IPG PHOTONICS CORP
Form 10-Q
November 05, 2018

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

FORM 10-Q

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

For the quarterly period ended September 30, 2018

OR

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

Commission File Number 001-33155

IPG PHOTONICS CORPORATION

(Exact name of registrant as specified in its charter)

Delaware	**04-3444218**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification Number)**
50 Old Webster Road, Oxford, Massachusetts	**01540**
	(Zip code)

(Address of principal executive offices)

(508) 373-1100
(Registrant’s telephone number, including area code)

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 ý   NO ¨

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data file required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).   YES ý   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	ý	Accelerated Filer	¨
Non-Accelerated Filer	¨	Smaller Reporting Company	¨
Emerging Growth Company	..		

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

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

As of November 1, 2018, there were 54,364,246 and 53,400,171 shares of the registrant's common stock issued and outstanding.

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EX-101.CAL XBRL TAXONOMY EXTENSION CALCULATION LINKBASE

EX-101.LAB XBRL TAXONOMY EXTENSION LABEL LINKBASE

EX-101.PRE XBRL TAXONOMY EXTENSION PRESENTATION LINKBASE

EX-101.DEF XBRL TAXONOMY EXTENSION DEFINITION LINKBASE

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PART I-FINANCIAL INFORMATION

ITEM 1. UNAUDITED INTERIM FINANCIAL STATEMENTS

IPG PHOTONICS CORPORATION

CONSOLIDATED BALANCE SHEETS

	September 30, 2018	December 31, 2017
	(In thousands, except share and per share data)	
ASSETS		
CURRENT ASSETS:		
Cash and cash equivalents	$ 647,606	$ 909,900
Short-term investments	474,422	206,257
Accounts receivable, net	251,613	237,278
Inventories	397,409	307,712
Prepaid income taxes	61,222	44,944
Prepaid expenses and other current assets	50,013	47,919
Total current assets	1,882,285	1,754,010
DEFERRED INCOME TAXES, NET	19,995	26,976
GOODWILL	56,769	55,831
INTANGIBLE ASSETS, NET	45,844	51,223
PROPERTY, PLANT AND EQUIPMENT, NET	529,163	460,206
	28,043	19,009

OTHER ASSETS				
TOTAL ASSETS	$	2,562,099	$	2,367,255
LIABILITIES AND EQUITY				
CURRENT LIABILITIES:				
Current portion of long-term debt	$	3,654	$	3,604
Accounts payable		29,494		35,109
Accrued expenses and other liabilities		137,060		144,417
Income taxes payable		47,777		15,773
Total current liabilities		217,985		198,903
DEFERRED INCOME TAXES AND OTHER LONG-TERM LIABILITIES		94,675		100,652
LONG-TERM DEBT, NET OF CURRENT PORTION		42,631		45,378
Total liabilities		355,291		344,933
COMMITMENTS AND CONTINGENCIES (NOTE 11)				
IPG PHOTONICS				

CORPORATION EQUITY:		
Common stock, $0.0001 par value, 175,000,000 shares authorized; 54,362,579 and 53,398,504 shares issued and outstanding, respectively, at September 30, 2018; 54,007,708 and 53,629,439 shares issued and outstanding, respectively, at December 31, 2017	5	5
Treasury stock, at cost (964,075 and 378,269 shares held)	(140,759)	(48,933)
Additional paid-in capital	718,285	704,727
Retained earnings	1,772,941	1,443,867
	(144,409)	(77,344)

Accumulated other comprehensive loss		
Total IPG Photonics Corporation equity	2,205,963	2,022,322
NONCONTROLLING INTERESTS	845	—
Total equity	2,206,808	2,022,322
TOTAL LIABILITIES AND EQUITY	$ 2,562,099	$ 2,367,255

See notes to consolidated financial statements.

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IPG PHOTONICS CORPORATION
CONSOLIDATED STATEMENTS OF INCOME

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
	(in thousands, except per share data)			
NET SALES	$ 356,346	$ 392,615	$ 1,129,823	$ 1,047,834
COST OF SALES	161,162	168,060	496,303	459,716
GROSS PROFIT	195,184	224,555	633,520	588,118
OPERATING EXPENSES:				
Sales and marketing	13,479	13,384	41,531	36,347
Research and development	30,909	25,541	91,268	74,281
General and administrative	25,245	21,491	74,857	59,092
Loss (gain) on foreign exchange	1,688	3,917	(1,489)	15,553
Total operating expenses	71,321	64,333	206,167	185,273
OPERATING INCOME	123,863	160,222	427,353	402,845
OTHER INCOME (EXPENSE), Net:				
Interest income, net	3,884	(125)	4,925	651
Other income (expense), net	423	459	1,252	(47)
Total other income	4,307	334	6,177	604
INCOME BEFORE PROVISION FOR INCOME TAXES	128,170	160,556	433,530	403,449
PROVISION FOR INCOME TAXES	(27,418)	(44,959)	(104,827)	(108,817)
NET INCOME	100,752	115,597	328,703	294,632
LESS: NET INCOME (LOSS) ATTRIBUTABLE TO NONCONTROLLING INTERESTS	235	—	235	(26)
NET INCOME ATTRIBUTABLE TO IPG PHOTONICS CORPORATION	$ 100,517	$ 115,597	$ 328,468	$ 294,658
NET INCOME ATTRIBUTABLE TO IPG PHOTONICS				

CORPORATION PER SHARE:				
Basic	$ 1.88	$ 2.16	$ 6.12	$ 5.51
Diluted	$ 1.84	$ 2.11	$ 5.97	$ 5.40
WEIGHTED AVERAGE SHARES OUTSTANDING:				
Basic	53,571	53,440	53,677	53,453
Diluted	54,696	54,698	54,995	54,570

See notes to consolidated financial statements.

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IPG PHOTONICS CORPORATION
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
	(In thousands)			
Net income	$ 100,752	$ 115,597	$ 328,703	$ 294,632
Other comprehensive income, net of tax:				
Translation adjustments	(15,047)	29,855	(67,072)	89,076
Unrealized gain (loss) on derivatives	(5)	11	(3)	(35)
Effect of adopted accounting standards	—	—	10	—
Available-for-sale investments, net of tax, reclassified to net income	—	—	—	298
Total other comprehensive (loss) income	(15,052)	29,866	(67,065)	89,339
Comprehensive income	85,700	145,463	261,638	383,971
Comprehensive income (loss) attributable to noncontrolling interests	196	—	196	(26)
Comprehensive income attributable to IPG Photonics Corporation	$ 85,504	$ 145,463	$ 261,442	$ 383,997

See notes to consolidated financial statements.

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IPG PHOTONICS CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Nine Months Ended September 30,	
	2018	2017
	(In thousands)	
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net income	$ 328,703	$ 294,632
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	58,894	46,416
Deferred income taxes	2,954	14,534
Stock-based compensation	21,443	16,989
Unrealized (gain) loss on foreign currency transactions	(1,779)	8,197
Other	(1,936)	699
Provisions for inventory, warranty & bad debt	30,582	34,690
Changes in assets and liabilities that (used) provided cash:		
Accounts receivable	(26,058)	(56,416)
Inventories	(122,051)	(39,697)
Prepaid expenses and other current assets	(4,925)	(1,560)
Accounts payable	(1,319)	3,423
Accrued expenses and other liabilities	(20,095)	1,809
Income and other taxes payable	15,838	(26,866)
Net cash provided by operating	280,251	296,850

activities		
CASH FLOWS FROM INVESTING ACTIVITIES:		
Purchases of and deposits on property, plant and equipment	(133,355)	(99,221)
Proceeds from sales of property, plant and equipment	755	15,437
Purchases of investments	(566,498)	(146,585)
Proceeds from sales and maturities of investments	286,346	188,143
Acquisitions of businesses, net of cash acquired	(4,423)	(50,594)
Other	307	(496)
Net cash used in investing activities	(416,868)	(93,316)
CASH FLOWS FROM FINANCING ACTIVITIES:		
Proceeds from line-of-credit facilities	255	6,761
Payments on line-of-credit facilities	(255)	(6,761)
Purchase of noncontrolling interests	—	(197)
Proceeds on long-term borrowings	—	28,000
Principal payments on long-term borrowings	(2,696)	(18,951)
Proceeds from issuance of common stock under employee stock option and purchase plans less payments	12,115	23,296

for taxes related to net share settlement of equity awards				
Cash contributed by noncontrolling interests	378		—	
Purchase of treasury stock, at cost	(111,926)		(26,911)	
Net cash (used in) provided by financing activities	(102,129)		5,237	
EFFECT OF CHANGES IN EXCHANGE RATES ON CASH AND CASH EQUIVALENTS	(23,548)		47,641	
NET (DECREASE) INCREASE IN CASH AND CASH EQUIVALENTS	(262,294)		256,412	
CASH AND CASH EQUIVALENTS — Beginning of period	909,900		623,855	
CASH AND CASH EQUIVALENTS — End of period	$	647,606	$	880,267
SUPPLEMENTAL DISCLOSURES OF CASH FLOW INFORMATION:				
Cash paid for interest	$	2,402	$	1,965
Cash paid for income taxes	$	94,801	$	118,660
Non-cash transactions:				
Demonstration units transferred from inventory to other assets	$	3,787	$	3,290
Inventory transferred to machinery and equipment	$	2,114	$	4,087
Changes in accounts payable related to	$	(3,337)	$	(15)

property, plant and
equipment

See notes to consolidated financial statements.

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IPG PHOTONICS CORPORATION
CONSOLIDATED STATEMENTS OF EQUITY

	Nine Months Ended September 30,			
	2018		2017	
	(In thousands, except share and per share data)			
	Shares	Amount	Shares	Amount
COMMON STOCK				
Balance, beginning of year	53,629,439	$ 5	53,251,805	$ 5
Exercise of stock options and conversion of restricted stock units	342,673	—	543,547	—
Common stock issued under employee stock purchase plan	12,198	—	19,882	—
Purchased common stock	(585,806)	—	(215,860)	—
Balance, end of period	53,398,504	5	53,599,374	5
TREASURY STOCK				
Balance, beginning of year	(378,248)	(48,933)	(102,774)	(8,946)
Purchased treasury stock	(585,806)	(711,926)	(215,860)	(26,911)
Balance, end of period	(964,054)	(760,859)	(318,634)	(35,857)
ADDITIONAL PAID-IN CAPITAL				
Balance, beginning of year		704,727		650,974
Stock-based compensation		21,443		16,989
Common stock issued under employee stock option plan, net of shares withheld for employee taxes		9,827		21,627
Proceeds from issuance of common stock issued under employee stock purchase plan		2,288		1,669
Effect of adopted accounting standards		—		2,078
Balance, end of period		738,285		693,337

RETAINED EARNINGS				
Balance, beginning of year	1,443,867		1,094,108	
Net income attributable to IPG Photonics Corporation	328,468		294,658	
Effect of adopted accounting standards	606		2,145	
Balance, end of period	1,772,941		1,390,911	
ACCUMULATED OTHER COMPREHENSIVE LOSS				
Balance, beginning of year	(77,344)		(178,583)	
Translation adjustments	(67,072)		89,023	
Unrealized loss on derivatives, net of tax	(3)		(35)	
Unrealized loss on available-for-sale investments, net of tax	—		(240)	
Realized loss on available-for-sale investments, net of tax, reclassified to net income	—		538	
Effect of adopted accounting standards	10		—	
Balance, end of period	(144,409)		(89,297)	
TOTAL IPG PHOTONICS CORPORATION EQUITY	2,205,963		1,959,099	
NONCONTROLLING INTERESTS ("NCI")				
Balance, beginning of year	—		166	
Noncontrolling interest of acquired company	649		(197)	
Net income (loss) attributable to NCI	235		(26)	
Translation adjustments	(39)		57	
Balance, end of period	845		—	
TOTAL EQUITY	$	2,206,808	$	1,959,099

See notes to consolidated financial statements.

