UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549

FORM 10-Q

(MARK ONE)

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

For the quarterly period ended September 30, 2015

or

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

For the transition period from __________ to __________

Commission file number 0-23621

MKS INSTRUMENTS, INC.
(Exact name of registrant as specified in its charter)

Massachusetts **(State or other jurisdiction of incorporation or organization)**	**04-2277512** **(I.R.S. Employer Identification No.)**
2 Tech Drive, Suite 201, Andover, Massachusetts **(Address of principal executive offices)**	**01810** **(Zip Code)**

Registrant's telephone number, including area code (978) 645-5500

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

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

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

Large accelerated filer	☒	Accelerated filer	☐
Non-accelerated filer	☐ (Do not check if a smaller reporting company)	Smaller reporting company	☐

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

As of October 28, 2015, the registrant had 53,257,381 shares of common stock outstanding.

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PART I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS.

MKS INSTRUMENTS, INC.
CONSOLIDATED BALANCE SHEETS
(in thousands, except share and per share data)
(Unaudited)

	September 30, 2015	December 31, 2014
ASSETS		
Current assets:		
Cash and cash equivalents	$ 195,147	$ 305,437
Short-term investments	196,842	129,594
Trade accounts receivable, net	115,988	106,362
Inventories, net	168,079	155,169
Deferred income taxes	14,412	14,017
Other current assets	28,894	27,512
Total current assets	719,362	738,091
Property, plant and equipment, net	69,193	72,776
Long-term investments	240,908	157,201
Goodwill	199,562	192,381
Intangible assets, net	45,647	46,389
Other assets	18,673	17,206
Total assets	$ 1,293,345	$ 1,224,044
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 26,326	$ 34,166
Accrued compensation	29,172	26,970
Income taxes payable	9,279	6,702
Other current liabilities	42,835	35,789
Total current liabilities	107,612	103,627
Other liabilities	39,061	38,595
Commitments and contingencies (Note 18)		
Stockholders' equity:		
Preferred Stock, $0.01 par value per share, 2,000,000 shares authorized; none issued and outstanding	—	—
Common Stock, no par value, 200,000,000 shares authorized; 53,255,873 and 53,154,666 shares issued and outstanding at September 30, 2015 and December 31, 2014, respectively	113	113
Additional paid-in capital	741,423	734,732
Retained earnings	413,419	349,061
Accumulated other comprehensive loss	(8,283)	(2,084)
Total stockholders' equity	1,146,672	1,081,822
Total liabilities and stockholders' equity	$ 1,293,345	$ 1,224,044

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

MKS INSTRUMENTS, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
AND COMPREHENSIVE INCOME
(in thousands, except per share data)
(Unaudited)

	Three Months Ended September 30, 2015	Three Months Ended September 30, 2014	Nine Months Ended September 30, 2015	Nine Months Ended September 30, 2014
Net revenues:				
Products	$179,441	$158,520	$553,818	$497,172
Services	29,891	28,278	87,319	80,676
Total net revenues	209,332	186,798	641,137	577,848
Cost of revenues:				
Cost of products	95,710	89,181	294,211	276,905
Cost of services	19,393	18,292	56,853	52,611
Total cost of revenues (exclusive of amortization shown separately below)	115,103	107,473	351,064	329,516
Gross profit	94,229	79,325	290,073	248,332
Research and development	17,217	15,827	51,464	46,866
Selling, general and administrative	33,396	32,365	97,532	99,195
Acquisition costs	—	—	30	499
Restructuring	562	1,223	1,569	1,970
Amortization of intangible assets	1,691	1,760	5,071	3,214
Income from operations	41,363	28,150	134,407	96,588
Interest income	778	399	2,147	895
Interest expense	57	5	132	35
Income before income taxes	42,084	28,544	136,422	97,448
Provision (benefit) for income taxes	12,315	(573)	39,647	15,862
Net income	$ 29,769	$ 29,117	$ 96,775	$ 81,586
Other comprehensive income (loss):				
Changes in value of financial instruments designated as cash flow hedges, net of tax expense(1)	$ 939	$ 1,302	$ 2	$ 458
Foreign currency translation adjustments, net of tax of $0	(3,623)	(9,598)	(6,217)	(7,604)
Unrealized gain (loss) on investments, net of tax expense (benefit)(2)	100	(71)	16	(29)
Total comprehensive income	$ 27,185	$ 20,750	$ 90,576	$ 74,411
Net income per share:				
Basic	$ 0.56	$ 0.55	$ 1.82	$ 1.53
Diluted	$ 0.56	$ 0.55	$ 1.81	$ 1.52
Cash dividends per common share	$ 0.17	$ 0.165	$ 0.505	$ 0.49
Weighted average common shares outstanding:				
Basic	53,314	53,054	53,304	53,276
Diluted	53,568	53,310	53,562	53,541

(1) Tax expense was $548 and $671 for the three months ended September 30, 2015 and 2014, respectively. Tax expense was $20 and $134 for the nine months ended September 30, 2015 and 2014, respectively.

(2) Tax expense (benefit) was $59 and $(37) for the three months ended September 30, 2015 and 2014, respectively. Tax expense (benefit) was $221 and $(8) for the nine months ended September 30, 2015 and 2014, respectively.

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

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MKS INSTRUMENTS, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)
(Unaudited)

	Nine Months Ended September 30, 2015	2014
Cash flows from operating activities:		
Net income	$ 96,775	$ 81,586
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	16,606	14,757
Stock-based compensation	10,025	8,751
Provision for excess and obsolete inventory	9,235	8,707
Provision for bad debt	(358)	450
Deferred income taxes	(2,153)	474
Excess tax benefits from stock-based compensation	(884)	(416)
Other	248	24
Changes in operating assets and liabilities:		
Trade accounts receivable	(11,424)	9,252
Inventories	(25,219)	(14,476)
Income taxes	10,461	(24,865)
Other current assets	(7,935)	(3,064)
Accrued compensation	3,619	(14,079)
Other current and non-current liabilities	4,557	9,904
Accounts payable	(7,542)	(9,168)
Other assets	(441)	(137)
Net cash provided by operating activities	95,570	67,700
Cash flows from investing activities:		
Acquisition of businesses, net of cash acquired	(9,910)	(86,950)
Purchases of investments	(318,340)	(307,355)
Maturities of investments	131,004	211,385
Sales of investments	35,720	182,011
Proceeds from sale of property, plant and equipment	8	1,508
Purchases of property, plant and equipment	(8,831)	(9,362)
Other	—	53
Net cash used in investing activities	(170,349)	(8,710)
Cash flows from financing activities:		
Proceeds from short-term borrowings	2,020	—
Payments of short-term borrowings	(2,020)	—
Repurchase of common stock	(8,866)	(20,809)
Net payments related to employee stock awards	(800)	457
Dividend payments to common stockholders	(26,928)	(26,081)
Excess tax benefits from stock-based compensation	884	416
Net cash used in financing activities	(35,710)	(46,017)
Effect of exchange rate changes on cash and cash equivalents	199	(6,419)
(Decrease) increase in cash and cash equivalents	(110,290)	6,554
Cash and cash equivalents at beginning of period	305,437	288,902
Cash and cash equivalents at end of period	$ 195,147	$ 295,456

