-delivery need.

We report revenue for the following three categories – Access & Aggregation, Subscriber Solutions & Experience (formerly Customer Devices) and Traditional & Other Products.

Access & Aggregation solutions are used by service providers to connect their network infrastructure to their subscribers. This category includes software- and hardware-based products and services that aggregate and/or originate access technologies. The portfolio of ADTRAN solutions within this category includes a wide array of modular or fixed physical form factors designed to deliver the best technology and economic fit based on the target subscriber density and environmental conditions.

Subscriber Solutions & Experience (formerly Customer Devices) includes open-source connected home platforms, cloud services and any of our solutions and services that deliver residential and/or enterprise subscribers an immersive and interactive broadband experience from the service provider's access network. These products, software and services include SmartRG solutions and applications, NetVanta Enterprise IP business gateways, access routers, Ethernet switches, ProCloud service offerings, residential and enterprise operating systems (such as SmartOS and AOS), Bluesocket Wi-Fi portfolio, service provider and Cable/MSO Optical Network Terminals (ONTs), as well as related software applications and services. In alignment with our increased focus on enhancing customer experience for both business and consumer broadband customers as well as the addition of SmartRG during 2018, Customer Devices is now known as Subscriber Solutions & Experience, as this more accurately represents this revenue category and our vision moving forward.

Traditional & Other Products generally includes a mix of prior generation technologies' products and services, as well as other products and services that do not fit within the Access & Aggregation or Subscriber Solutions & Experience categories.

See Note 15 of Notes to Consolidated Financial Statements in Item 1 of this Form 10-Q for further information regarding these product categories.

Our operating results have fluctuated on a quarterly basis in the past, and may vary significantly in future periods, due to a number of factors, including customer order activity and backlog. Backlog levels vary because of seasonal trends, the timing of customer projects and other factors that affect customer order lead times. Many of our customers require prompt delivery of products. This requires us to maintain sufficient inventory levels to satisfy anticipated customer demand. If near-term demand for our products declines, or if potential sales in any quarter do not occur as anticipated, our financial results could be adversely affected. Operating expenses are relatively fixed in the short term; therefore, a shortfall in quarterly revenue could significantly impact our financial results in a given quarter.

Our operating results may also fluctuate as a result of a number of other factors, including a decline in general economic and market conditions, foreign currency exchange rate movements, increased competition, customer order patterns, changes in product and services mix, timing differences between price decreases and product cost reductions, product warranty returns, expediting costs and announcements of new products by us or our competitors. Additionally, maintaining sufficient inventory levels to assure prompt delivery of our products increases the amount of inventory that may become obsolete and increases the risk that the obsolescence of this inventory may have an adverse effect on our business and operating results. Also, not maintaining sufficient inventory levels to assure prompt delivery of our products may cause us to incur expediting costs to meet customer delivery requirements, which may negatively impact our operating results in a given quarter.

Accordingly, our historical financial performance is not necessarily a meaningful indicator of future results, and in general, management expects that our financial results may vary from period to period. Factors that could materially affect our business, financial condition or operating results are included in Item 1A of Part I in our most recent Annual Report on Form 10-K for the year ended December 31, 2018, filed on February 28, 2019, with the SEC and in Part II Item 1A herein.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

Our critical accounting policies and estimates have not changed significantly from those detailed in our most recent Annual Report on Form 10-K for the year ended December 31, 2018, filed on February 28, 2019, with the SEC.

EFFECT OF RECENT ACCOUNTING PRONOUNCEMENTS

See Note 1 of Notes to Consolidated Financial Statements in Item 1 of this Form 10-Q for a full description of recent accounting pronouncements, including the expected dates of adoption and estimated effects on results of operations and financial condition, which is incorporated herein by reference.

RESULTS OF OPERATIONS – THREE MONTHS ENDED MARCH 31, 2019 COMPARED TO THREE MONTHS ENDED MARCH 31, 2018

The following table presents selected financial information derived from our Consolidated Statements of Income expressed as a percentage of sales for the quarters indicated. Amounts may not foot due to rounding.