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PHOTONICS CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(In thousands, except share and per share data)

1. BASIS OF PRESENTATION AND SIGNIFICANT ACCOUNTING POLICIES

Basis of Presentation — The accompanying unaudited consolidated financial statements have been prepared by IPG Photonics Corporation, or "IPG", "its" or the "Company". Certain information and footnote disclosures normally included in financial statements prepared in accordance with accounting principles generally accepted in the United States of America have been condensed or omitted pursuant to the rules and regulations of the Securities and Exchange Commission ("SEC"). The consolidated financial statements include the Company's accounts and those of its subsidiaries. All intercompany balances have been eliminated in consolidation. These consolidated financial statements should be read in conjunction with the consolidated financial statements and notes thereto in the Company's Annual Report on Form 10-K for the year ended December 31, 2017.

In the opinion of the Company's management, the unaudited financial information for the interim periods presented reflects all adjustments necessary for a fair presentation of the Company's financial position, results of operations and cash flows. The results reported in these consolidated financial statements are not necessarily indicative of results that may be expected for the entire year.

The Company has evaluated subsequent events through the time of filing this Quarterly Report on Form 10-Q with the SEC.

In accordance with the Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") 606, "Revenue from Contracts with Customers," ("ASC 606" or the "new revenue standard"), the following significant accounting policies have been adopted as of January 1, 2018.

Revenue Recognition — Revenue is recognized when transfer of control to the customer occurs in an amount reflecting the consideration that the Company expects to be entitled. In order to achieve this core principle, the Company applies the following five step approach: (1) identify the contract with a customer, (2) identify the performance obligations in the contract, (3) determine the transaction price, (4) allocate the transaction price to the performance obligations in the contract, and (5) recognize revenue when a performance obligation is satisfied.

The Company considers customer purchase orders, which in some cases are governed by master sales agreements, to be the contracts with a customer. As part of its consideration of the contract, the Company evaluates certain factors including the customer's ability to pay (or credit risk). For each contract, the Company considers the promise to transfer products, each of which is distinct as the identified performance obligations. In determining the transaction price, the Company evaluates whether the price is subject to refund or adjustment to determine the net consideration to which the Company expects to be entitled. As the Company's standard payment terms are less than one year, the Company has elected the practical expedient under ASC 606-10-32-18 to not assess whether a contract has a significant financing component. The Company allocates the transaction price to each distinct product based on its relative standalone selling price. Revenue is recognized when control of the product is transferred to the customer (i.e., when the Company's performance obligation is satisfied), which typically occurs at shipment.

The Company often receives orders with multiple delivery dates that may extend across several reporting periods. The Company allocates the transaction price of the contract to each delivery based on the product standalone selling price. The Company invoices for each scheduled delivery upon shipment and recognizes revenues for such delivery at that point, assuming transfer of control has occurred. As scheduled delivery dates are generally within 1 year, under the optional exemption provided by ASC 606-10-50-14 revenues allocated to future shipments of partially completed contracts are not disclosed.

Rights of return generally are not included in customer contracts. Accordingly, upon application of steps one through five above, product revenue is recognized upon shipment and transfer of control. Returns are infrequent and are recorded as a reduction of revenue.

In certain subsidiaries the Company provides sales commissions to sales representatives based on sales volume. The Company has determined that the incentive portion of its sales commissions qualify as contract costs. The Company has elected the practical expedient in ASC 340-40-25-4 to expense sales commissions when incurred as the amortization period of the asset that would otherwise have been recognized is one year or less.

Revenue Recognition at a Point in Time — Revenues recognized at a point in time consist primarily of product, installation and service sales. The Company sells products to original equipment manufacturers ("OEMs") that supply materials processing laser systems, communications systems, medical laser systems and other laser systems for advanced applications to end users. The Company also sells products to end users that use IPG products directly to build their own systems, which

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PHOTONICS CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)
(In thousands, except share and per share data)

incorporate IPG products or use IPG products as an energy or light source. The Company recognizes revenue for laser and spare part sales following the transfer of control of such products to the customer, which typically occurs upon shipment or delivery depending on the terms of the underlying contracts. Installation revenue is recognized upon completion of the installation service, which typically occurs within 90 days of delivery. For laser systems that carry customer specific processing requirements, revenue is recognized at the latter of customer acceptance date or shipment date if the customer acceptance is made prior to shipment. When sales contracts contain multiple performance obligations, such as the shipment or delivery of products and installation, the Company allocates the transaction price to each performance obligation identified in the contract based on relative standalone selling prices and recognizes the related revenue as control of each individual product or service is transferred to the customer, in satisfaction of the corresponding performance obligations.

Revenue Recognition over Time — The Company offers extended warranty agreements, which extend the standard warranty periods. Warranties are limited and provide that the product meets specifications and is free from defects in materials and workmanship. Extended warranties are sold separately from products and represent a distinct performance obligation. Revenue related to the performance obligation for extended warranties is recognized over time as the customer simultaneously receives and consumes the benefits provided by the Company. The customer receives the assurance that the product will operate in accordance with agreed-upon specifications evenly during the extended warranty period regardless of whether they make a claim during that period, and therefore, revenue at time of sale is deferred and recognized over the time period of the extended warranty period.

Customer Deposits and Deferred Revenue — When the Company receives consideration from a customer or such consideration is unconditionally due prior to transferring goods or services under the terms of a sales contract, the Company records customer deposits or deferred revenue, which represent contract liabilities. The Company recognizes deferred revenue as net sales after control of the goods or services has been transferred to the customer and all revenue recognition criteria are met.

Reclassifications — Certain prior year amounts have been reclassified to conform with current period presentation. These reclassifications had no effect on the reported results of operations.

2. RECENT ACCOUNTING PRONOUNCEMENTS

Adopted Pronouncements —

On January 1, 2018, the Company adopted ASC 606 and all related amendments using the modified retrospective method for contracts that were not completed as of the date of initial application. The Company recognized the cumulative effect of initially applying the new revenue standard as an adjustment to the opening balance of retained earnings. The comparative information has not been restated and continues to be reported under the accounting standards in effect for those periods. The Company expects the impact of the adoption of the new standard to be immaterial to net income on an ongoing basis.

A majority of revenue continues to be recognized at a point in time when control transfers based on the terms of underlying contact. Under the new revenue standard, the Company changed from deferring revenue for installation services in an amount equal to the greater of the cash received related to installation or the fair value to deferring the standalone selling price for these services.

In February 2018, the FASB issued ASU No. 2018-02, "Income Statement - Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income" ("ASU 2018-02"). ASU 2018-02 allows a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the Tax Cuts and Jobs Act ("the Act"). The Company adopted this standard during the first quarter of 2018, which resulted in the reclassification of $10 related to the tax effect of unrealized gains on derivatives.

In October 2016, the FASB issued ASU No. 2016-16, "Income Taxes (Topic 740) - Intra-Entity Transfers of Assets other than Inventory" ("ASU 2016-16"). ASU 2016-16 eliminates the current exception that prohibits the recognition of current and deferred income tax consequences for intra-entity asset transfers (other than inventory) until the asset has been sold to an outside party. The amendments have been applied on a modified retrospective basis through a cumulative effect adjustment to retained earnings. The Company adopted this standard during the first quarter of 2018, which resulted in the reclassification of prepaid income taxes, deferred income taxes and retained earnings. The cumulative effect of the changes made to the Company's consolidated January 1, 2018 balance sheet for the adoption of ASC 606, ASU 2018-02 and ASU 2016-16 was as follows:

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PHOTONICS CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)
(In thousands, except share and per share data)

	Balance at 12/31/2017	Adoption of ASC 606	Adoption of ASU 2018-02	Adoption of ASU 2016-16	Balance at 1/1/2018
Balance Sheet					
Prepaid income taxes	$ 44,944	$ —	$ —	$ (1,203)	$ 43,741
Deferred income tax assets	26,976	(55)	—	1,229	28,150
Customer deposits and deferred revenue (short-term)	47,324	(816)	—	—	46,508
Income taxes payable	15,773	37	—	—	15,810
Deferred income tax liabilities	21,362	134	—	—	21,496
Retained earnings	1,443,867	590	(10)	26	1,444,473
Accumulated other comprehensive loss	(77,344)	—	10	—	(77,334)

In January 2017, the FASB issued ASU No. 2017-04, "Intangibles—Goodwill and Other (Topic 350)" ("ASU 2017-04"). ASU 2017-04 simplifies the accounting for goodwill impairments by eliminating step 2 from the goodwill impairment test. The amendments are applied prospectively upon adoption. The Company early adopted this standard during the first quarter of 2018. The Company performs its annual goodwill impairment assessment on October 1 of each year. The new impairment test will be used in the annual assessment or if events or changes in circumstances indicate that the carrying amount may not be recoverable and an impairment analysis is performed.

Other Pronouncements Currently Under Evaluation —

In February 2016, the FASB issued ASU No. 2016-02, "Leases (Topic 842)" ("ASU 2016-02" or "the new lease standard"). ASU 2016-02 requires a lessee to recognize assets and liabilities on the balance sheet for leases with lease terms greater than twelve months. ASU 2016-02 is effective for fiscal years, and interim periods within those years, beginning after December 15, 2018. In July 2018, the FASB issued ASU 2018-11, which provides an additional transition method for implementing the new lease standard. The Company will adopt the provisions of ASU 2018-11 by applying the standard at the adoption date and recognizing a cumulative-effect adjustment. The Company is currently completing its review of the lease population and is in the process of implementing a software solution to assist with lease accounting and evaluating footnote disclosures. The Company does not expect that the standard will have a material effect on its consolidated financial statements upon adoption.