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

MKS INSTRUMENTS, INC.
NOTES TO UNAUDITED CONSOLIDATED FINANCIAL STATEMENTS
(in thousands, except share and per share data)

1) Basis of Presentation

The terms “MKS” and the “Company” refer to MKS Instruments, Inc. and its subsidiaries. The interim financial data as of September 30, 2015 and for the three and nine months ended September 30, 2015 and 2014 are unaudited; however, in the opinion of MKS, the interim data includes all adjustments, consisting of normal recurring adjustments, necessary for a fair statement of the results for the interim periods. The consolidated balance sheet presented as of December 31, 2014 has been derived from the audited consolidated financial statements as of that date. The unaudited consolidated financial statements presented herein have been prepared in accordance with the instructions to Form 10-Q and do not include all of the information and note disclosures required by United States generally accepted accounting principles (“U.S. GAAP”). The consolidated financial statements should be read in conjunction with the audited consolidated financial statements and notes thereto included in the MKS Annual Report on Form 10-K for the year ended December 31, 2014 filed with the Securities and Exchange Commission on February 25, 2015.

The preparation of these consolidated financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. On an on-going basis, management evaluates its estimates and judgments, including those related to revenue recognition, stock-based compensation, inventory, intangible assets, goodwill and other long-lived assets, acquisition expenses, income taxes and investments. Management bases its estimates and judgments on historical experience and on various other factors that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

Reclassifications

Certain prior year amounts have been reclassified to be consistent with current year classifications.

2) Recently Issued Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) No. 2014-09, “Revenue from Contracts with Customers (Topic 606),” which supersedes all existing revenue recognition requirements, including most industry-specific guidance. The new standard requires a company to recognize revenue when it transfers goods and services to customers in an amount that reflects the consideration that the company expects to be entitled to in exchange for those goods or services. This ASU also requires additional disclosure about the nature, amount, timing and uncertainty of revenue and cash flows arising from customer contracts, including significant judgments and assets recognized from costs incurred to obtain or fulfill a contract. This pronouncement is effective for annual reporting periods beginning after December 15, 2016, including interim periods within that reporting period. However, in March 2015, the FASB proposed a one-year deferral and, in July 2015, the FASB agreed to defer by one year the mandatory effective date of its revenue recognition standard, but will also provide entities the option to adopt it as of the original effective date. The two permitted transition methods under the new standard are the full retrospective method, in which case the standard would be applied to each prior reporting period presented, or the modified retrospective method, in which case the cumulative effect of applying the standard would be recognized at the date of initial application. The Company has not yet selected a transition method. The Company is currently evaluating the requirements of ASU No. 2014-09 and has not yet determined its impact on the Company’s consolidated financial statements.

In August 2014, the FASB issued ASU No. 2014-15, “Presentation of Financial Statements—Going Concern (Subtopic 205-40): Disclosure of Uncertainties about an Entity’s Ability to Continue as a Going Concern.” Under this ASU, management will be required to assess an entity’s ability to continue as a going concern, and to provide related footnote disclosures in certain circumstances. The provisions of this ASU are effective for annual periods beginning after December 15, 2016, and for annual and interim periods thereafter. This ASU is not expected to have an impact on the Company’s financial statements or disclosures.

(in thousands, except share and per share data)

3) Investments

The fair value of short-term investments with maturities or estimated lives of one year or less consists of the following:

	September 30, 2015	December 31, 2014
Available-for-sale investments:		
Time deposits and certificates of deposit	$ 21,152	$ 20,900
Bankers' acceptance drafts	266	82
Commercial paper	1,446	—
Corporate obligations	75,433	24,020
Municipal bonds	4,959	2,099
U.S. agency obligations	93,586	82,493
	$ 196,842	$ 129,594

The fair value of long-term investments with maturities of more than one year consists of the following:

	September 30, 2015	December 31, 2014
Available-for-sale investments:		
Time deposits and certificates of deposit	$ —	$ 48
Asset-backed securities	134,917	75,674
Corporate obligations	93,990	64,669
Municipal bonds	3,422	1,254
U.S. agency obligations	8,579	15,556
	$ 240,908	$ 157,201

MKS INSTRUMENTS, INC.
NOTES TO UNAUDITED CONSOLIDATED FINANCIAL STATEMENTS – (continued)
(in thousands, except share and per share data)

The following tables show the gross unrealized gains and (losses) aggregated by investment category for short-term and long-term available-for-sale investments:

As of September 30, 2015:	Cost	Gross Unrealized Gains	Gross Unrealized (Losses)	Estimated Fair Value
Short-term investments:				
Time deposits and certificates of deposit	$ 21,152	$ —	$ —	$ 21,152
Bankers' acceptance drafts	266	—	—	266
Commercial paper	1,446	—	—	1,446
Corporate obligations	75,448	9	(24)	75,433
Municipal bonds	4,953	6	—	4,959
U.S. agency obligations	93,558	36	(8)	93,586
	$196,823	$ 51	$ (32)	$196,842
Long-term investments:				
Asset-backed securities	$134,914	$ 71	$ (68)	$134,917
Corporate obligations	94,131	39	(180)	93,990
Municipal bonds	3,400	27	(5)	3,422
U.S. agency obligations	8,576	3	—	8,579
	$241,021	$ 140	$ (253)	$240,908

As of December 31, 2014:	Cost	Gross Unrealized Gains	Gross Unrealized (Losses)	Estimated Fair Value
Short-term investments:				
Time deposits and certificates of deposit	$ 20,901	$ —	$ (1)	$ 20,900
Bankers' acceptance drafts	82	—	—	82
Corporate obligations	24,029	2	(11)	24,020
Municipal bonds	2,100	—	(1)	2,099
U.S. agency obligations	82,488	14	(9)	82,493
	$129,600	$ 16	$ (22)	$129,594
Long-term investments:				
Time deposits and certificates of deposit	$ 48	$ —	$ —	$ 48
Asset-backed securities	75,778	5	(109)	75,674
Corporate obligations	64,842	1	(174)	64,669
Municipal bonds	1,258	—	(4)	1,254
U.S. agency obligations	15,563	2	(9)	15,556
	$157,489	$ 8	$ (296)	$157,201

Interest income is accrued as earned. Dividend income is recognized as income on the date the stock trades "ex-dividend." The cost of marketable securities sold is determined by the specific identification method. Realized gains or (losses) are reflected in income and were immaterial for both the three and nine months ended September 30, 2015 and 2014.