	Three Months Ended March 31,	
	2019	2018
Sales		
Products	87.5 %	87.1 %
Services	12.5	12.9
Total Sales	100.0	100.0
Cost of Sales		
Products	49.2	56.8
Services	8.7	10.3
Total Cost of Sales	57.8	67.1
Gross Profit	42.2	32.9
Selling, general and administrative expenses	24.4	27.8
Research and development expenses	22.0	27.2
Operating Income	(4.3)	(22.1)
Interest and dividend income	0.4	0.7
Interest expense	(0.1)	(0.1)
Net investment gain (loss)	4.1	(0.1)
Other income (expense), net	0.6	—
Gain on bargain purchase of a business, net	—	9.4
Income (Loss) Before Provision for Income Taxes	0.7	(12.2)
(Provision) benefit for income taxes	(0.2)	3.3
Net Income (Loss)	0.5 %	(9.0) %

SALES

Our sales increased 19.0% from \$120.8 million in the three months ended March 31, 2018 to \$143.8 million in the three months ended March 31, 2019. The increase in sales for the three months ended March 31, 2019 is primarily attributable to an \$18.1 million increase in Access & Aggregation products, a \$6.7 million increase in sales of our Subscriber Solutions & Experience products, partially offset by a \$1.8 million decrease in sales of our Traditional & Other products.

Network Solutions sales increased 19.5% from \$105.3 million in the three months ended March 31, 2018 to \$125.8 million in the three months ended March 31, 2019. The increase in sales for the three months ended March 31, 2019 is primarily attributable to an increase in sales of Access & Aggregation products and Subscriber Solutions & Experience products, partially offset by a decrease in sales of our Traditional & Other products. The increase in sales of our Access & Aggregation products for the three months ended March 31, 2019 is primarily attributable to increased fiber to the premises (FTTN) products, Gfast distribution point units (DPUs) and fiber access and aggregation. The increase in sales of our Subscriber Solutions & Experience is primarily attributable to increased fiber CPE and network termination. While we expect that revenue from Traditional & Other Products will continue to decline over time, this revenue may fluctuate and continue for years because of the time required for our customers to transition to newer technologies.

Services & Support sales increased 15.5% from \$15.6 million in the three months ended March 31, 2018 to \$18.0 million in the three months ended March 31, 2019. The increase in sales for the three months ended March 31, 2019 is primarily attributable to an increase in network installation services for Access & Aggregation products.

International sales, which are included in the Network Solutions and Services & Support amounts discussed above, increased 21.4 % from \$ 58.7 million in the three months ended March 31, 2018 to \$ 71.3 million in the three months ended March 31, 2019 . International sales, as a percentage of total sales, increased from 48.6 % for the three months ended March 31, 2018 to 49.6 % for the three months ended March 31, 2019 . The increase in sales for the three months ended March 31, 2019 is primarily attributable to an increase in sales in LATAM and APAC regions . The increase in sales in LATAM for the three months ended March 31, 2019 is primarily attributable to a network expansion program of a large Tier-1 customer. The increase in sales in APAC for the three months ended March 31, 2019 is primarily attributable to a network expansion program in Australia.

Our international revenue is largely focused on broadband infrastructure and is effected by the decisions of our customers as to timing for installation of new technologies, expansion of their networks and/or network upgrades. Our international customers must make these decisions in the regulatory and political environment in which they operate – both nationally and in some instances, regionally – whether of a multi-country region or a more local region within a country. For example, the European Commission launched a Gigabit Society initiative, and before that, the Digital Agenda, which has provided a favorable market environment for the deployment of ultra-broadband and Gigabit network solutions. Although the overall environment and market demand for broadband service deployment in the European Union have improved, some new broadband technologies are still being reviewed for regulatory and standards compliance, which may affect the timing of those technologies. The competitive landscape in certain international markets is also effected by the increased presence of Asian manufacturers that seek to compete aggressively on price. Our revenue and operating income in our international markets can be negatively impacted by a strengthening U.S. dollar. Consequently, while we expect the global trend towards deployment of more robust broadband speeds and access to continue creating additional market opportunities for us, the factors described above may result in pressure on revenue and operating income.