In June 2018, the FASB issued ASU No. 2018-07, "Compensation - Stock Compensation (Topic 718)" ("ASU 2018-07"). ASU 2018-07 aligns the accounting for share-based payments issued to employees and non-employees. ASU 2018-07 is effective for fiscal years, and interim periods within those years, beginning after December 15, 2018, and early adoption is permitted. The Company is currently evaluating the standard but does not expect that it will have a material effect on its consolidated financial statements upon adoption.

3. REVENUE FROM CONTRACTS WITH CUSTOMERS

The following tables represent a disaggregation of revenue from contracts with customers for the three and nine months ended September 30, 2018:

Sales by Application	**Three Months Ended September 30, 2018**		**Nine Months Ended September 30, 2018**	
Materials processing	$	334,498	$	1,065,712
Other applications	21,848		64,111	
Total	$	356,346	$	1,129,823

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PHOTONICS CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)
(In thousands, except share and per share data)

	Three Months Ended September 30, 2018		Nine Months Ended September 30, 2018	
Sales by Product				
High Power Continuous Wave ("CW") Lasers	$	227,462	$	724,111
Medium Power CW Lasers	15,825		65,092	
Low Power CW Lasers	3,276		10,380	
Pulsed Lasers	35,408		115,243	
Quasi-Continuous Wave ("QCW") Lasers	18,276		54,568	
Other Revenue including Amplifiers, Laser Systems, Service, Parts, Accessories and Change in Deferred Revenue	56,099		160,429	
Total	$	356,346	$	1,129,823

Sales by Geography				
United States and other North America	$	53,762	$	140,704
Europe:				
Germany	21,714		86,939	
Other including Eastern Europe/CIS	66,392		225,717	
Asia and Australia:				
China	158,853		511,852	
Japan	21,871		60,927	
Other	31,953		99,476	
Rest of World	1,801		4,208	

Total	$	356,346	$	1,129,823

Timing of Revenue Recognition

Goods and services transferred at a point in time	$	355,191	$	1,126,285
Services transferred over time	1,155		3,538	
Total	$	356,346	$	1,129,823

The Company enters into contracts to sell lasers and spare parts, for which revenue is generally recognized upon shipment or delivery, depending on the terms of the contract. The Company also provides installation services and extended warranties. The Company frequently receives consideration from a customer prior to transferring goods to the customer under the terms of a sales contract. The Company records customer deposits related to these prepayments, which represent a contract liability. The Company also records deferred revenue related to installation services when consideration is received before the services have been performed. The Company recognizes customer deposits and deferred revenue as net sales after control of the goods or services has been transferred to the customer and all revenue recognition criteria is met. The Company bills customers for extended warranties upon entering into the agreement with the customer, resulting in deferred revenue. Revenue is recognized ratably over the term of the extended warranty agreement as the customer receives and consumes the benefits of such services.

Before the transition date (under ASC 605, *Revenue Recognition*), the Company deferred revenue for installation services in an amount equal to the greater of the cash received or the fair value for installation. Under the new revenue standard, the standalone selling price for installation services is deferred until control has transferred. The standalone selling price for installation services is determined based on the estimated number of days of service technician time required for installation at standard service rates. The impact of applying ASC 606 was a decrease in revenue recognized during the three months ended September 30, 2018 of $37 and a decrease for the nine months ended September 30, 2018 of $84 as compared to revenue accounted for under ASC 605.

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PHOTONICS CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)
(In thousands, except share and per share data)

The following table reflects the changes in the Company's contract liabilities for the nine months ended September 30, 2018:

	September 30, 2018	January 1, 2018	Change	
Contract liabilities				
Customer deposits	$ 36,967	$ 36,937	$ 30	0.1 %
Deferred revenue - current	11,307	9,571	1,736	18.1 %
Deferred revenue - long-term	1,374	182	1,192	654.9 %

During the three and nine months ended September 30, 2018, the Company recognized revenue of $3,355 and $38,885, respectively, that was included in the customer deposits and deferred revenue balances at the beginning of the period.

The following table represents the Company's remaining performance obligations for sales of installation services and extended warranties and contracts with customer acceptance provisions included in deferred revenue as of September 30, 2018:

	Remaining Performance Obligations						
	2018	2019	2020	2021	2022	2023	Total
Revenue expected to be recognized upon customer acceptance	$ 7,443	$ 24	$ 3	$ —	$ —	$ —	$ 7,470
Revenue expected to be recognized on contracts for installation services	246	236	—	—	—	—	482
Revenue expected to be recognized for extended	1,165	1,910	576	349	178	60	4,238

warranty agreements							
Revenue deferred based on volume discount incentives	—	491	—	—	—	—	491
Total	$ 8,854	$ 2,661	$ 579	$ 349	$ 178	$ 60	$ 12,681

4. FAIR VALUE MEASUREMENTS

The Company's financial instruments consist of cash equivalents, short-term and long-term investments, accounts receivable, accounts payable, drawings on revolving lines of credit, long-term debt, contingent purchase consideration, and an interest rate swap.

The valuation techniques used to measure fair value are based upon observable and unobservable inputs. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect internal market assumptions. These two types of inputs create the following fair value hierarchy: Level 1, defined as observable inputs such as quoted prices for identical instruments in active markets; Level 2, defined as inputs other than quoted prices in active markets that are either directly or indirectly observable; and Level 3, defined as unobservable inputs for which little or no market data exists, therefore requiring an entity to develop its own assumptions.

The carrying amounts of money market fund deposits, term deposits, accounts receivable, accounts payable and drawings on revolving lines of credit are considered reasonable estimates of their fair market value due to the short maturity of most of these instruments or as a result of the competitive market interest rates, which have been negotiated. The Company's bond securities are reported at fair value based upon quoted prices for instruments with identical terms in active markets. The Company's commercial paper securities reported at fair value are based upon model-driven valuations in which all significant inputs are observable or can be derived from or corroborated by observable market data for substantially the full term of the asset or liability, and are therefore classified as Level 2.

At September 30, 2018 and December 31, 2017, the Company's long-term debt consisted of a variable rate long-term note and a fixed rate long-term note. The book value of the long-term notes approximates the fair market value.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)
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The following table presents information about the Company's assets and liabilities measured at fair value:

	Fair Value Measurements at September 30, 2018							
	Total		Level 1		Level 2		Level 3	
Assets								
Cash equivalents:								
Money market fund deposits and term deposits	$	316,442	$	316,442	$	—	$	—
U.S. Treasury and agency obligations	8,999		8,999		—		—	
Commercial paper	89,312		—		89,312		—	
Short-term investments								
U.S. Treasury and agency obligations	113,094		113,094		—		—	
Corporate bonds	196,856		196,856		—		—	
Commercial paper	164,255		—		164,255		—	
Long-term investments and other assets:								
Corporate bonds	13,771		13,771		—		—	
Auction rate securities	967		—		—		967	
Interest rate swap	13		—		13		—	
Total	$	903,709	$	649,162	$	253,580	$	967
Liabilities								
Long-term debt	$	46,285	$	—	$	46,285	$	—
Contingent purchase consideration	902		—		—		902	
Total	$	47,187	$	—	$	46,285	$	902

Fair Value Measurements at December 31, 2017

	Total		Level 1		Level 2		Level 3	
Assets								
Cash equivalents								
Money market fund deposits and term deposits	$	425,917	$	425,917	$	—	$	—
Short-term investments								
U.S. Treasury and agency obligations	41,217		41,217		—		—	
Corporate bonds	131,048		131,048		—		—	
Commercial paper	33,896		33,896		—		—	
Long-term investments and other assets:								
Auction rate securities	1,016		—		—		1,016	
Interest rate swaps	16		—		16		—	
Total	$	633,110	$	632,078	$	16	$	1,016
Liabilities								
Long-term debt	$	48,982	$	—	$	48,982	$	—
Contingent purchase consideration	902		—		—		902	
Total	$	49,884	$	—	$	48,982	$	902

The fair value of the short-term investments considered held-to-maturity as of September 30, 2018 and December 31, 2017 was $474,205 and $206,161, respectively, which represents an unrealized loss of $(217) and $(96), respectively, as compared to the book value recorded on the Consolidated Balance Sheets for the same periods. The fair value of the long-term investments considered held-to-maturity as of September 30, 2018 was $14,738, which represented an unrealized gain of $118, as compared to the book value of $14,620 recorded within Other Assets on the Consolidated Balance Sheets for the same period.

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PHOTONICS CORPORATION
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The fair value of the interest rate swap considered pricing models whose inputs are observable for the securities held by the Company.
The fair value of the auction rate securities was determined using prices observed in inactive markets with limited observable data for the securities held by the Company.
The fair value of contingent purchase consideration was determined using an income approach at the respective business combination date and at the reporting date. That approach is based on significant inputs that are not observable in the market and include key assumptions such as assessing the probability of meeting certain milestones required to earn the contingent purchase consideration.
The following table presents information about the Company's movement in Level 3 assets and liabilities measured at fair value:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Auction rate securities				
Balance, beginning of period	$ 1,174	$ 1,148	$ 1,016	$ 1,144
Period transactions	(207)	(138)	(207)	(138)
Change in fair value and accretion	—	2	158	6
Balance, end of period	$ 967	$ 1,012	$ 967	$ 1,012
Contingent purchase consideration				
Balance, beginning of period	$ 902	$ —	$ 902	$ —
Balance, end of period	$ 902	$ —	$ 902	$ —

The following table presents the effective maturity dates of held-to-maturity debt investments as of September 30, 2018 and December 31, 2017:

	September 30, 2018		December 31, 2017	
	Book Value	Fair Value	Book Value	Fair Value
Investment maturity				
Less than 1 year	$ 572,815	$ 572,516	$ 206,161	$ 206,161

1 through 5 years	13,776		13,771		—		—	
Greater than 5 years	844		967		1,016		1,016	
Total	$	587,435	$	587,254	$	207,177	$	207,177

5. INVENTORIES

Inventories consist of the following:

	September 30, 2018		December 31, 2017	
Components and raw materials	$	240,635	$	145,261
Work-in-process	40,763		43,646	
Finished components and devices	116,011		118,805	
Total	$	397,409	$	307,712

The Company recorded inventory provisions totaling $3,076 and $4,033 for the three months ended September 30, 2018 and 2017, respectively, and $9,930 and $13,439 for the nine months ended September 30, 2018 and 2017, respectively. These provisions relate to the recoverability of the value of inventories due to technological changes and excess quantities. These provisions are reported as a reduction to components and raw materials and finished components and devices.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)
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6. GOODWILL AND INTANGIBLES

The following table sets forth the changes in the carrying amount of goodwill for the nine months ended September 30, 2018:

	Amounts
Balance at January 1	$ 55,831
Goodwill arising from acquisition	4,072
Adjustment to goodwill during measurement period	(2,948)
Foreign exchange adjustment	(186)
Balance at September 30	$ 56,769

Intangible assets, subject to amortization, consisted of the following:

	September 30, 2018				December 31, 2017			
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Weighted-Average Lives	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Weighted-Average Lives
Patents	$ 8,036	$ (5,893)	$ 2,143	8 Years	$ 8,036	$ (5,486)	$ 2,550	8 Years
Customer relationships	25,577	(5,603)	19,974	11 Years	26,768	(5,584)	21,184	11 Years
Production know-how	6,768	(5,595)	1,173	8 Years	6,820	(5,035)	1,785	8 Years
Technology, trademark and trade names	32,358	(9,804)	22,554	7 Years	32,564	(6,860)	25,704	8 Years
Total	$ 72,739	$ (26,895)	$ 45,844		$ 74,188	$ (22,965)	$ 51,223	

During the second quarter of 2018, the Company acquired 100% of the shares of robot concept GmbH ("RC"). RC is located near Munich, Germany, and is an integrator of laser-based systems. The Company paid $4,453 to acquire RC, which represents the fair value on that date. Any excess of the acquisition consideration over the fair value of assets acquired and liabilities assumed is allocated to goodwill, which amounted to $4,072. The goodwill arising from the acquisition will not be deductible for tax purposes. As a result of the acquisition, the Company recorded intangible assets of $104 related to trademark and trade name with a weighted-average useful life of 1 year and $557 related to customer relationships with a weighted-average life of 10 years.