In accordance with the Company's investment policy, no security shall have a maturity or average life longer than three years. The average duration of the portfolio shall be no more than one year. Corporate securities must have ratings of A3/A- or better. Asset-backed securities must be rated AAA. Short-term ratings of A-2/P2/F2 or higher are also permitted. With respect to compliance with these investment guidelines, the rating agencies include Moody's Investor Service, Standard & Poor's and Fitch Investor Service. The middle of Moody's, Standard & Poor's and Fitch rating shall be used to determine compliance with credit quality guidelines. If a security is rated by two rating agencies, the lower rating will apply. If only one rating exists, that rating shall be used.

4) Fair Value Measurements

In accordance with the provisions of fair value accounting, a fair value measurement assumes that the transaction to sell an asset or transfer a liability occurs in the principal market for the asset or liability or, in the absence of a principal market, the most advantageous market for the asset or liability and defines fair value based upon an exit price model.

The fair value measurement guidance establishes a fair value hierarchy which requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. The guidance describes three levels of inputs that may be used to measure fair value:

Level 1 Quoted prices in active markets for identical assets or liabilities assessed as of the reporting date. Active markets are those in which transactions for the asset or liability occur in sufficient frequency and volume to provide pricing information on an ongoing basis.

Level 2 Observable inputs other than Level 1 prices, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities. Level 2 assets and liabilities include debt securities with quoted prices that are traded less frequently than exchange-traded instruments or securities or derivative contracts that are valued using a pricing model with inputs that are observable in the market or can be derived principally from or corroborated by observable market data.

Level 3 Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities. Level 3 assets and liabilities include financial instruments whose value is determined using pricing models, discounted cash flow methodologies, or similar techniques, as well as instruments for which the determination of fair value requires significant management judgment or estimation.

In certain cases, the inputs used to measure fair value may fall into different levels of the fair value hierarchy. In such cases, the Company categorizes such assets and liabilities based on the lowest level input that is significant to the fair value measurement in its entirety. The Company’s assessment of the significance of a particular input to the fair value measurement in its entirety requires judgment and considers factors specific to the asset or liability.

MKS INSTRUMENTS, INC.
NOTES TO UNAUDITED CONSOLIDATED FINANCIAL STATEMENTS – (continued)
(in thousands, except share and per share data)

Assets and liabilities of the Company are measured at fair value on a recurring basis as of September 30, 2015 and are summarized as follows:

		Fair Value Measurements at Reporting Date Using		
Description	September 30, 2015	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets:				
Cash equivalents:				
Money market funds	$ 100,637	$ 100,637	$ —	$ —
Bankers' acceptance drafts	90	—	90	—
Available-for-sale investments:				
Bankers' acceptance drafts	266	—	266	—
Time deposits and certificates of deposit	21,152	—	21,152	—
Commercial paper	1,446	—	1,446	—
Asset-backed securities	134,917	—	134,917	—
Corporate obligations	169,423	—	169,423	—
Municipal bonds	8,381	—	8,381	—
U.S. agency obligations	102,165	—	102,165	—
Derivatives – currency forward contracts	2,185	—	2,185	—
Total assets	$ 540,662	$ 100,637	$ 440,025	$ —
Liabilities:				
Derivatives – currency forward contracts	$ 307	$ —	$ 307	$ —
Reported as follows:				
Assets:				
Cash and cash equivalents(1)	$ 100,727	$ 100,637	$ 90	$ —
Short-term investments	196,842	—	196,842	—
Other current assets	2,185	—	2,185	—
Total current assets	$ 299,754	$ 100,637	$ 199,117	$ —
Long-term investments	$ 240,908	$ —	$ 240,908	$ —
Liabilities:				
Other current liabilities	$ 307	$ —	$ 307	$ —

(1) The cash and cash equivalent amounts presented in the table above do not include cash of $93,429 and non-negotiable time deposits of $991 as of September 30, 2015.

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MKS INSTRUMENTS, INC.
NOTES TO UNAUDITED CONSOLIDATED FINANCIAL STATEMENTS – (continued)
(in thousands, except share and per share data)

Assets and liabilities of the Company measured at fair value on a recurring basis as of December 31, 2014, are summarized as follows:

		Fair Value Measurements at Reporting Date Using		
Description	December 31, 2014	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets:				
Cash equivalents:				
Money market funds	$ 129,092	$ 129,092	$ —	$ —
Bankers' acceptance drafts	131	—	131	—
Corporate obligations	700	—	700	—
Available-for-sale investments:				
Time deposits and certificates of deposit	20,948	—	20,948	—
Asset-backed securities	75,674	—	75,674	—
Bankers' acceptance drafts	82	—	82	—
Corporate obligations	88,689	—	88,689	—
Municipal bonds	3,353	—	3,353	—
U.S. agency obligations	98,049	—	98,049	—
Derivatives – currency forward contracts	2,110	—	2,110	—
Total assets	$ 418,828	$ 129,092	$ 289,736	$ —
Reported as follows:				
Assets:				
Cash and cash equivalents(1)	$ 129,923	$ 129,092	$ 831	$ —
Short-term investments	129,594	—	129,594	—
Other current assets	2,110	—	2,110	—
Total current assets	$ 261,627	$ 129,092	$ 132,535	$ —
Long-term investments	$ 157,201	$ —	$ 157,201	$ —

(1) The cash and cash equivalent amounts presented in the table above do not include cash of $167,517 and non-negotiable time deposits of $7,997 as of December 31, 2014.

Money Market Funds

Money market funds are cash and cash equivalents and are classified within Level 1 of the fair value hierarchy.

Bankers' Acceptance Drafts

Bankers' acceptance drafts are short-term credit investments created by a non-financial firm and guaranteed by a bank. These drafts are often traded at a discount from face value and may be traded on a secondary market.

Available-For-Sale Investments

As of September 30, 2015 and December 31, 2014, available-for-sale investments consisted of time deposits and drafts denominated in the Euro currency, certificates of deposit, commercial paper, asset-backed securities (which include auto loans, credit card receivables and equipment trust receivables), bankers' acceptance drafts, corporate obligations, municipal bonds and U.S. agency obligations. The Company measures its debt and equity investments at fair value.

Derivatives

As a result of the Company's global operating activities, the Company is exposed to market risks from changes in foreign currency exchange rates, which may adversely affect its operating results and financial position. When deemed appropriate, the Company minimizes its risks from foreign currency exchange rate fluctuations through the use of derivative financial instruments. The principal market in which the Company executes its foreign currency contracts is the institutional market in an over-the-counter environment with a relatively high level of price transparency. The market participants usually are large commercial banks. The forward foreign currency exchange contracts are valued using broker quotations, or market transactions and are classified within Level 2 of the fair value hierarchy.