COST OF SALES

As a percentage of sales, cost of sales decreased from 67.1% in the three months ended March 31, 2018 to 57.8% in the three months ended March 31, 2019. The decrease in cost of sales as a percentage of sales for the three months ended March 31, 2019 is primarily attributable to a regional revenue shift, customer and product mix, services and support mix and a decrease in labor expense as a result of a restructuring program in the first quarter of 2018.

Network Solutions cost of sales, as a percent of that segment's sales, decreased from 65.2% in the three months ended March 31, 2018 to 56.2% in the three months ended March 31, 2019. The decrease in cost of sales as a percentage of sales for the three months ended March 31, 2019 is primarily attributable to a regional revenue shift, customer and product mix and a decrease in labor expense due to a restructuring program in the first quarter of 2018.

An important part of our strategy is to reduce the cost of each succeeding product generation and then lower the product's selling price based on the cost savings achieved in order to gain market share and/or improve gross margins. This may cause variations in our gross profit percentage due to timing differences between the recognition of cost reductions and the lowering of product selling prices.

Services & Support cost of sales, as a percent of that segment's sales, decreased from 80.1% in the three months ended March 31, 2018 to 69.3% in the three months ended March 31, 2019. The decrease in cost of sales as a percentage of sales for the three months ended March 31, 2019 is primarily attributable to lower fixed personnel costs due to a restructuring program in the first quarter of 2018, customer mix and services and support mix.

Our Services & Support revenue is comprised of network planning and implementation, maintenance, support and cloud-based management services, with network planning and implementation being the largest and fastest growing component in the long-term. Compared to our other services, such as maintenance, support and cloud-based management services, our network planning and implementation services typically utilize a higher percentage of internal and subcontracted engineers, professionals and contractors to perform the work for customers. The additional costs incurred to perform these infrastructure and labor-intensive services inherently result in lower average gross margins as compared to maintenance and support services.

As our network planning and implementation revenue grew and is now the largest component of our Services & Support business, our Services & Support segment gross margins decreased versus those reported when maintenance and support comprised the majority of the business. Further, because the growth in our network planning and implementation services has resulted in our Services & Support revenue comprising a larger percentage of our overall revenue, and because our Services & Support gross margins are below those of the Network Solutions segment, our overall corporate gross margins have declined as that business has continued to grow. Within the Services & Support segment, we do expect variability in gross margins from quarter-to-quarter based on the mix of the services recognized.

SELLING, GENERAL AND ADMINISTRATIVE EXPENSES

Selling, general and administrative expenses increased 4.8% from \$33.5 million in the three months ended March 31, 2018 to \$35.1 million in the three months ended March 31, 2019. The increase in selling, general and administrative expenses for the three months ended March 31, 2019 is primarily attributable to increases in deferred compensation expense and incremental expenses as a result of the SmartRG acquisition.

As a percentage of sales, selling, general and administrative expenses decreased from 27.8% in the three months ended March 31, 2018 to 24.4% in the three months ended March 31, 2019. Selling, general and administrative expenses as a percentage of sales may fluctuate whenever there is a significant fluctuation in revenue for the periods being compared.

RESEARCH AND DEVELOPMENT EXPENSES

Research and development expenses decreased 3.7% from \$32.8 million in the three months ended March 31, 2018 to \$31.6 million in the three months ended March 31, 2019. The decrease in research and development expenses for the three months ended March 31, 2019 is primarily attributable to decreases in restructuring and labor expenses, partially offset by an increase in incremental expenses as a result of the SmartRG and Sumitomo acquisitions.