Amortization expense for the three months ended September 30, 2018 and 2017 was $1,982 and $1,725, respectively. Amortization for the nine months ended September 30, 2018 and 2017 was $5,821 and $3,958, respectively. The estimated future amortization expense for intangibles for the remainder of 2018 and subsequent years is as follows:

2018	2019	2020	2021	2022	Thereafter	Total
$ 1,870	$ 7,400	$ 6,747	$ 6,574	$ 5,775	$ 17,478	$ 45,844

7. ACCRUED EXPENSES AND OTHER LIABILITIES

Accrued expenses and other liabilities consist of the following:

	September 30, 2018	December 31, 2017
Accrued compensation	$ 57,037	$ 63,203
Customer deposits and deferred revenue	48,274	47,324
Current portion of accrued warranty	22,045	25,059
Other	9,704	8,831
Total	$ 137,060	$ 144,417

8. PRODUCT WARRANTIES

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)
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The Company typically provides 1 to 3-year parts and service warranties on lasers and amplifiers. Most of the Company's sales offices provide support to customers in their respective geographic areas. Warranty reserves have generally been sufficient to cover product warranty repair and replacement costs.

The following table summarizes product warranty accrual activity recorded during the nine months ended September 30, 2018 and 2017.

	2018		2017	
Balance at January 1	$	47,517	$	33,978
Provision for warranty accrual	19,050		20,284	
Warranty claims	(13,827)		(11,746)	
Foreign currency translation	(1,057)		2,459	
Balance at September 30	$	51,683	$	44,975

Accrued warranty reported in the accompanying consolidated financial statements as of September 30, 2018 and December 31, 2017 consisted of $22,045 and $25,059 in accrued expenses and other liabilities and $29,638 and $22,458 in other long-term liabilities, respectively.

9. FINANCING ARRANGEMENTS

The Company's borrowings under existing financing arrangements consist of the following:

	September 30, 2018		December 31, 2017	
Long-term notes	46,285		48,982	
Less: current portion	(3,654)		(3,604)	
Total long-term debt	$	42,631	$	45,378

At September 30, 2018, the Company has an unsecured long-term note with an outstanding principal balance $21,078, of which, $1,188 is the current portion. The interest on this unsecured long-term note is variable at 1.2% above LIBOR and is fixed using an interest rate swap at 2.9% per annum. The unsecured long-term note matures in May 2023, at which time the outstanding principal balance will be $15,438. Also at September 30, 2018, the Company has another long-term note that is secured by its corporate aircraft with a outstanding principal balance of $25,207, of which, $2,466 is the current portion. The interest on this collateralized long-term note is fixed at 2.7% per annum. The collateralized long-term note matures in July 2022, at which time the outstanding principal balance will be $15,375.

The Company maintains both a $50,000 and a €50,000 ($58,009) line-of-credit, which are available to certain foreign subsidiaries and allow for borrowings in the local currencies of those subsidiaries. It also maintains a €2,000 ($2,320) overdraft facility. At September 30, 2018 and December 31, 2017, there were no amounts drawn on the U.S. line-of-credit, and there were $955 and $520, respectively, of guarantees issued against the facility which reduce the amount of the facility available to draw. At September 30, 2018 and December 31, 2017, there were no amounts drawn on the Euro line-of-credit, and there were $1,222 and $798, respectively, of guarantees issued against those facilities which reduce the amount available to draw. At September 30, 2018 and December 31, 2017, there were no amounts drawn on the Euro overdraft facility. After providing for the guarantees used, the total unused credit lines and overdraft facilities are $108,152 at September 30, 2018.

10. DERIVATIVE FINANCIAL INSTRUMENTS

Derivative instruments **–** The Company's primary market exposures are to interest rates and foreign exchange rates. The Company from time to time may use certain derivative financial instruments to help manage these exposures. The Company executes these instruments with financial institutions it judges to be credit-worthy. The Company does not hold or issue derivative financial instruments for trading or speculative purposes.

The Company recognizes all derivative financial instruments as either assets or liabilities at fair value in the consolidated balance sheets. During the second quarter of 2018, the Company entered into foreign currency forward contracts to hedge the value of intercompany dividends declared in Euros by the Company's German subsidiary. The dividends were paid in the second and third quarters of 2018. These contracts were not designated as hedging instruments for accounting purposes. There are no foreign currency forward contracts outstanding at September 30, 2018. The Company also has an interest rate swap that is classified as a cash flow hedge of its variable rate debt.

The fair value amounts in the consolidated balance sheets were:

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	Notional Amounts1		Other Assets		Other Current Liabilities	
	September 30, 2018	December 31, 2017	September 30, 2018	December 31, 2017	September 30, 2018	December 31, 2017
Derivative designated as a cash flow hedge:						
Interest rate swap	$ 21,078	$ 21,969	$ 13	$ 16	$ —	$ —

(1) Notional amounts represent the gross contract/notional amount of the derivatives outstanding.

Gains associated with derivative instruments not designated as hedging instruments are as follows:

		Three Months Ended September 30,		Nine Months Ended September 30,	
	Classification	2018	2017	2018	2017
Gain (loss) recognized in income	Gain (loss) on foreign exchange	$ 1,169	$ —	$ (19)	$ —

The following table reflects the effect of the interest rate swap contract designated as a cash flow hedging instrument in the Company's financial statements:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Effective portion recognized in other comprehensive income, pretax:				
Interest rate swap	$ (5)	$ (7)	$ (3)	$ (47)

11. COMMITMENTS AND CONTINGENCIES

From time to time, the Company may be involved in disputes and legal proceedings in the ordinary course of its business.
These proceedings may include allegations of infringement of intellectual property, commercial disputes and employment
matters. As of September 30, 2018 and through the filing date of these Consolidated Financial Statements, the Company has no legal proceedings ongoing that management estimates could have a material effect on the Company's Consolidated Financial Statements.

12. INCOME TAXES

The effective tax rates for the three months ended September 30, 2018 and 2017 were 21.4% and 28.0%, respectively. For the nine months ended September 30, 2018 and 2017, the effective tax rates were 24.2% and 27.0%, respectively. The reduction in the tax rate is partially due to the reduction in the U.S. statutory tax rate to 21%.

There were discrete tax benefits of $660 and $5,714 for the three months ended September 30, 2018 and 2017, respectively, and $5,178 and $14,761 for the nine months ended September 30, 2018 and 2017, respectively. The discrete benefits for the three months ended September 30, 2018 include $1,026 related to excess equity based compensation and $4,247 for return to provision adjustments. These were offset by discrete detriments for a U.S. tax rate adjustment of $2,195 related to profit in inventory from 2017 that flowed through to consolidated earnings in 2018 and $3,046 related to a valuation allowance primarily related to state tax credits. The discrete benefits for the nine months ended September 30, 2018 include $10,920 related to excess equity based compensation and $4,001 related to provision to return adjustments. These were offset by discrete detriments for the U.S. tax rate adjustment of 6,584 related to profit in inventory from 2017 that flowed through to consolidated earnings in 2018 and 3,046 related to a valuation allowance reflected primarily for state tax credits that exceed state income taxes in specific states. The discrete benefits in the three months ended September 30, 2017 include $3,738 related to excess equity based compensation and $2,111 related to provision to return related adjustments. The discrete benefits for the nine months ended September 30, 2017 include $10,883 related to excess equity based compensation, $2,240 related to the reversal of a tax reserve and $2,111 related to provision to return adjustments.

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In addition to the discrete items above, the effective tax rate for the three months ended September 30, 2018 benefited from certain tax adjustments made in accordance with SAB 118. SAB 118 provides guidance on accounting for the tax effects of the Tax Cuts and Jobs Act and allows a measurement period of up to one year from enactment to complete the accounting under ASC 740. The Company reduced its annual effective rate because of changes in the Global Intangible Low Taxed Income ("GILTI") tax calculation resulting from newly proposed regulations issued by the Treasury. The impact reduced the estimated tax expense for the nine months ended September 30, 2018 by $7,939, of which $4,747 had been reflected in tax expense as of June 30, 2018. The Company also finalized its calculation of the liability due to the deemed repatriation tax included in the Tax Act and recorded a $3,621 tax benefit which is included in the discrete benefit for provision to return adjustments detailed above.

The Company accounts for its uncertain tax return reporting positions in accordance with the accounting standards for income taxes. The Company continues to classify interest and penalties related to unrecognized tax benefits as a component of the provision for income taxes. The following is a summary of the activity of the Company's unrecognized tax benefits for nine months ended September 30, 2018 and 2017:

	2018		2017	
Balance at January 1	$	10,370	$	6,403
Change in prior period positions	(1,067)		(2,240)	
Additions for tax positions in current period	1,012		1,500	
Foreign currency translation	(771)		—	
Balance at September 30	$	9,544	$	5,663

Substantially all of the liability for uncertain tax benefits related to various federal, state and foreign income tax matters would benefit the Company's effective tax rate, if recognized. The Company is under tax audit in Germany (2013 - 2016) and Japan (2015 - 2017) and has been notified that a tax audit in Korea (2013 – 2017) will start later this year.