5) Derivatives

The Company enters into derivative instruments for risk management purposes only, including derivatives designated as hedging instruments and those utilized as economic hedges. The Company operates internationally and, in the normal course of business, is exposed to fluctuations in interest rates and foreign exchange rates. These fluctuations can increase the costs of financing, investing and operating the business. The Company has used derivative instruments, such as forward contracts, to manage certain foreign currency exposure.

By nature, all financial instruments involve market and credit risks. The Company enters into derivative instruments with major investment grade financial institutions, for which no collateral is required. The Company has policies to monitor the credit risk of these counterparties. While there can be no assurance, the Company does not anticipate any material non-performance by any of these counterparties.

The Company hedges a portion of its forecasted foreign currency-denominated intercompany sales of inventory, over a maximum period of eighteen months, using forward foreign exchange contracts accounted for as cash-flow hedges related to Japanese, South Korean, British, Euro and Taiwanese currencies. To the extent these derivatives are effective in off-setting the variability of the hedged cash flows, and otherwise meet the hedge accounting criteria, changes in the derivatives' fair value are not included in current earnings but are included in other comprehensive income (loss) ("OCI") in stockholders' equity. These changes in fair value will subsequently be reclassified into earnings, as applicable, when the forecasted transaction occurs. To the extent that a previously designated hedging transaction is no longer an effective hedge, any ineffectiveness measured in the hedging relationship is recorded currently in earnings in the period it occurs. The cash flows resulting from forward exchange contracts are classified in the consolidated statements of cash flows as part of cash flows from operating activities. The Company does not enter into derivative instruments for trading or speculative purposes.

To the extent the hedge accounting criteria is not met, the related foreign currency forward contracts are considered as economic hedges and changes in the fair value of these contracts are recorded immediately in earnings in the period in which they occur. These include hedges that are used to reduce exchange rate risks arising from the change in fair value of certain foreign currency- denominated assets and liabilities (i.e., payables, receivables) and other economic hedges where the hedge accounting criteria were not met.

MKS INSTRUMENTS, INC.
NOTES TO UNAUDITED CONSOLIDATED FINANCIAL STATEMENTS – (continued)
(in thousands, except share and per share data)

As of September 30, 2015 and December 31, 2014, the Company had outstanding forward foreign exchange contracts with gross notional values of $58,457 and $28,650, respectively. The following tables provide a summary of the primary net hedging positions and corresponding fair values held as of September 30, 2015 and December 31, 2014:

	September 30, 2015	
Currency Hedged (Buy/Sell)	Gross Notional Value	Fair Value(1) Asset/(Liability)
U.S. Dollar/Japanese Yen	$ 18,089	$ (198)
U.S. Dollar/South Korean Won	26,614	1,660
U.S. Dollar/Euro	3,782	(44)
U.S. Dollar/U.K. Pound Sterling	2,527	15
U.S. Dollar/Taiwan Dollar	7,445	445
Total	$ 58,457	$ 1,878

(1) Represents the fair value of the net asset / (liability) amount included in the consolidated balance sheet.

	December 31, 2014	
Currency Hedged (Buy/Sell)	Gross Notional Value	Fair Value(1) Asset
U.S. Dollar/Japanese Yen	$ 8,035	$ 1,107
U.S. Dollar/South Korean Won	12,512	372
U.S. Dollar/Euro	2,060	185
U.S. Dollar/U.K. Pound Sterling	1,308	70
U.S. Dollar/Taiwan Dollar	4,735	232
Total	$ 28,650	$ 1,966

(1) Represents the fair value of the net asset amount included in the consolidated balance sheet.

The following table provides a summary of the fair value amounts of the Company's derivative instruments:

	September 30, 2015	December 31, 2014
Derivative assets:		
Forward exchange contracts	$ 2,185	$ 1,966
Derivative liabilities:		
Forward exchange contracts	(307)	—
Total net derivative asset designated as hedging instruments(1)	$ 1,878	$ 1,966

(1) The derivative asset of $2,185 and derivative liability of $307 are classified in other current assets and other current liabilities in the consolidated balance sheet as of September 30, 2015. The derivative asset of $1,966 is classified in other current assets in the consolidated balance sheet as of December 31, 2014. These foreign exchange contracts are subject to a master netting agreement with one financial institution. However, the Company has elected to record these contracts on a gross basis in the balance sheet.

The net amount of existing gains or losses as of September 30, 2015 that the Company expects to reclassify from accumulated OCI into earnings within the next twelve months is immaterial.

MKS INSTRUMENTS, INC.
NOTES TO UNAUDITED CONSOLIDATED FINANCIAL STATEMENTS – (continued)
(in thousands, except share and per share data)

The following table provides a summary of the gains (losses) on derivatives designated as hedging instruments:

Derivatives Designated as Cash Flow Hedging Instruments	Three Months Ended September 30, 2015	Three Months Ended September 30, 2014	Nine Months Ended September 30, 2015	Nine Months Ended September 30, 2014
Forward exchange contracts:				
Net gain (loss) recognized in OCI(1)	$1,148	$ 2,071	$(2,372)	$ 689
Net gain (loss) reclassified from accumulated OCI into income(2)	$ 857	$ (352)	$ 2,766	$(145)

(1) Net change in the fair value of the effective portion classified in OCI.
(2) Effective portion classified in cost of products for the three and nine months ended September 30, 2015 and 2014. The tax effect of the gains or losses reclassified from accumulated OCI into income is immaterial.

The following table provides a summary of gains (losses) on derivatives not designated as hedging instruments:

Derivatives Not Designated as Hedging Instruments	Three Months Ended September 30, 2015	Three Months Ended September 30, 2014	Nine Months Ended September 30, 2015	Nine Months Ended September 30, 2014
Forward exchange contracts:				
Net gain (loss) recognized in income(1)	$ 116	$ (70)	$1,331	$ (168)

(1) The Company enters into foreign exchange contracts to hedge against changes in the balance sheet for certain subsidiaries. These derivatives are not designated as hedging instruments and gains or losses from these derivatives are recorded immediately in selling, general and administrative expenses.

6) Inventories

Inventories consist of the following:

	September 30, 2015	December 31, 2014
Raw materials	$ 85,313	$ 81,121
Work-in-process	25,662	26,604
Finished goods	57,104	47,444
	$ 168,079	$ 155,169

7) Acquisitions

Precisive, LLC

On March 17, 2015, the Company acquired 100% of Precisive, LLC ("Precisive") for $12,085, net of cash acquired of $435. The purchase price includes a deferred payment amount of $2,600 to cover any potential indemnification claims, which amount will be paid to the sellers after 15 months assuming there are no indemnification claims. Precisive is an innovative developer of optical analyzers based on Tunable Filter Spectroscopy, which provide real-time gas analysis in the natural gas and hydrocarbon processing industries, including refineries, hydrocarbon processing plants, gas-to-power machines, biogas processes and fuel gas transportation and metering, while delivering customers a lower total cost of ownership.