As a percentage of sales, research and development expenses decreased from 27.2% in the three months ended March 31, 2018 to 22.0% in the three months ended March 31, 2019. Research and development expenses as a percentage of sales will fluctuate whenever there are incremental product development activities or significant fluctuations in revenue for the periods being compared.

We expect to continue to incur research and development expenses in connection with our new and existing products and our continued expansion into international markets. We continually evaluate new product opportunities and engage in intensive research and product development efforts, which provides for new product development, enhancement of existing products and product cost reductions. We may incur significant research and development expenses prior to the receipt of revenue from a major new product group.

INTEREST AND DIVIDEND INCOME

Interest and dividend income decreased 31.8% from \$0.9 million in the three months ended March 31, 2018 to \$0.6 million in the three months ended March 31, 2019. The decrease in interest and dividend income for the three months ended March 31, 2019 is primarily attributable to fluctuations in investment balances.

INTEREST EXPENSE

Interest expense, which is primarily related to our taxable revenue bond, remained constant at \$0.1 million for both the three months ended March 31, 2018 and 2019, as we had no substantial change in our fixed-rate borrowing. See "Liquidity and Capital Resources" below for additional information on our revenue bond.

NET INVESTMENT GAIN (LOSS)

Net investment gain (loss) increased from a loss of \$(0.1) million in the three months ended March 31, 2018 to a gain of \$5.9 million in the three months ended March 31, 2019. The fluctuation in our net investment gain (loss) is primarily attributable to changes in fair value on equity securities recognized during the period. See Note 7 of Notes to Consolidated Financial Statements, included in Item 1 of this report, and "Investing Activities" in "Liquidity and Capital Resources" for additional information.

OTHER INCOME (EXPENSE), NET

Other income (expense), net, is comprised primarily of miscellaneous income, gains and losses on foreign currency transactions and gains and losses on foreign exchange forward contracts. Other income (expense), net increased from \$0.1 million of expense in the three months ended March 31, 2018 to \$0.9 million of income in the three months ended March 31, 2019. The change in other income (expense), net for the three months ended March 31, 2019 is primarily attributable to the receipt of insurance proceeds from a life insurance policy.

GAIN ON BARGAIN PURCHASE OF A BUSINESS, NET

Gain on bargain purchase of a business was \$11.3 million during the three months ended March 31, 2018 and is related to our acquisition of Sumitomo Electric Lightwave Corp.'s North American EPON business and entry into a technology license and supply agreement with Sumitomo Electric Industries, Ltd. in March 2018. No gain on bargain purchase of a business was recorded during the three months ended March 31, 2019. See Note 2 of Notes to Consolidated Financial Statements included in Item 1 of this report for additional information.

(PROVISION) BENEFIT FOR INCOME TAXES

Our effective tax rate increased from a benefit of 15.1%, excluding the tax effect of the bargain purchase gain, in the three months ended March 31, 2018 to an expense of 28.6% three months ended March 31, 2019. The increase in the effective tax rate between the two periods is primarily driven by the shift to profitability in the current quarter.

NET INCOME (LOSS)

As a result of the above factors, net income increased \$11.6 million from a net loss of \$10.8 million in the three months ended March 31, 2018 to net income of \$0.8 million in the three months ended March 31, 2019.

LIQUIDITY AND CAPITAL RESOURCES

Liquidity

We intend to finance our operations with cash flow from operations. We have used, and expect to continue to use, the cash generated from operations for working capital, purchases of treasury stock, shareholder dividends, business acquisitions and other general corporate purposes, including (i) product development activities to enhance our existing products and develop new products and (ii) expansion of sales and marketing activities. We believe our cash and cash equivalents, investments and cash generated from operations to be adequate to meet our operating and capital needs for at least the next 12 months.

At March 31, 2019, cash on hand was \$109.1 million and short-term investments were \$31.3 million, which resulted in available short-term liquidity of \$140.4 million, of which \$70.2 million was held by our foreign subsidiaries. At December 31, 2018, cash on hand was \$105.5 million and short-term investments were \$3.2 million, which resulted in available short-term liquidity of \$108.7 million, of which \$87.1 million was held by our foreign subsidiaries. The increase in short-term liquidity from December 31, 2018 to March 31, 2019 is primarily attributable to the restricted certificate of deposit totaling \$25.6 million being reclassified from a long-term investment to a short-term investment.