13. NET INCOME ATTRIBUTABLE TO IPG PHOTONICS CORPORATION PER SHARE

The following table sets forth the computation of diluted net income attributable to IPG Photonics Corporation per share:

	Three Months Ended September 30,						Nine Months Ended September 30,	
	2018		2017		2018		2017	
Net income attributable to IPG Photonics Corporation	$	100,517	$	115,597	$	328,468	$	294,658

Weighted average shares	53,571		53,440		53,677		53,453	
Dilutive effect of common stock equivalents	1,125		1,258		1,318		1,117	
Diluted weighted average common shares	54,696		54,698		54,995		54,570	
Basic net income attributable to IPG Photonics Corporation per share	$	1.88	$	2.16	$	6.12	$	5.51
Diluted net income attributable to IPG Photonics Corporation per share	$	1.84	$	2.11	$	5.97	$	5.40

For the three months ended September 30, 2018 and 2017, respectively, the computation of diluted weighted average common shares excludes 20,400 and 8,800 common stock equivalents because the effect of including them would be anti-dilutive. The shares excluded for the three months ended September 30, 2018 and 2017, respectively are comprised of 10,500 and 3,800 restricted stock units ("RSUs") and 5,100 and 0 performance stock units ("PSUs"), and 4,800 and 5,000 non-qualified stock options, respectively. For the nine months ended September 30, 2018 and 2017, respectively, the computation of diluted weighted average common shares excludes 28,100 and 53,600 common stock equivalents because the effect of including them would be anti-dilutive.The shares excluded for the nine months ended September 30, 2018 and 2017, respectively, are comprised of 18,400 and 14,900 RSUs, 3,800 and 35,900 non-qualified stock options and 5,900 and 2,800 performance stock units.

On July 31, 2018, the Company announced that its Board of Directors authorized a new $125 million anti-dilutive stock repurchase program following the completion of its previous $100 million repurchase program. Under the new anti-dilutive program, IPG management is authorized to repurchase shares of common stock in an amount not to exceed the greater of (a) the number of shares issued to employees and directors under the Company's various employee and director equity compensation

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and employee stock purchase plans from January 1, 2018 through March 31, 2019 and (b) $125 million, exclusive of any fees, commissions or other expenses.

For the three months ended September 30, 2018 and 2017, the Company repurchased 371,228 shares and 17,328 shares of its common stock with an average price of $163.95 per share and $161.55 per share in the open market, respectively. The impact on the reduction of weighted average shares for the three months ended September 30, 2018 and 2017 was 119,911 shares and 9,964 shares, respectively. During the nine months ended September 30, 2018 and 2017, the Company repurchased a total of 585,806 shares and 215,860 shares of its common stock with an average price of $191.06 per share and $124.67 per share in the open market, respectively. The impact on the reduction of weighted average shares for the nine months ended September 30, 2018 and 2017 was 177,159 shares and 136,184 shares, respectively.

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

You should read the following discussion in conjunction with our consolidated financial statements and related notes included elsewhere in this Quarterly Report on Form 10-Q. This discussion contains forward looking statements that are based on management's current expectations, estimates and projections about our business and operations. Our actual results may differ materially from those currently anticipated and expressed in such forward-looking statements. See "Cautionary Statement Regarding Forward-Looking Statements."

Overview

We develop and manufacture a broad line of high-performance fiber lasers, fiber amplifiers and diode lasers that are used in numerous applications, primarily in materials processing. In addition, we offer laser-based systems for certain markets and applications. We sell our products globally to original equipment manufacturers ("OEMs"), system integrators and end users. We market our products internationally primarily through our direct sales force.

We are vertically integrated such that we design and manufacture most of the key components used in our finished products, from semiconductor diodes to optical fiber preforms, finished fiber lasers and amplifiers. We also manufacture certain complementary products used with our lasers, including optical delivery cables, fiber couplers, beam switches, optical processing heads and chillers.

Factors and Trends That Affect Our Operations and Financial Results

In reading our financial statements, you should be aware of the following factors and trends that our management believes are important in understanding our financial performance.

Net sales. We derive net sales primarily from the sale of fiber lasers and amplifiers. We also sell diode lasers, communications systems, laser systems and complementary products. We sell our products through our direct sales organization and our network of distributors and sales representatives, as well as system integrators. We sell our products to OEMs that supply materials processing laser systems, communications systems, medical laser systems and other laser systems for advanced applications to end users. We also sell our products to end users that build their own systems, which incorporate our products or use our products as an energy or light source. Our scientists and engineers work closely with OEMs, systems integrators and end users to analyze their system requirements and match appropriate fiber laser or amplifier specifications. Our sales cycle varies substantially, ranging from a period of a few weeks to as long as one year or more, but is typically several months.

We consider customer purchase orders, which in some cases are governed by master sales agreements, to be the contracts with a customer. The majority of our revenue is recognized at a point in time following the transfer of control of products or services to the customer, which typically occurs upon shipment or delivery depending on the terms of the underlying contracts.

We develop our products to standard specifications and use a common set of components within our product architectures. Our major products are based upon a common technology platform. We continually enhance these and other products by improving their components and developing new components and new product designs.

The average selling prices of our products generally decrease as the products mature. These decreases result from factors such as decreased manufacturing costs and increases in unit volumes, increased competition, the introduction of new products and market share considerations. In the past, we have lowered our selling prices in order to penetrate new markets and applications. Furthermore, we negotiate discounted selling prices from time to time with certain customers that place high unit volume orders.

Gross margin. Our total gross margin can be significantly affected by total net sales in any period, by product mix, that is, the percentage of our revenue in the period that is attributable to higher or lower power products and the mix of sales between laser and amplifier sources and complete systems, by sales mix between OEM customers who purchase devices from us in high unit volumes and other customers, by mix of sales in different geographies and by other factors, some of which are not under our control.

Within each of our product categories, lasers with a higher average power generally have a higher gross margin; higher power lasers use a greater number of optical components, improving absorption of fixed overhead costs and enabling economies of scale in manufacturing. In addition, certain specialty products have a gross margin which is above our corporate average while the profit margins on some systems can be lower than margins for our laser and amplifier sources, depending on the configuration, volume and competitive forces, among other factors.

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The mix of sales between OEM customers and other customers can affect gross margin because we provide sales price discounts on products based on the number of units ordered. As the number of OEM customers increase and the number of units ordered increases, the average sales price per unit will be reduced. We expect that the impact of reduced sales price per unit will be offset by the manufacturing efficiency provided by high unit volume orders, but the timing and extent of achieving these efficiencies may not always match the mix of sales in any given time period or be realized at all.

Fluctuations in foreign exchange rates can affect gross margin. Generally, when the U.S. Dollar weakens as compared to the Euro, Chinese Yuan or other foreign currencies in which our product is sold, it will benefit gross margin. When the U.S. dollar strengthens as compared to foreign currencies in which our product is sold, it will be a detriment to gross margin.

We also regularly review our inventory for items that are slow-moving, have been rendered obsolete or determined to be excess. Any provision for such slow-moving, obsolete or excess inventory affects our gross margins. For example, we recorded provisions for slow-moving, obsolete or excess inventory totaling $3.1 million and $4.0 million for the three months ended September 30, 2018 and 2017, respectively, and $16.9 million, $22.8 million and $15.4 million for the years ended December 31, 2017, 2016 and 2015, respectively.

Sales and marketing expense. We expect to continue to expand our worldwide direct sales organization, build and expand applications centers, hire additional sales and marketing personnel at our existing and new geographic locations as well as to support sales of new product lines, increase the number of units for demonstration purposes and otherwise increase expenditures on sales and marketing activities in order to support the growth in our net sales. As such, we expect that our sales and marketing expenses will increase in the aggregate.

Research and development expense. We plan to continue to invest in research and development to improve our existing components and products and develop new components, products, systems and applications technology. The amount of research and development expense we incur may vary from period to period. In general, if net sales continue to increase we expect research and development expense to increase in the aggregate.

General and administrative expense. We expect our general and administrative expenses to increase as we continue to invest in systems and resources in management, finance, legal, information technology, human resources and administration to support our worldwide operations. Legal expenses vary from quarter to quarter based primarily upon the level of litigation and transaction activities.

Foreign Exchange. Because we are a U.S. based company doing business globally, we have both translational and transactional exposure to fluctuations in foreign currency exchange rates. Changes in the relative exchange rate between the U.S. dollar and the foreign currencies in which our subsidiaries operate directly affects our sales, costs and earnings. Differences in the relative exchange rates between where we sell our products and where we incur manufacturing and other operating costs (primarily in the U.S., Germany and Russia) also affects our costs and earnings. Certain currencies experiencing significant exchange rate fluctuations like the Euro, the Russian Ruble, the Japanese Yen and Chinese Yuan have had and could have an additional significant impact on our sales, costs and earnings. Our ability to adjust the foreign currency selling prices of products in response to changes in exchange rates is limited and may not offset the impact of the changes in exchange rates on the translated value of sales or costs. In addition, if we increase the selling price of our products in local currencies, this could have a negative impact on the demand for our products.

Major customers. While we have historically depended on a few customers for a large percentage of our annual net sales, the composition of this group can change from year to year. Net sales derived from our five largest customers as a percentage of our net sales was 28% for the nine months ended September 30, 2018 and 28%, 22% and 25% for the full years 2017, 2016 and 2015, respectively. One of our customers accounted for 13% and 14% of our net sales for the nine months ended September 30, 2018 and 2017. We seek to add new customers and to expand our relationships with existing customers. We anticipate that the composition of our significant customers will continue to change. If any of our significant customers substantially reduced their purchases from us, our results would be adversely affected.

Results of Operations for the three months ended September 30, 2018 compared to the three months ended September 30, 2017

Net sales. Net sales decreased by $36.3 million, or 9.2%, to $356.3 million for the three months ended September 30, 2018 from $392.6 million for the three months ended September 30, 2017.

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Sales by Application	**Three Months Ended September 30,**					
	2018		**2017**		**Change**	
		% of Total		**% of Total**		
Materials processing	$ 334,497	93.9%	$ 374,725	95.4%	$ (40,228)	(10.7)%
Other applications	21,849	6.1%	17,890	4.6%	3,959	22.1%
Total	$ 356,346	100.0%	$ 392,615	100.0%	$ (36,269)	(9.2)%

Sales by Product	**Three Months Ended September 30,**					
	2018		**2017**		**Change**	
		% of Total		**% of Total**		
High Power Continuous Wave ("CW") Lasers	$ 227,462	63.8%	$ 244,239	62.2%	$ (16,777)	(6.9)%
Medium Power CW Lasers	15,825	4.4%	30,423	7.7%	(14,598)	(48.0)%
Low Power CW Lasers	3,276	0.9%	3,138	0.8%	138	4.4%
Pulsed Lasers	35,408	9.9%	39,881	10.2%	(4,473)	(11.2)%
Quasi-Continuous Wave ("QCW") Lasers	18,276	5.1%	23,765	6.1%	(5,489)	(23.1)%
Other Revenue including Amplifiers, Laser Systems, Service, Parts, Accessories and Change in Deferred Revenue	56,099	15.9%	51,169	13.0%	4,930	9.6%
Total	$ 356,346	100.0%	$ 392,615	100.0%	$ (36,269)	(9.2)%

Materials processing

Sales for materials processing applications decreased due to lower sales from high power lasers, medium power lasers, pulsed lasers and QCW lasers offset by increased revenue from laser systems.