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

Current assets	$ 693
Non-current assets	18
Intangible assets	5,110
Goodwill	7,042
Total assets acquired	12,863
Total current liabilities assumed	(343)
Fair value of assets acquired and liabilities assumed	12,520
Less cash acquired	(435)
Total purchase price, net of cash acquired	$12,085

The entire purchase price is deductible for tax purposes. The following table reflects the allocation of the acquired intangible assets and related estimates of useful lives. These acquired intangibles will be amortized on a straight-line basis, which approximates the pattern of use.

Order backlog	$ 50	18 months
Customer relationships	1,430	8 years
Exclusive patent license	2,600	10 years
Trade names	210	10 years
Developed technology	820	10 years
	$5,110	

The fair value of the acquired intangibles was determined using the income approach. This acquisition resulted in a purchase price that exceeded the estimated fair value of tangible and intangible assets, the excess amount of which was allocated to goodwill. The Company believes the amount of goodwill relative to identifiable intangible assets relates to several factors including: (1) potential buyer-specific synergies related to market opportunities for a combined product offering; (2) potential to leverage the Company’s sales force and intellectual property to attract new customers and revenue; and (3) potential to strengthen and expand into new but complementary markets, including targeting new applications such as natural gas processing, hydrocarbon processing and other oil and gas segments.

The results of this acquisition were included in the Company’s consolidated operations beginning on March 17, 2015. The pro forma consolidated statements reflecting the operating results of Precisive, had it been acquired January 1, 2014, would not differ materially from the operating results of the Company as reported for the three and nine months ended September 30, 2015. Precisive is included in the Company’s Instruments, Control and Vacuum Products group and the Advanced Manufacturing Capital Equipment reportable segment. The revenue and net earnings from Precisive, since the date of acquisition through the period ended September 30, 2015, were immaterial.

Granville-Phillips

On May 30, 2014, the Company acquired Granville-Phillips (“GP”), a division of Brooks Automation, Inc., for $86,950. GP is a leading global provider of vacuum measurement and control instruments to the semiconductor, thin film and general industrial markets. The acquisition aligned with the Company’s strategy to grow its semiconductor business, while diversifying into other high growth advanced markets.

(in thousands, except share and per share data)

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

Inventory	$ 5,198
Property and equipment	299
Other assets	191
Intangible assets	38,850
Goodwill	42,587
Warranty liability	(175)
Total purchase price	$86,950

The entire purchase price was deductible for tax purposes. The following table reflects the allocation of the acquired intangible assets and related estimates of useful lives. These acquired intangibles are being amortized on a straight-line basis.

Customer relationships	$21,250	7 years
Trademark and trade names	1,900	12 years
Developed technology	15,700	9-12 years
	$38,850	

This acquisition resulted in a purchase price that exceeded the estimated fair value of tangible and intangible assets, the excess amount of which was allocated to goodwill. The Company believes that the amount of goodwill relative to identifiable intangible assets relates to several factors including: (1) potential buyer-specific synergies related to market opportunities for a combined product offering; (2) potential to leverage the Company's sales force and intellectual property to attract new customers and revenue and (3) potential to strengthen the Company's position in the vacuum gauge market.

The results of this acquisition were included in the Company's consolidated operations beginning on May 30, 2014. The pro forma consolidated statements reflecting the operating results of GP, had it been acquired as of January 1, 2013, would not differ materially from the operating results of the Company as reported for the year ended December 31, 2014. GP is included in the Company's Instruments, Control and Vacuum Products group and the Advanced Manufacturing Capital Equipment reportable segment.

8) Goodwill and Intangible Assets

Goodwill

The Company's methodology for allocating the purchase price relating to purchase acquisitions is determined through established and generally accepted valuation techniques. Goodwill is measured as the excess of the cost of the acquisition over the sum of the amounts assigned to tangible and identifiable intangible assets acquired less liabilities assumed. The Company assigns assets acquired (including goodwill) and liabilities assumed to one or more reporting units as of the date of acquisition. Typically acquisitions relate to a single reporting unit and thus do not require the allocation of goodwill to multiple reporting units. If the products obtained in an acquisition are assigned to multiple reporting units, the goodwill is distributed to the respective reporting units as part of the purchase price allocation process.

Goodwill and purchased intangible assets with indefinite useful lives are not amortized, but are reviewed for impairment annually during the fourth quarter of each fiscal year and whenever events or changes in circumstances indicate that the carrying value of an asset may not be recoverable. The process of evaluating the potential impairment of goodwill and intangible assets requires significant judgment. The Company regularly monitors current business conditions and other factors including, but not limited to, adverse industry or economic trends, restructuring actions and lower projections of profitability that may impact future operating results.

(in thousands, except share and per share data)

The changes in the carrying amount of goodwill and accumulated impairment (loss) during the nine months ended September 30, 2015 and year ended December 31, 2014 were as follows:

	Nine Months Ended September 30, 2015			Twelve Months Ended December 31, 2014		
	Gross Carrying Amount	Accumulated Impairment (Loss)	Net	Gross Carrying Amount	Accumulated Impairment (Loss)	Net
Beginning balance at January 1	$331,795	$ (139,414)	$192,381	$290,323	$ (139,414)	$150,909
Acquired goodwill(1)	8,017	—	8,017	41,993	—	41,993
Foreign currency translation	(836)	—	(836)	(521)	—	(521)
Ending balance at September 30, 2015 and December 31, 2014	$338,976	$ (139,414)	$199,562	$331,795	$ (139,414)	$192,381

(1) During 2015, the Company recorded $7,042 of goodwill related to the acquisition of Precisive. During the second quarter of 2015, the Company recorded a purchase accounting adjustment of $975 primarily related to an inventory valuation adjustment related to the acquisition of GP. During the second quarter of 2014, the Company recorded $41,612 of goodwill related to the acquisition of GP. During the first quarter of 2014, the Company recorded a purchase accounting adjustment of $381 related to the March 12, 2013 purchase of Alter S.r.l.

Intangible Assets

Components of the Company’s intangible assets are comprised of the following:

As of September 30, 2015:	Gross	Accumulated Amortization	Foreign Currency Translation	Net
Completed technology(1)	$101,200	$ (81,715)	$ (286)	$19,199
Customer relationships(1)	37,251	(15,435)	(49)	21,767
Patents, trademarks, trade names and other(1)	30,396	(25,720)	5	4,681
	$168,847	$ (122,870)	$ (330)	$45,647

(1) During the three months ended March 31, 2015, the Company recorded $5,110 of separately identified intangible assets related to the acquisition of Precisive, of which $820 was completed technology, $1,430 was customer relationships and $2,860 was patents, trademarks, trade names and other.