Operating Activities

Our working capital, which consists of current assets less current liabilities, decreased 0.8% from \$237.4 million as of December 31, 2018 to \$235.4 million as of March 31, 2019, and our current ratio, defined as current assets divided by current liabilities, decreased from 3.01 as of December 31, 2018 to 2.66 as of March 31, 2019. The decreases in our working capital and current ratio are primarily attributable to the reclassification of our bond payable to current liabilities as it matures in January 2020 as well as a decrease in inventory. The quick ratio, defined as cash, cash equivalents, short-term investments, and net accounts receivable, divided by current liabilities, decreased from 1.76 as of December 31, 2018 to 1.69 as of March 31, 2019. The decrease in the quick ratio is primarily attributable to the reclassification of our bond payable to current liabilities as it matures in January 2020, partially offset by an increase in cash and cash equivalents and short-term investments, mainly related to the reclassification of our restricted certificate of deposit from a long-term investment to a short-term investment.

Net accounts receivable decreased 0.4% from \$99.4 million at December 31, 2018 to \$99.0 million at March 31, 2019. Our allowance for doubtful accounts was \$0.1 million at December 31, 2018 and March 31, 2019. Quarterly accounts receivable day's sales outstanding (DSO) decreased from 65 days as of December 31, 2018 to 62 days as of March 31, 2019. The decrease in net accounts receivable is due to the timing of international shipments and customer mix.

Other receivables decreased 5.8% from \$36.7 million at December 31, 2018 to \$34.6 million at March 31, 2019. The decrease in other receivables is primarily attributable to a decrease in contract assets, leased equipment receivables and income tax receivables partially offset by an increase in contract manufacturers' receivables.

Quarterly inventory turnover increased from 3.29 turns as of December 31, 2018 to 3.44 turns at March 31, 2019. Inventory decreased 6.2% from \$99.8 million at December 31, 2018 to \$93.6 million at March 31, 2019. We expect inventory levels to fluctuate as we attempt to maintain sufficient inventory in response to services activity and seasonal cycles of our business, ensuring competitive lead times while managing the risk of inventory obsolescence that may occur due to rapidly changing technology and customer demand.

Accounts payable remained consistent at \$60.1 million at December 31, 2018 and March 31, 2019. Accounts payable will fluctuate due to variations in the timing of the receipt of supplies, inventory and services and our subsequent payments for these purchases.

Investing Activities

Capital expenditures totaled approximately \$1.9 million and \$2.0 million for the three months ended March 31, 2019 and 2018, respectively. These expenditures were primarily used to purchase computer hardware, software, manufacturing and test equipment and building improvements.

Our combined short-term and long-term investments increased \$4.4 million from \$112.1 million at December 31, 2018 to \$116.5 million at March 31, 2019. This increase reflects the impact of net realized and unrealized gains and losses on our combined investments plus new investments, partially offset by cash used for share repurchases, shareholder dividends and property, plant and equipment purchases.

We typically invest all available cash not required for immediate use in operations primarily in securities that we believe bear minimal risk of loss. At March 31, 2019, these investments included corporate bonds of \$16.0 million, municipal bonds of \$0.9 million, asset-backed bonds of \$7.2 million, mortgage/agency bonds of \$4.5 million, U.S. government bonds of \$4.2 million and foreign government bonds of \$2.2 million. At December 31, 2018, these investments included corporate bonds of \$20.7 million, municipal fixed-rate bonds of \$1.3 million, asset-backed bonds of \$5.2 million, mortgage/agency-backed bonds of \$3.8 million, U.S. government bonds of \$9.2 million and foreign government bonds of \$0.6 million. As of March 31, 2019, our corporate bonds, municipal fixed-rate bonds, asset-backed bonds, mortgage/agency-backed bonds, U.S. government bonds and foreign government bonds were classified as available-for-sale and had a combined duration of 0.96 years with an average Standard & Poor's credit rating of A+. Because our bond portfolio has a high-quality rating and contractual maturities of short duration, we are able to obtain prices for these bonds derived from observable market inputs, or for similar securities traded in an active market, on a daily basis.