- The decline in high power lasers related to the decrease in sales of metal welding, cutting, and laser sintering applications. The decrease in sales of high power lasers used in metal welding applications was driven by reduced sales into traditional automotive and electric vehicle battery welding, as well as a decrease in average selling prices. Within cutting applications, decreased sales of products at one to five kilowatts, driven by weaker demand in China and Europe and lower average selling prices, were partially offset by increased sales of ultra-high power lasers at six kilowatts or greater.
- The decrease in medium power sales related to weakness in the laser sintering business. In addition, reduced revenue in fine cutting applications was partially attributable to a move to kilowatt scale high power lasers for these

applications.
• The decrease in pulsed laser sales were due to the decline in sales of low and high power pulsed products, which were partially offset by the growth in green, ultraviolet and ultrafast pulsed lasers.
• QCW laser sales decreased due to the expected reduction in demand related to the consumer electronics investment cycle, partially offset by growth in higher power QCW products for welding and aerospace drilling applications.
• The decrease in materials processing sales were partially offset by the increase in sales of laser systems and parts and service sales, which are included in Other Revenue in the Sales by Product table above. The increase in laser systems sales was driven by macro-systems and contributions from micro-systems and the seam stepper, which is mainly used for automotive applications.

Other Applications

Sales from other applications increased with strong growth in communications and government, partially offset by a decline in medical and scientific applications. Government sales increased largely from directed energy applications.

Cost of sales and gross margin. Cost of sales decreased by $6.9 million, or 4.1%, to $161.2 million for the three months ended September 30, 2018 from $168.1 million for the three months ended September 30, 2017. Our gross margin decreased to 54.8% for the three months ended September 30, 2018 from 57.2% for the three months ended September 30, 2017. Gross margin decreased due to lower absorption of manufacturing expenses and lower average prices, partially offset by continued cost reduction initiatives that reduced the cost of certain components.

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Sales and marketing expense. Sales and marketing expense remained consistent at $13.5 million for the three months ended September 30, 2018 compared with $13.4 million for the three months ended September 30, 2017. As a percentage of sales, sales and marketing expense increased to 3.8% of sales for the three months ended September 30, 2018 from 3.4% for the three months ended September 30, 2017 .

Research and development expense. Research and development expense increased by $5.4 million, or 21.0%, to $30.9 million for the three months ended September 30, 2018, compared to $25.5 million for the three months ended September 30, 2017. This change was primarily a result of increases in personnel, contractors and consultants, R&D materials and depreciation expense. Research and development continues to focus on developing new products, enhancing performance of existing components, improving production processes, developing manufacturing of new components and refining production processes to improve manufacturing yields and productivity. New products include lasers that operate at different wavelengths such as UV, visible and mid-IR and lasers with ultrafast pulses. We also continue to develop laser based systems for material processing, projection, display and medical as well as accessories such as welding heads, cutting heads and weld monitoring systems. We are developing new transceiver module products for telecommunication applications. In addition to new products, research and development is focused on enhancing the performance of our existing products and components such as diodes and crystals in order to improve the performance of our lasers and reduce their manufacturing cost. As a percentage of sales, research and development expense increased to 8.7% for the three months ended September 30, 2018 from 6.5% for the three months ended September 30, 2017.

General and administrative expense. General and administrative expense increased by $3.7 million, or 17.5%, to $25.2 million for the three months ended September 30, 2018 from $21.5 million for the three months ended September 30, 2017. This change was primarily a result of increases in outside services, bad debt and depreciation expense. As a percentage of sales, general and administrative expense increased to 7.1% for the three months ended September 30, 2018 from 5.5% for the three months ended September 30, 2017.

Effect of exchange rates on net sales, gross profit and operating expenses. We estimate that, if exchange rates relative to the U.S. Dollar had been the same as one year ago, which were on average Euro 0.85, Russian Ruble 59, Japanese Yen 111 and Chinese Yuan 6.67, respectively, we would have expected net sales to be $8.4 million higher, gross profit to be $4.2 million higher and total operating expenses to be $1.6 million higher.

(Gain) loss on foreign exchange. We incurred a foreign exchange loss of $1.7 million for the three months ended September 30, 2018 as compared to a $3.9 million loss for the three months ended September 30, 2017. The foreign exchange loss for the three months ended September 30, 2018 was primarily attributable to depreciation of the Chinese Yuan offset by a gain attributable to depreciation of the Russian Ruble. The foreign exchange loss for the three months ended September 30, 2017 was primarily attributable to the appreciation of the Euro and the Russian Ruble, partially offset by a gain attributable to appreciation of the Chinese Yuan as compared to the U.S. Dollar.

Provision for income taxes. Provision for income taxes was $27.4 million for the three months ended September 30, 2018 compared to $45.0 million for the three months ended September 30, 2017. The effective tax rates were 21.4% and 28.0% for the three months ended September 30, 2018 and 2017, respectively. For the three months ended September 30, 2018, the effective tax rate benefited from the lower effective tax rate for income earned in the United States due to enactment of the Tax Cuts and Jobs Act (the "Tax Act"), an increase in excess tax benefits related to equity compensation, provision to return benefits, and a reduction in the estimated full year tax rate due to recent draft proposals issued by the US Treasury Department regarding implementation of the Tax Act. These benefits were partially offset by provisions for uncertain tax positions, a valuation allowance on state tax credits and other matters.

Net income attributable to IPG Photonics Corporation. Net income attributable to IPG Photonics Corporation decreased by $15.1 million to $100.5 million for the three months ended September 30, 2018 compared to $115.6 million for the three months ended September 30, 2017. Net income attributable to IPG Photonics Corporation as a percentage of our net sales decreased by 1.2 percentage points to 28.2% for the three months ended September 30, 2018 from 29.4% for the three months ended September 30, 2017 due to the factors described above.

Results of Operations for the nine months ended September 30, 2018 compared to the nine months ended September 30, 2017

Net sales. Net sales increased by $82.0 million, or 7.8%, to $1,129.8 million for the nine months ended September 30, 2018 from $1,047.8 million for the nine months ended September 30, 2017.

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Sales by Application	Nine Months Ended September 30,						
	2018		2017		Change		
		% of Total		% of Total			
Materials processing	$ 1,065,712	94.3 %	$ 991,921	94.7 %	$ 73,791	7.4 %	
Other applications	64,111	5.7 %	55,913	5.3 %	8,198	14.7 %	
Total	$ 1,129,823	100.0 %	$ 1,047,834	100.0 %	$ 81,989	7.8 %	

Sales by Product	Nine Months Ended September 30,					
	2018		2017		Change	
		% of Total		% of Total		
High Power CW Lasers	$ 724,111	64.1 %	$ 634,387	60.6 %	$ 89,724	14.1 %
Medium Power CW Lasers	65,092	5.8 %	80,152	7.7 %	(15,060)	(18.8) %
Low Power CW Lasers	10,380	0.9 %	9,818	0.9 %	562	5.7 %
Pulsed Lasers	115,243	10.2 %	113,442	10.8 %	1,801	1.6 %
QCW Lasers	54,568	4.8 %	74,615	7.1 %	(20,047)	(26.9) %
Other Revenue including Amplifiers, Laser Systems, Service, Parts, Accessories and Change in Deferred Revenue	160,429	14.2 %	135,420	12.9 %	25,009	18.5 %
Total	$ 1,129,823	100.0 %	$ 1,047,834	100.0 %	$ 81,989	7.8 %

Materials processing

Sales for materials processing applications increased due to higher sales of high power lasers, pulsed lasers, and laser systems.

• The growth in high power laser sales related to strength in sales of cutting applications. Within the cutting applications, we continue to see a migration to lasers with higher output powers which improve processing speeds and enable processing of thicker materials. The shift towards lasers with higher output powers has also benefited sales due to their higher average selling prices. The increase in high-power sales was partially offset by a decrease in high-power metal welding sales used in traditional automotive and electric vehicle battery welding

• The decrease in medium power laser sales is due to the shift in cutting to kilowatt-scale lasers and the decrease in sales for laser sintering applications.

• Pulsed laser sales increased due to solar cell manufacturing, and cleaning and stripping, which was partially offset by decreases in welding, and marking & engraving applications. Within the pulsed laser category, the sales for green pulsed lasers increased significantly and sales for low pulsed laser increased slightly, which was partially offset by the decrease in sales of high power pulsed lasers.

• QCW laser sales decreased due to the expected reduction in demand related to the consumer electronics investment cycle.

• Materials processing sales also increased as a result of higher laser systems, accessories including beam delivery, and parts and service sales, which are included in Other Revenue in the Sales by Product chart above. The increase in laser systems sales was driven by welding, cutting, cladding, and other micro-material applications as well as from the acquisition of ILT during the third quarter of 2017.

Other Applications

Sales from other applications increased with strong growth in government sales and slight growth in communications, instruments, and semiconductor sales which were partially offset by a decline in scientific sales. Within advanced applications, government sales increased primarily due to an increase in sales for directed energy applications.

Cost of sales and gross margin. Cost of sales increased by $36.6 million, or 8.0%, to $496.3 million for the nine months ended September 30, 2018 from $459.7 million for the nine months ended September 30, 2017. Our gross margin remained consistent at 56.1% for the nine months ended September 30, 2018 and 2017. Reductions in the cost to manufacture components and lasers were offset by decreases in average selling prices.

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Sales and marketing expense. Sales and marketing expense increased by $5.2 million, or 14.3%, to $41.5 million for the nine months ended September 30, 2018 from $36.3 million for the nine months ended September 30, 2017, primarily as a result of increased expenses for personnel, trade show and exhibitions, travel and depreciation. As a percentage of sales, sales and marketing expense increased to 3.7% of sales for the nine months ended September 30, 2018 from 3.5% for the nine months ended September 30, 2017.

Research and development expense. Research and development expense increased by $17.0 million, or 22.9%, to $91.3 million for the nine months ended September 30, 2018, compared to $74.3 million for the nine months ended September 30, 2017, primarily as a result of an increase in expenses related to personnel, contractors, consultants, materials used for research and development projects, premise-related costs and depreciation. Research and development continues to focus on developing new products, enhancing performance of existing components, improving production processes, developing manufacturing of new components and refining production processes to improve manufacturing yields and productivity. New products include lasers that operate at different wavelengths such as UV, visible and mid-IR and lasers with ultrafast pulses. We also continue to develop laser based systems for material processing, projection, display and medical as well as accessories such as welding heads, cutting heads and weld monitoring systems. We are developing new transceiver module products for telecommunication applications. In addition to new products, research and development is focused on enhancing the performance of our existing products and components such as diodes and crystals in order to improve the performance of our lasers and reduce their manufacturing cost. As a percentage of sales, research and development expense increased to 8.1% for the nine months ended September 30, 2018 from 7.1% for the nine months ended September 30, 2017.