As of December 31, 2014:	Gross	Accumulated Amortization	Foreign Currency Translation	Net
Completed technology(1)	$100,380	$ (79,875)	$ 135	$20,640
Customer relationships(1)	35,821	(12,634)	280	23,467
Patents, trademarks, trade names and other(1)	27,536	(25,290)	36	2,282
	$163,737	$ (117,799)	$ 451	$46,389

(1) During 2014, the Company recorded $38,850 of separately identified intangible assets related to the acquisition of GP, of which $15,700 was completed technology, $21,250 was customer relationships and $1,900 was patents, trademarks, trade names and other.

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Aggregate amortization expense related to acquired intangibles for the three and nine months ended September 30, 2015 was $1,691 and $5,071, respectively. Aggregate amortization expense related to acquired intangibles for the three and nine months ended September 30, 2014 was $1,760 and $3,214, respectively. Estimated amortization expense for each of the remaining fiscal years is as follows:

Year	Amount
2015 (remaining)	$ 1,686
2016	6,632
2017	6,551
2018	6,536
2019	6,494
2020	6,440
Thereafter	11,308

9) Other Assets

	September 30, 2015	December 31, 2014
Other Current Assets:		
Prepaid income tax	$ 6,505	$ 4,698
VAT receivable	4,011	3,417
Income tax receivable	3,665	10,322
Other	14,713	9,075
Total other current assets	$ 28,894	$ 27,512
Other Assets:		
Deferred tax assets, net	$ 8,042	$ 7,202
Long-term income tax receivable	8,341	8,092
Other	2,290	1,912
Total other assets	$ 18,673	$ 17,206

10) Other Liabilities

	September 30, 2015	December 31, 2014
Other Current Liabilities:		
VAT payable	$ 6,766	$ 3,483
Customer prepayments	4,127	2,746
Product warranties	5,837	6,266
Deferred revenue	5,812	8,283
Other	20,293	15,011
Total other current liabilities	$ 42,835	$ 35,789
Other Liabilities:		
Long-term income tax payable	$ 20,817	$ 20,203
Accrued compensation	13,067	12,068
Other	5,177	6,324
Total other liabilities	$ 39,061	$ 38,595

11) Debt

The Company's Japanese subsidiary has lines of credit and short-term borrowing arrangements with two financial institutions which arrangements generally expire and are renewed at three month intervals. The lines of credit provided for aggregate borrowings as of September 30, 2015 of up to an equivalent of $19,208 U.S. dollars. One of the borrowing arrangements has an interest rate based on the Tokyo Interbank Offer Rate at the time of borrowing and the other has an interest rate based on the Japanese Short-term Prime Lending Rate. There were no borrowings outstanding under these arrangements at September 30, 2015 and December 31, 2014.

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12) Product Warranties

The Company records the estimated costs to fulfill customer warranty obligations upon the recognition of the related revenue. While the Company engages in extensive product quality programs and processes, including actively monitoring and evaluating the quality of its component suppliers, the Company's warranty obligation is affected by shipment volume, product failure rates, utilization levels, material usage, and supplier warranties on parts delivered to the Company. Should actual product failure rates, utilization levels, material usage, or supplier warranties on parts differ from the Company's estimates, revisions to the estimated warranty liability would be required. The product warranty liability is included in other current liabilities in the consolidated balance sheets.

Product warranty activities were as follows:

	Nine Months Ended September 30, 2015	2014
Beginning of period	$ 6,266	$ 6,956
Provision for product warranties	3,527	1,880
Direct charges to warranty liability	(3,859)	(2,119)
Foreign currency translation	(97)	(28)
End of period	$ 5,837	$ 6,689

13) Income Taxes

The Company's effective tax rate for the three and nine months ended September 30, 2015 was 29.3% and 29.1%, respectively. The effective tax rate for the three and nine months ended September 30, 2015 was lower than the U.S. statutory tax rate primarily due to the geographic mix of income and profits earned by the Company's international subsidiaries being taxed at rates lower than the U.S. statutory tax rate and the deduction for domestic production activities. The Company's effective tax rate for the three and nine months ended September 30, 2014 was (2.0)% and 16.3%, respectively. The effective tax rate for the three and nine months ended September 30, 2014 was lower than the U.S. statutory tax rate primarily due to the discrete release of income tax reserves related to the effective settlement of foreign tax examinations in the first and third quarters of 2014. The effective tax rate for the three and nine months ended September 30, 2014 also benefited from a third quarter discrete release of income tax reserves related to the expiration of the statute of limitations for a previously open tax year and a third quarter discrete benefit resulting from foreign tax credits recognized on the payment of a dividend from a foreign subsidiary. The geographic mix of income and profits earned by the Company's international subsidiaries being taxed at rates lower than the U.S. statutory tax rate and the deduction for domestic production activities also had an impact in reducing the effective tax rate in the three and nine months ended September 30, 2014.

As of September 30, 2015, the total amount of gross unrecognized tax benefits, which excludes interest and penalties, was approximately $19,699. At December 31, 2014, the total amount of gross unrecognized tax benefits, which excludes interest and penalties, was approximately $19,610. The net increase from December 31, 2014 was primarily attributable to an increase in the reserve for domestic production activities. As of September 30, 2015, if these benefits were recognized in a future period, the timing of which is not estimable, the net unrecognized tax benefit of $11,714, excluding interest and penalties, would impact the Company's effective tax rate. The Company accrues interest expense, and if applicable, penalties, for any uncertain tax positions. Interest and penalties are classified as a component of income tax expense. As of September 30, 2015 and December 31, 2014, the Company had accrued interest on unrecognized tax benefits of approximately $763 and $578, respectively.

Over the next 12 months it is reasonably possible that the Company may recognize approximately $950 of previously net unrecognized tax benefits related to various U.S. federal, state and foreign tax positions primarily as a result of the expiration of certain statutes of limitations.

The Company and its subsidiaries are subject to examination by federal, state and foreign tax authorities. The Internal Revenue Service commenced an examination of the Company's U.S. federal tax filings for tax years 2011 through 2013 during the quarter ended March 31, 2015. As a result, the U.S. statute of limitations remains open between tax years 2011 through present. However, carryforward amounts from prior years may still be adjusted upon examination by tax authorities if they are used in a future period. The statute of limitations for the Company's tax filings in other jurisdictions varies between fiscal years 2008 through the present.