Our long-term investments decreased 21.7% from \$108.8 million at December 31, 2018 to \$85.2 million at March 31, 2019. Long-term investments at December 31, 2018 included an investment in a certificate of deposit of \$25.6 million, which serves as collateral for our revenue bond. This certificate of deposit is now included in short-term investments as of March 31, 2019, as this bond matures on January 1, 2020. See "Debt" below for additional information. We also have investments in various marketable equity securities classified as long-term investments with a fair market value of \$30.9 million and \$27.0 million, at March 31, 2019 and December 31, 2018, respectively. Long-term investments at March 31, 2019 and December 31, 2018 also included \$20.4 million and \$18.3 million, respectively, related to our deferred compensation plans.

Acquisition of businesses, net of cash acquired, totaled \$7.8 million for the three months ended March 31, 2018. No businesses were acquired during the three months ended March 31, 2019. See Note 2 of Notes to Consolidated Financial Statements included in Item 1 of this report for additional information.

Financing Activities

Dividends

In July 2003, our Board of Directors elected to begin declaring quarterly dividends on our common stock considering the tax treatment of dividends and adequate levels of Company liquidity. During the three months ended March 31, 2019 and 2018, we paid dividends totaling \$4.3 million and \$4.4 million, respectively.

Debt

We have amounts outstanding under loans made pursuant to an Alabama State Industrial Development Authority revenue bond (the Bond) which totaled \$25.6 million at March 31, 2019 and December 31, 2018. At March 31, 2019, the estimated fair value of the Bond was \$25.5 million, based on a debt security with a comparable interest rate and maturity and a Standard & Poor's credit rating of AAA. Restricted funds serving as a collateral deposit against the principal amount of the Bond in the amount of \$25.6 million were included in short-term and long-term investments at March 31, 2019, and December 31, 2018, respectively. We have the right to set-off the balance of the Bond with the collateral deposit in order to reduce the balance of the indebtedness. The Bond matures on January 1, 2020, and bears interest at the rate of 2% per annum. In conjunction with this program, we are eligible to receive certain economic incentives from the state of Alabama that reduce the amount of payroll withholdings we are required to remit to the state for those employment positions that qualify under this program. We are required to make payments in the amounts necessary to pay the interest on the amounts currently outstanding. It is our intent to make annual principal payments in addition to the interest amounts that are due. The restricted funds held as collateral against the principal amount of the Bond will be used to pay the outstanding principal and interest upon the Bond's maturity on January 1, 2020.

Stock Repurchase Program

Since 1997, our Board of Directors has approved multiple share repurchase programs that have authorized open market repurchase transactions of our common stock, which are implemented through open market or private purchases from time to time as conditions warrant. During the three months ended March 31, 2019, we repurchased 13,000 shares of our common stock, for \$0.2 million at an average price of \$14.06 per share. We currently have authorization to repurchase an additional 2.5 million shares of our common stock under the current authorization of up to 5.0 million shares.

Stock Option Exercises

There were no stock options exercised during the three months ended March 31, 2019.

Off-Balance Sheet Arrangements and Contractual Obligations

We do not have off-balance sheet financing arrangements and have not engaged in any related party transactions or arrangements with unconsolidated entities or other persons that are reasonably likely to materially affect liquidity or the availability of or requirements for capital resources. During the three months ended March 31, 2019, there have been no material changes in contractual obligations and commercial commitments from those discussed in our most recent Annual Report on Form 10-K for the year ended December 31, 2018 filed on February 28, 2019 with the SEC.