General and administrative expense. General and administrative expense increased by $15.8 million, or 26.7%, to $74.9 million for the nine months ended September 30, 2018 from $59.1 million for the nine months ended September 30, 2017, primarily as a result of increased expenses for personnel, legal, accounting, information technology, and depreciation. As a percentage of sales, general and administrative expense increased to 6.6% for the nine months ended September 30, 2018 from 5.6% for the nine months ended September 30, 2017.

Effect of exchange rates on net sales, gross profit and operating expenses. We estimate that, if exchange rates relative to the U.S. Dollar had been the same as one year ago, which were on average Euro 0.90, Russian Ruble 58, Japanese Yen 112 and Chinese Yuan 6.81, respectively, we would have expected net sales for the nine months ended September 30, 2018 to be $43.9 million lower, gross profit to be $29.1 million lower and total operating expenses would have been $0.5 million lower.

(Gain) Loss on foreign exchange. We incurred a foreign exchange gain of $1.5 million for the nine months ended September 30, 2018 as compared to a loss of $15.6 million for the nine months ended September 30, 2017. The gain for the nine months ended September 30, 2018 was primarily attributable to the depreciation of the Euro and the Russian Ruble as compared to the U.S. Dollar, which was partially offset by a loss attributable to depreciation of the Chinese Yuan. The loss for the nine months ended September 30, 2017 was primarily attributable to appreciation of the Euro and Russian Ruble compared to the U.S. Dollar, which was partially offset by a gain from appreciation of the Chinese Yuan.

Provision for income taxes. Provision for income taxes was $104.8 million for the nine months ended September 30, 2018 compared to $108.8 million for the nine months ended September 30, 2017, representing an effective tax rate of 24.2% and 27.0% for the nine months ended September 30, 2018 and 2017, respectively. The effective tax rate benefited from the lower effective tax rate for income earned in the United States due to enactment of the Tax Cuts and Jobs Act (the "Tax Act"), an increase in excess tax benefits related to equity compensation and provision to return benefits, which were partially offset by provisions for uncertain tax positions, a valuation allowance on state tax credits and other matters.

Net income attributable to IPG Photonics Corporation. Net income attributable to IPG Photonics Corporation increased by $33.8 million to $328.5 million for the nine months ended September 30, 2018 compared to $294.7 million for the nine months ended September 30, 2017. Net income attributable to IPG Photonics Corporation as a percentage of our net sales increased by 1.0 percentage point to 29.1% for the nine months ended September 30, 2018 from 28.1% for the nine months ended September 30, 2017 due to the factors described above.

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Liquidity and Capital Resources

Our principal sources of liquidity as of September 30, 2018 consisted of cash and cash equivalents of $647.6 million, short-term investments of $474.4 million, unused credit lines and overdraft facilities of $108.2 million and other working capital (excluding cash and cash equivalents and short-term investments) of $542.3 million. This compares to cash and cash equivalents of $909.9 million, short-term investments of $206.3 million, unused credit lines and overdraft facilities of $111.0 million and other working capital (excluding cash and cash equivalents and short-term investments) of $439.0 million as of December 31, 2017. The decrease in cash and cash equivalents of $262.3 million relates primarily to cash used in investing activities of $416.9 million and cash used in financing activities of $102.1 million. The cash used in investing activities includes $280.2 million of net investment purchases and $132.6 million of net property, plant and equipment purchases. The increase in net investment purchases is due to an increase in cash held in the United States as a result of the payment of an intercompany dividend from our German subsidiary to the U.S. parent. The dividend was declared in the second quarter of 2018 in order to repatriate cash so that it can be managed centrally and invested in higher yielding U.S. Dollar denominated investments which is the functional currency of our parent company. The dividend was paid in full by the end of the third quarter 2018. The cash used in financing activities primarily relates to $111.9 million of treasury stock purchases under our anti-dilutive share repurchase program. These outflows were partially offset by cash provided by operating activities in the nine months ended September 30, 2018 of $280.3 million. In addition, the effect of exchange rates decreased cash and cash equivalents by $23.5 million.

Short-term investments at September 30, 2018, consist of liquid investments including U.S. government and government agency notes, corporate notes, commercial paper and certificates of deposit with original maturities of greater than three months but less than one year. We also hold long-term investments, included in other assets on the consolidated balance sheets, which consist of the corporate bonds detailed above with maturities of less than two years and auction rate securities totaling $14,620.

Our long-term debt consists of two long-term notes with a combined total outstanding balance at September 30, 2018 of $46.3 million of which $3.7 million is the current portion. We have an unsecured long-term note with an outstanding principal balance at September 30, 2018 of $21.1 million of which $1.2 million is the current portion. The interest on this unsecured long-term note is variable at 1.20% above LIBOR and is fixed using an interest rate swap at 2.85% per annum. The unsecured long-term note matures in May 2023, at which time the outstanding principal balance will be $15.4 million. We have another long-term note that is secured by our corporate aircraft with an outstanding principal balance of $25.2 million of which $2.5 million is the current portion. The interest on this collateralized long-term note is fixed at 2.74% per annum. The collateralized long-term note matures in July 2022, at which time the outstanding principal balance will be $15.4 million.

We believe that our existing cash and cash equivalents, short-term investments, our cash flows from operations and our existing lines of credit provide us with the financial flexibility to meet our liquidity and capital needs, as well as to complete certain acquisitions of businesses and technologies. We intend to continue to pursue acquisition opportunities based upon market conditions and the strategic importance and valuation of the target company. We may consider issuing debt or equity to finance acquisitions depending on the timing and size of the acquisition. Our future long-term capital requirements will depend on many factors including our level of sales, the impact of the economic environment on our sales growth, the timing and extent of spending to support development efforts, the expansion of the global sales and marketing activities, government regulation including trade sanctions, the timing and introductions of new products, the need to ensure access to adequate manufacturing capacity and the continuing market acceptance of our products.

The following table details our line-of-credit facilities as of September 30, 2018:

Description	Total Facility	Interest Rate	Maturity	Security
U.S. Revolving Line of Credit (1)	$50.0 million	LIBOR plus 0.80% to 1.20%, depending on our	April 2020	Unsecured

		performance		
Euro Credit Facility (Germany) (2)	Euro 50.0 million ($58.0 million)	Euribor plus 0.75% or EONIA 1.00%	July 2020	Unsecured, guaranteed by parent company and German subsidiary
Euro Overdraft Facilities (3)	Euro 2.0 million ($2.3 million)	Euribor plus 0.89% to 1.10%	May 2019	Common pool of assets of Italian subsidiary

(1) This facility is available to certain foreign subsidiaries in their respective local currencies. At September 30, 2018, there were no amounts drawn on this line, however, there were $1.0 million of guarantees issued against the line which reduces total availability.

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(2) This facility is also available to certain foreign subsidiaries in their respective local currencies. At September 30, 2018, there were no drawings on this facility, however, there were $1.2 million of guarantees issued against the line which reduces total availability.

(3) At September 30, 2018, there were no drawings. This facility renews annually.

Our largest committed credit lines are with Bank of America N.A. and Deutsche Bank AG in the amounts of $50.0 million and $58.0 million (or 50 million Euro as described above), respectively, and neither of them is syndicated.

We are required to meet certain financial covenants associated with our U.S. revolving line of credit and long-term debt facility. These covenants, tested quarterly, include a debt service coverage ratio and a funded debt to earnings before interest, taxes, depreciation and amortization ("EBITDA") ratio. The debt service coverage covenant requires that we maintain a trailing twelve month ratio of cash flow to debt service that is at least 1.5:1. Debt service is defined as required principal and interest payments during the period. Debt service in the calculation is decreased by our cash held in the U.S.A. in excess of $50 million up to a maximum of $250 million. Cash flow is defined as EBITDA less unfunded capital expenditures. The funded debt to EBITDA covenant requires that the sum of all indebtedness for borrowed money on a consolidated basis be less than three times our trailing twelve months EBITDA. We were in compliance with all such financial covenants as of and for the three months ended September 30, 2018.

The financial covenants in our loan documents may cause us to not make or to delay investments and actions that we might otherwise undertake because of limits on capital expenditures and amounts that we can borrow or lease. In the event that we do not comply with any one of these covenants, we would be in default under the loan agreement or loan agreements, which may result in acceleration of the debt, cross-defaults on other debt or a reduction in available liquidity, any of which could harm our results of operations and financial condition.

Operating activities. Net cash provided by operating activities decreased by $16.6 million to $280.3 million for the nine months ended September 30, 2018 from $296.9 million for the nine months ended September 30, 2017. Our largest working capital items are inventory and accounts receivable. Items such as accounts payable to third parties, prepaid expenses and other current assets and accrued expenses and other liabilities are not as significant as our working capital investment in accounts receivable and inventory because of the amount of value added within IPG due to our vertically integrated structure. Accruals and payables for personnel costs including bonuses and income and other taxes payable are largely dependent on the timing of payments for those items. The decreased cash flow from operating activities for the nine months ended September 30, 2018 primarily resulted from:

• An increase of $22.7 million in cash provided by net income after adding back non-cash charges to $438.9 million for the nine months ended September 30, 2018 as compared to $416.2 million for the same period in 2017;

• A decrease in the cash used for accounts receivable of $26.1 million for the nine months ended September 30, 2018 as compared to $56.4 million for the same period in 2017; and

• An increase in cash provided by income taxes. Cash provided by income and other taxes payable was $15.8 million for the nine months ended September 30, 2018 as compared to cash used for income and other taxes payable of $26.9 million for the same period in 2017; partially offset by

• An increase in the cash used for inventory. Cash used for inventory was $122.1 million for the nine months ended September 30, 2018 as compared to $39.7 million for the same period in 2017.

Given our vertical integration, rigorous and time-consuming testing procedures for both internally manufactured and externally purchased components and the lead time required to manufacture components used in our finished products, the rate at which we turn inventory has historically been comparatively low when compared to our cost of sales. Also, our historic growth rates required investment in inventories to support future sales and enable us to quote short delivery times to our customers, providing what we believe is a competitive advantage. Furthermore, if there was a disruption to the manufacturing capacity of any of our key technologies, our inventories of components should enable us to continue to build finished products for a period of time. We believe that we will continue to maintain a relatively high level of inventory compared to our cost of sales. As a result, we expect to have a significant amount of working capital invested in inventory. A reduction in our level of net sales or the rate of growth of our net sales from their current levels would mean that the rate at which we are able to convert our inventory into cash would decrease.

Investing activities. Net cash used in investing activities was $416.9 million for the nine months ended September 30, 2018 as compared to cash used in investing activities of $93.3 million in 2017. The cash used in investing activities in

2018 related to $133.4 million of capital expenditures and $280.2 million of net purchases of short-term and long-term investments.

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The cash used in investing activities in 2017 related to $99.2 million of capital expenditures, partially offset by $41.6 million of net proceeds from sales and maturities of short-term investments.