(in thousands, except share and per share data)

14) Net Income Per Share

The following table sets forth the computation of basic and diluted net income per share:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2015	2014	2015	2014
Numerator:				
Net income	$ 29,769	$ 29,117	$ 96,775	$ 81,586
Denominator:				
Shares used in net income per common share – basic	53,314,000	53,054,000	53,304,000	53,276,000
Effect of dilutive securities:				
Stock options, restricted stock and employee stock purchase plan	254,000	256,000	258,000	265,000
Shares used in net income per common share – diluted	53,568,000	53,310,000	53,562,000	53,541,000
Net income per common share:				
Basic	$ 0.56	$ 0.55	$ 1.82	$ 1.53
Diluted	$ 0.56	$ 0.55	$ 1.81	$ 1.52

Basic earnings per share (“EPS”) is computed by dividing income available to common stockholders by the weighted-average number of common shares outstanding during the period. The computation of diluted EPS is similar to the computation of basic EPS except that the denominator is increased to include the number of additional common shares that would have been outstanding (using the treasury stock method) if securities containing potentially dilutive common shares (stock options and restricted stock units) had been converted to such common shares, and if such assumed conversion is dilutive.

As of September 30, 2015, stock options and restricted stock units related to an aggregate of approximately 752,000 shares were outstanding. For the three and nine months ended September 30, 2015, there were no shares of restricted stock units and stock options that were excluded from the computation of diluted weighted-average shares outstanding that would have had an anti-dilutive effect on EPS.

As of September 30, 2014, stock options and restricted stock units related to an aggregate of approximately 769,000 shares were outstanding. For the three and nine months ended September 30, 2014, the potential dilutive effect of approximately 64 and 534 weighted-average shares, respectively, of restricted stock units and stock options were excluded from the computation of diluted weighted-average shares outstanding as the shares would have had an anti-dilutive effect on EPS.

15) Stockholder’s Equity

Stock Repurchase Program

On July 25, 2011, the Company’s Board of Directors approved a share repurchase program for the repurchase of up to an aggregate of $200,000 of its outstanding common stock from time to time in open market purchases, privately negotiated transactions or through other appropriate means. The timing and quantity of any shares repurchased depends upon a variety of factors, including business conditions, stock market conditions and business development activities, including, but not limited to, merger and acquisition opportunities. These repurchases may be commenced, suspended or discontinued at any time without prior notice.

During the nine months ended September 30, 2015, the Company repurchased approximately 244,000 shares of its common stock for $8,866, or an average price of $36.32 per share. During the nine months ended September 30, 2014, the Company repurchased approximately 728,000 shares of its common stock for $20,809, or an average price of $28.59 per share.

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Cash Dividends

Holders of the Company's common stock are entitled to receive dividends when they are declared by the Company's Board of Directors. During the nine months ended September 30, 2015, the Company's Board of Directors declared a cash dividend of $0.165 per share in the first quarter of 2015 and a cash dividend of $0.17 per share in the second and third quarters of 2015, which dividends totaled $26,928. During the nine months ended September 30, 2014, the Board of Directors authorized a cash dividend of $0.16 per share during the first quarter of 2014 and a cash dividend of $0.165 during the second and third quarters of 2014, which dividends totaled $26,081.

On October 26, 2015, our Board of Directors declared a quarterly cash dividend of $0.17 per share to be paid on December 11, 2015 to shareholders of record as of November 30, 2015. Future dividend declarations, if any, as well as the record and payment dates for such dividends, are subject to the final determination of the Company's Board of Directors.

16) Business Segment, Geographic Area, Product and Significant Customer Information

The Company develops, manufactures, sells and services products that measure, control, power and monitor critical parameters of advanced manufacturing processes. The Company's Chief Operating Decision Maker ("CODM") utilizes consolidated financial information to make decisions about allocating resources and assessing performance for the entire Company. In addition, certain disaggregated financial information is also provided to the CODM, which is used in the decision making process to assess performance. Based upon the information provided to the CODM, the Company has determined it has four reportable segments.

Effective January 1, 2015, the Company changed the structure of its reportable segments based upon a change in the information that is provided to the Company's CODM. The Company's four reportable segments prior to the change in structure were: Advanced Manufacturing Capital Equipment, Analytical Solutions Group, Europe Region Sales & Service and Asia Region Sales & Service. The Company's current structure still reflects four reportable segments; however, the composition of the segments has changed.

The Company's current reportable segments are Advanced Manufacturing Capital Equipment, Global Service, Asia Region Sales and Other. The primary change to the segment structure was to separate worldwide service from product sales and create a separate reportable segment known as Global Service. Product sales in the Advanced Manufacturing Capital Equipment segment remained with that segment. Asia product sales became a separate reportable segment. The product sales from the operating segments that made up the Analytical Solutions Group and Europe Region sales were combined into the Other segment and are not reported separately as they are individually immaterial and collectively below the separate segment reporting guidelines. The Company has reported corporate expenses and certain intercompany pricing transactions in a Corporate and Eliminations reconciling column. Due to these changes, the results presented under segment reporting for the three and nine months ended September 30, 2014 and as of December 31, 2014 reflect the current segments to conform to the current period segment reporting presentation with no impact to the consolidated results of operations.

The Advanced Manufacturing Capital Equipment segment includes the development, manufacturing and sales of instruments and control products, power and reactive gas products, materials delivery products and vacuum products, all of which are utilized in semiconductor processing and other similar advanced manufacturing processes. Sales in this segment include both external sales and intercompany product sales, which are recorded at transfer prices in accordance with applicable tax requirements.

The Global Service segment includes the worldwide servicing of instruments and control products, power and reactive gas products, materials delivery products and vacuum products, all of which are utilized in semiconductor processing and other similar advanced manufacturing processes. It also includes sales of custom fabrication services.

The Asia Region Sales segment mainly resells products from the Advanced Manufacturing Capital Equipment and Other segments into Asia regions.

The Other segment includes operating segments that are not required to be reported separately as a reportable segment and includes sales for products that are re-sold from the Advanced Manufacturing Capital Equipment into Europe regions as well as sales from other operating segments.

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MKS derives the segment results directly from the manner in which results are reported in its management reporting system. The accounting policies MKS uses to derive reportable segment results are substantially the same as those used for external reporting purposes except that a substantial portion of the sales of the Advanced Manufacturing Capital Equipment and Other segments are intercompany sales to the regions at tax-based transfer prices and certain significant costs, including stock-based compensation and management incentive compensation, are not allocated to the segments and are included in Corporate and Eliminations. The CODM reviews several metrics of each operating segment, including net revenues and gross profit (loss).

The Company does not maintain balance sheets for the majority of its operating segments and, as such, amounts have not been allocated to the reportable segments. The Company does not disclose external or intersegment revenues separately by reportable segment as this information is not presented to the CODM for decision making purposes.