We have committed to invest up to an aggregate of \$7.9 million in two private equity funds, and we have contributed \$8.4 million as of March 31, 2019, of which \$7.7 million has been applied to these commitments.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We are exposed to financial market risks, including changes in interest rates, foreign currency rates and prices of marketable equity and fixed-income securities. The primary objective of the large majority of our investment activities is to preserve principal while at the same time achieving appropriate yields without significantly increasing risk. To achieve this objective, a majority of our marketable securities are investment grade corporate bonds, municipal fixed-rate bonds, asset-backed bonds, mortgage/agency-backed bonds, U.S. and foreign government bonds and municipal money market instruments denominated in U.S. dollars. Our investment policy provides limitations for issuer concentration, which limits, at the time of purchase, the concentration in any one issuer to 5% of the market value of our total investment portfolio.

We maintain depository investments with certain financial institutions. Although these depository investments may exceed government insured depository limits, we have evaluated the credit-worthiness of these financial institutions, and determined the risk of material financial loss due to exposure of such credit risk to be minimal. As of March 31, 2019, \$106.2 million of our cash and cash equivalents, primarily certain domestic money market funds and foreign depository accounts, were in excess of government provided insured depository limits.

As of March 31, 2019, approximately \$37.1 million of our cash and investments may be directly affected by changes in interest rates. We have performed a hypothetical sensitivity analysis assuming market interest rates increase or decrease by 50 basis points (bps) for an entire year, while all other variables remain constant. At March 31, 2019, we held \$10.1 million of cash and variable-rate investments where a change in interest rates would impact our interest income. A hypothetical 50 bps decline in interest rates as of March 31, 2019 would reduce annualized interest income on our cash and investments by approximately \$0.1 million. In addition, we held \$26.9 million of fixed-rate bonds whose fair values may be directly affected by a change in interest rates. A hypothetical 50 bps increase in interest rates as of March 31, 2019 would reduce the fair value of our fixed-rate bonds by approximately \$0.1 million.

We are exposed to changes in foreign currency exchange rates to the extent that such changes affect our revenue and gross margin on revenue derived from some international customers, expenses, and assets and liabilities held in non-functional currencies related to our foreign subsidiaries. Our primary exposures to foreign currency exchange rates are with our German subsidiary, whose functional currency is the Euro, our Australian subsidiary, whose functional currency is the Australian dollar, and our Mexican subsidiary, whose functional currency is the U.S. dollar. We are exposed to changes in foreign currency exchange rates to the extent of our German subsidiary's use of contract manufacturers and raw material suppliers whom we predominately pay in U.S. dollars. We may establish cash flow hedges utilizing foreign exchange forward contracts to reduce the risk that movements in exchange rates will adversely affect the net cash flows resulting from the planned purchase of products from foreign suppliers. As a result, changes in currency exchange rates could cause variations in gross margin in the products that we sell in the EMEA region.

We have certain customers and suppliers who are invoiced or pay in a non-functional currency. Changes in the monetary exchange rates may adversely affect our results of operations and financial condition, as outstanding non-functional balances are revalued to the functional currency through profit and loss. When appropriate, we utilize foreign exchange forward contracts to help manage the volatility relating to these valuation exposures. All changes in the fair value of our derivative instruments that do not qualify for or are not designated for hedged accounting transactions are recognized as other income (expense), net in the Consolidated Statements of Income. We do not hold or issue derivative instruments for trading or other speculative purposes. All non-functional currencies billed would result in a combined hypothetical gain or loss of \$1.1 million if the U.S. dollar weakened or strengthened 10% against the billing currencies. The fluctuation compared to prior periods is due to an increase in U.S. dollar-denominated billings in a non-U.S. dollar denominated subsidiary as well as an increase in international sales. Although we do not currently hold any derivative instruments, any gain or loss would be partially mitigated by these derivative instruments.

As of March 31, 2019, we have certain material contracts, including accounts receivable, accounts payable and lease liabilities, denominated in foreign currencies. As of March 31, 2019, we did not have any forward contracts outstanding.