We expect to incur between $170 million and $190 million in 2018 in capital expenditures. Capital expenditures include investments in facilities and equipment to add capacity worldwide to support anticipated revenue growth. In 2018, we expect capital expenditures to increase as a percentage of revenue to support the growth of our business. The timing and extent of any capital expenditures in and between periods can have a significant effect on our cash flow. If we obtain financing for certain projects, our cash expenditures would be reduced in the year of expenditure. Many of the capital expenditure projects that we undertake have long lead times and are difficult to cancel or defer to a later period.

Financing activities. Net cash used in financing activities was $102.1 million for the nine months ended September 30, 2018 as compared to net cash provided of $5.2 million in 2017. The cash used in financing activities in 2018 was primarily related the purchase of treasury stock of $111.9 million, partially offset by proceeds of $12.1 million from the exercise of stock options and shares issued under our employee stock purchase plan. The cash provided by financing activities in 2017 was primarily related to the proceeds of $23.3 million from the exercise of stock options and shares issued under our employee stock purchase plan and net proceeds from long-term borrowings of $9.0 million, partially offset by the purchase of treasury stock of $26.9 million.

Cautionary Statement Regarding Forward-Looking Statements

This Quarterly Report on Form 10-Q contains certain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, and we intend that such forward-looking statements be subject to the safe harbors created thereby. For this purpose, any statements contained in this Quarterly Report on Form 10-Q except for historical information are forward-looking statements. Without limiting the generality of the foregoing, words such as "may," "will," "expect," "believe," "anticipate," "intend," "could," "estimate," or "continue" or the negative or other variations thereof or comparable terminology are intended to identify forward-looking statements. In addition, any statements that refer to projections of our future financial performance, trends in our businesses, or other characterizations of future events or circumstances are forward-looking statements.

The forward-looking statements included herein are based on current expectations of our management based on available information and involve a number of risks and uncertainties, all of which are difficult or impossible to accurately predict and many of which are beyond our control. As such, our actual results may differ significantly from those expressed in any forward-looking statements. Factors that may cause or contribute to such differences include, but are not limited to, those discussed in more detail in Item 1, "Business" and Item 1A, "Risk Factors" of Part I of our Annual Report on Form 10-K for the year ended December 31, 2017. Readers should carefully review these risks, as well as the additional risks described in other documents we file from time to time with the Securities and Exchange Commission. In light of the significant risks and uncertainties inherent in the forward-looking information included herein, the inclusion of such information should not be regarded as a representation by us or any other person that such results will be achieved, and readers are cautioned not to rely on such forward-looking information. We undertake no obligation to revise the forward-looking statements contained herein to reflect events or circumstances after the date hereof or to reflect the occurrence of unanticipated events.

Recent Accounting Pronouncements

See Note 2 in the Notes to Consolidated Financial Statements for a full description of recent accounting pronouncements, including the respective dates of adoption or expected adoption and effects on our consolidated financial statements contained in Item 1 of this Quarterly Report.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We are exposed to market risk in the ordinary course of business, which consists primarily of interest rate risk associated with our cash and cash equivalents and our debt and foreign exchange rate risk.

Interest rate risk. Certain interest rates are variable and fluctuate with current market conditions. Our investments have limited exposure to market risk. We maintain a portfolio of cash, cash equivalents and short-term investments, consisting primarily of bank deposits, money market funds, certificates of deposit, corporate bonds and government and agency securities. None of these investments have a maturity date in excess of one year. Because of the short-term nature of these instruments, a sudden change in market interest rates would not be expected to have a material impact on our financial condition or results of operations. We also have long-term investments in corporate notes with maturities between one and two years. Given the modest amount of our long-term investments totaling $14.6 million and the fact that we expect to hold these investments to

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maturity, we do not believe that a 10% change in market interest rates would have a material impact on our financial position or results of operations.

We are also exposed to market risk as a result of increases or decreases in the amount of interest expense we must pay on our bank debt and borrowings on our bank credit facilities. Our interest obligations on our long-term debt are fixed either by the underlying agreement or by means of an interest rate swap agreement. Although our U.S. revolving line of credit and our Euro credit facility have variable rates, we do not believe that a 10% change in market interest rates would have a material impact on our financial position or results of operations.

Exchange rates. Due to our international operations, a significant portion of our net sales, cost of sales and operating expenses are denominated in currencies other than the U.S. Dollar, principally the Euro, the Russian Ruble, the Chinese Yuan and the Japanese Yen. As a result, our international operations give rise to transactional market risk associated with exchange rate movements of the U.S. Dollar, the Euro, the Russian Ruble, the Chinese Yuan and the Japanese Yen. The loss on foreign exchange transactions totaled $1.7 million for the three months ended September 30, 2018 compared to the loss of $3.9 million for the three months ended September 30, 2017. Management attempts to minimize these exposures by partially or fully off-setting foreign currency denominated assets and liabilities at our subsidiaries that operate in different functional currencies. The effectiveness of this strategy can be limited by the volume of underlying transactions at various subsidiaries and by our ability to accelerate or delay inter-company cash settlements. As a result, we are unable to create a perfect offset of the foreign currency denominated assets and liabilities. At September 30, 2018, our material foreign currency exposure is net U.S. Dollar denominated assets at subsidiaries where the Euro or the Russian Ruble is the functional currency and U.S. Dollar denominated liabilities where the Chinese Yuan is the functional currency. The U.S. Dollar denominated assets are comprised of cash, third party receivables and inter-company receivables. The U.S. Dollar denominated liabilities are comprised of inter-company payables. A 5% change in the relative exchange rate of the U.S. Dollar to the Euro as of September 30, 2018 applied to the net U.S. Dollar asset balances, would result in a foreign exchange gain of $4.5 million if the U.S. Dollar appreciated and a $4.5 million foreign exchange loss if the U.S. Dollar depreciated. A 5% change in the relative exchange rate of the U.S. Dollar to the Chinese Yuan as of September 30, 2018 applied to the net U.S. Dollar liabilities balances, would result in a foreign exchange loss of $5.6 million if the U.S. Dollar appreciated and a $5.6 million foreign exchange gain if the U.S. Dollar depreciated.

In addition we are exposed to foreign currency translation risk for those subsidiaries whose functional currency is not the U.S. Dollar as changes in the value of their functional currency relative to the U.S. Dollar can adversely affect the translated amounts of our revenue, expenses, net income, assets and liabilities. This can, in turn, affect the reported value and relative growth of sales and net income from one period to the next. In addition changes in the translated value of assets and liabilities due to changes in functional currency exchange rates relative to the U.S. Dollar result in foreign currency translation adjustments that are a component of other comprehensive income or loss.

Foreign currency derivative instruments can also be used to hedge exposures and reduce the risks of certain foreign currency transactions; however, these instruments provide only limited protection and can carry significant cost. We have no foreign currency derivative instruments as of September 30, 2018. We will continue to analyze our exposure to currency exchange rate fluctuations and may engage in financial hedging techniques in the future to attempt to minimize the effect of these potential fluctuations. Exchange rate fluctuations may adversely affect our financial results in the future.

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ITEM 4. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Under the supervision of our chief executive officer and our chief financial officer, our management has evaluated the effectiveness of the design and operation of our "disclosure controls and procedures" (as defined in Rules 13a-15(e) and 15d-15(e) promulgated under the Securities Exchange Act of 1934, as amended (the "Exchange Act")), as of the end of the period covered by this Quarterly Report on Form 10-Q (the "Evaluation Date"). Based upon that evaluation, our chief executive officer and our chief financial officer have concluded that, as of the Evaluation Date, our disclosure controls and procedures are effective.

Changes in Internal Controls

There was no change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) promulgated under the Exchange Act) that occurred during the last fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

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PART II—OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

From time to time, we are party to various legal proceedings and other disputes incidental to our business. There have been no material developments to those proceedings reported in our Annual Report on Form 10-K for the year ended December 31, 2017.

ITEM 1A. RISK FACTORS

In addition to the other information set forth in this report, you should carefully consider the factors discussed in Part I, "Item 1A. Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2017, which could materially affect our business, financial condition or future results. The risks described in our Annual Report on Form 10-K and Quarterly Reports on Form 10-Q are not the only risks facing our Company. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial also may materially adversely affect our business, financial condition and/or operating results.

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

The following table reflects issuer purchases of equity securities for three months ended September 30, 2018.

Date	Total Number of Shares (or Units) Purchased		Average Price Paid per Share (or Unit)		Total Number of Shares (or Units) Purchased as Part of Publicly Announced Plans or Programs	Maximum Number (or Approximate Dollar Value) of Shares (or Units) that May Yet Be Purchased Under the Plans or Programs	
July 1, 2018 — July 31, 2018	295	(1),(2)	$	164.04	—	$	—
August 1, 2018 — August 31, 2018	197,443	(1),(2)	167.38		—	92,195	
September 1, 2018 — September 30, 2018	175,224	(1),(2)	160.12		—	64,139	
Total	372,962		$	163.97	—	$	64,139

(1) In 2012, our Board of Directors approved "withhold to cover" as a tax payment method for vesting of restricted stock awards for certain employees. Pursuant to the "withhold to cover" method, we withheld from such employees the shares noted in the table above to cover tax withholding related to the vesting of their awards. For the three months ended September 30, 2018 a total of 1,734 shares were withheld at an average price of $168.13.

(2) In July 2018, the Board of Directors authorized a new anti-dilutive share repurchase program (the "Program"). Under the Program, the Company's management is authorized to repurchase shares of common stock in an amount not to exceed the greater of (a) the number of shares issued to employees and directors under the Company's various employee and director equity compensation and employee stock purchase plans from January 1, 2018 through March 31, 2019 and (b) $125 million. For the three months ended September 30, 2018, the Company repurchased 371,228 shares of its common stock with an average price of $163.95 per share in the open market.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

None.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

ITEM 5. OTHER INFORMATION

None.

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ITEM 6. EXHIBITS

(a) Exhibits

Exhibit No.	Description
31.1	Certification of Chief Executive Officer pursuant to Rule 13a-14(a)
31.2	Certification of Chief Financial Officer pursuant to Rule 13a-14(a)
32	Certification of Chief Executive Officer and Chief Financial Officer pursuant to Section 1350
101.INS	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
101.CAL	XBRL Taxonomy Extension Calculation Linkbase
101.LAB	XBRL Taxonomy Extension Label Linkbase
101.PRE	XBRL Taxonomy

	Extension Presentation Linkbase
101.DEF	XBRL Taxonomy Extension Definition Linkbase

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SIGNATURES

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.

	IPG PHOTONICS CORPORATION	
Date: November 5, 2018	By:	/s/ Valentin P. Gapontsev
		Valentin P. Gapontsev
		Chairman and Chief Executive Officer(Principal Executive Officer)
Date: November 5, 2018	By:	/s/ Timothy P.V. Mammen
		Timothy P.V. MammenSenior Vice President and Chief Financial Officer(Principal Financial Officer)

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