For further information about the fair value of our investments and our derivative and hedging activities as of March 31, 2019, see Notes 7 and 8 of Notes to Consolidated Financial Statements included in Item 1 of this report.

ITEM 4. CONTROLS AND PROCEDURES

(a) *Evaluation of disclosure controls and procedures.* Our Chief Executive Officer and Chief Financial Officer are responsible for establishing and maintaining "disclosure controls and procedures" (as defined in the Securities Exchange Act of 1934 Rules 13a-15(e) and 15d-15(e)) for ADTRAN. Our Chief Executive Officer and Chief Financial Officer, after evaluating the effectiveness of our disclosure controls and procedures as of the end of the period covered by this quarterly report, have concluded that our disclosure controls and procedures are effective.

(b) *Changes in internal control over financial reporting.* There were no changes in our internal control over financial reporting that occurred during our most recent fiscal quarter that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

ITEM 1A. RISK FACTORS

A list of factors that could materially affect our business, financial condition or operating results is described in Part I, Item 1A, “Risk Factors” in our Annual Report on Form 10-K for the year ended December 31, 2018. There have been no material changes to our risk factors since our Annual Report on Form 10-K for the year ended December 31, 2018.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

The following table sets forth repurchases of our common stock for the months indicated:

<u>Period</u>	<u>Total Number of Shares Purchased</u>	<u>Average Price Paid per Share</u>	<u>Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs</u>	<u>Maximum Number of Shares that May Yet Be Purchased Under the Plans or Programs</u>
January 1, 2019 – January 31, 2019	—	\$ —	—	2,558,516
February 1, 2019 – February 28, 2019	13,086	\$ 14.06	13,086	2,545,430
March 1, 2019 – March 31, 2019	—	\$ —	—	2,545,430
Total	13,086		13,086	

On July 14, 2015, our Board of Directors authorized the repurchase of an additional 5.0 million shares of our common stock (bringing the total shares authorized for repurchase to 50.0 million). This authorization will be implemented through open market or private purchases from time to time as conditions warrant.

ITEM 6. EXHIBITS

Exhibits.

<u>Exhibit No.</u>	<u>Description</u>
31	Rule 13a-14(a)/15d-14(a) Certifications
32	Section 1350 Certifications
101.INS	XBRL Instance Document- the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.LAB	XBRL Taxonomy Extension Labels Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

ADTRAN, Inc.
(Registrant)

Date: May 7, 2019

/s/ Michael Foliano

Michael Foliano

Senior Vice President of Finance and

Chief Financial Officer

(Principal Accounting Officer)

CERTIFICATIONS

I, Thomas R. Stanton, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of ADTRAN, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's Board of Directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 7, 2019

/s/ Thomas R. Stanton

Thomas R. Stanton

Chief Executive Officer and Chairman of the Board

CERTIFICATIONS

I, Michael Foliano, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of ADTRAN, Inc.;

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

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

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

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's Board of Directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 7, 2019

/s/ Michael Foliano

Michael Foliano

Senior Vice President of Finance and

Chief Financial Officer

(Principal Accounting Officer)

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

In connection with the Quarterly Report of ADTRAN, Inc. (the "Company") on Form 10-Q for the quarter ending March 31, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Thomas R. Stanton, Chief Executive Officer and Chairman of the Board of the Company, certify, pursuant to 18 U.S.C. §1350, as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge:

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

/s/ Thomas R. Stanton

Thomas R. Stanton

Chief Executive Officer and Chairman of the Board

May 7, 2019

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

In connection with the Quarterly Report of ADTRAN, Inc. (the "Company") on Form 10-Q for the quarter ending March 31, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Michael Foliano, Senior Vice President of Finance and Chief Financial Officer, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge:

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

/s/ Michael Foliano

Michael Foliano

Senior Vice President of Finance and
Chief Financial Officer

(Principal Accounting Officer)

May 7, 2019