The following is net revenues by reportable segment:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2015	2014	2015	2014
Advanced Manufacturing Capital Equipment	$174,101	$146,360	$ 532,300	$ 458,337
Global Service	29,891	28,278	87,319	80,676
Asia Region Sales(1)	46,733	40,549	158,887	133,438
Other	19,289	21,444	59,301	61,520
Corporate and Eliminations	(60,682)	(49,833)	(196,670)	(156,123)
	$209,332	$186,798	$ 641,137	$ 577,848

The following is a reconciliation of segment gross profit to consolidated net income:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2015	2014	2015	2014
Gross profit by reportable segment:				
Advanced Manufacturing Capital Equipment	$76,026	$59,285	$237,267	$186,310
Global Service	10,498	9,985	30,466	28,065
Asia Region Sales(1)	7,151	5,021	21,887	20,417
Other	5,466	7,490	18,005	20,915
Corporate and Eliminations	(4,912)	(2,456)	(17,552)	(7,375)
Total gross profit by reportable segment	94,229	79,325	290,073	248,332
Operating expenses:				
Research and development	17,217	15,827	51,464	46,866
Selling, general and administrative	33,396	32,365	97,532	99,195
Acquisition costs	—	—	30	499
Restructuring	562	1,223	1,569	1,970
Amortization of intangible assets	1,691	1,760	5,071	3,214
Income from operations	41,363	28,150	134,407	96,588
Net interest income	721	394	2,015	860
Income before income taxes	42,084	28,544	136,422	97,448
Provision (benefit) for income taxes	12,315	(573)	39,647	15,862
Net income	$29,769	$29,117	$ 96,775	$ 81,586

(1) The Asia Region Sales segment does not represent total geographical Asia financial information. This sales operation only represents the sales from the resale of Advanced Manufacturing Capital Equipment and Other segment products in their respective regions. The Advanced Manufacturing Capital Equipment and Other segments both have sales in this region. Accordingly, total geographical sales include sales from multiple reportable segments.

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The following is capital expenditures by reportable segment for the three and nine months ended September 30, 2015 and 2014:

	Advanced Manufacturing Capital Equipment	Global Service	Asia Region Sales	Other	Corporate and Eliminations	Total
Three Months Ended September 30, 2015:						
Capital expenditures	$ 2,169	$ 265	$ 256	$ 150	$ 657	$3,497
Nine Months Ended September 30, 2015:						
Capital expenditures	$ 5,313	$ 550	$ 349	$ 386	$ 2,233	$8,831

	Advanced Manufacturing Capital Equipment	Global Service	Asia Region Sales	Other	Corporate and Eliminations	Total
Three Months Ended September 30, 2014:						
Capital expenditures	$ 1,239	$ 198	$ 229	$ 63	$ 378	$2,107
Nine Months Ended September 30, 2014:						
Capital expenditures	$ 4,944	$ 787	$ 421	$1,600	$ 1,610	$9,362

The following is depreciation and amortization by reportable segment for the three and nine months ended September 30, 2015 and 2014:

	Advanced Manufacturing Capital Equipment	Global Service	Asia Region Sales	Other	Corporate and Eliminations	Total
Three Months Ended September 30, 2015:						
Depreciation and amortization	$ 4,240	$ 249	$ 86	$268	$ 681	$ 5,524
Nine Months Ended September 30, 2015:						
Depreciation and amortization	$ 12,792	$ 759	$ 259	$846	$ 1,950	$16,606

	Advanced Manufacturing Capital Equipment	Global Service	Asia Region Sales	Other	Corporate and Eliminations	Total
Three Months Ended September 30, 2014:						
Depreciation and amortization	$ 4,403	$ 280	$ 101	$307	$ 701	$ 5,792
Nine Months Ended September 30, 2014:						
Depreciation and amortization	$ 10,857	$ 819	$ 301	$766	$ 2,014	$14,757

In connection with the implementation of the current segment structure, goodwill was allocated to each reportable segment on a relative fair value basis. The Company performed an interim quantitative impairment test as of January 1, 2015 and concluded that the fair values of each reporting unit exceeded their respective carrying values.

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Goodwill associated with each of our reportable segments is as follows:

	September 30, 2015	December 31, 2014
Reportable segment:		
Advanced Manufacturing Capital Equipment	$ 174,344	$ 166,946
Global Service	19,826	19,728
Asia Region Sales	—	—
Other	6,228	6,228
Foreign currency translation	(836)	(521)
Total goodwill	$ 199,562	$ 192,381

Worldwide Product Information

Because the reportable segment information above does not reflect worldwide sales of the Company's products, the Company groups its products into three groups of similar products based upon the similarity of product function. Worldwide net revenue for each group of products is as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2015	2014	2015	2014
Instruments, Control and Vacuum Products	$ 98,614	$ 93,027	$ 319,491	$ 284,934
Power and Reactive Gas Products	95,311	79,228	276,787	249,190
Analytical Solutions Products	15,407	14,543	44,859	43,724
	$ 209,332	$ 186,798	$ 641,137	$ 577,848

Sales of Instruments, Control and Vacuum Products and Power and Reactive Gas Products are included in the Company's Advanced Manufacturing Capital Equipment, Asia Region Sales, Global Service and Other segments because the products are sold through these segments. Sales of the Analytical Solutions Products are included in the Asia Region Sales, Global Service and Other segments because the products are sold through these segments.

Geographic

Information about the Company's operations in different geographic regions is presented in the tables below. Net revenues to unaffiliated customers are based on the location in which the sale originated. Transfers between geographic areas are at negotiated transfer prices and have been eliminated from consolidated net revenues.

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2015	2014	2015	2014
Net revenues:				
United States	$ 122,348	$ 107,583	$ 365,942	$ 332,892
Korea	27,760	20,540	87,181	70,806
Japan	14,699	14,798	49,001	46,141
Asia (excluding Korea and Japan)	24,833	22,539	79,259	68,304
Europe	19,692	21,338	59,754	59,705
	$ 209,332	$ 186,798	$ 641,137	$ 577,848

	September 30, 2015	December 31, 2014
Long-lived assets:(1)		
United States	$ 56,570	$ 57,701
Europe	5,681	6,099
Asia	9,232	10,887
	$ 71,483	$ 74,687

(1) Long-lived assets include property, plant and equipment, net and certain other long-term assets, excluding long-term income tax receivable.

(in thousands, except share and per share data)

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Major Customers

The Company had two customers with net revenues greater than 10% of total net revenues in the periods shown as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2015	2014	2015	2014
Customer A	18%	20%	18%	20%
Customer B	16%	11%	14%	13%

17) Restructuring

The Company recorded restructuring charges of $562 and $1,569 during the three and nine months ended September 30, 2015, respectively. The restructuring charges for the three months ended September 30, 2015 related to severance costs from a reduction in workforce related to the consolidation of certain foreign manufacturing locations. The restructuring charges for the nine months ended September 30, 2015 primarily related to severance costs associated with a reduction in workforce of 137 people, arising from the outsourcing of a non-core foreign manufacturing process and the consolidation of certain foreign manufacturing locations. The Company recorded restructuring charges of $1,223 and $1,970 during the three and nine months ended September 30, 2014. The restructuring charges were primarily for severance associated with the reduction in workforce of 111 people throughout the Company.

The activity related to the Company's restructuring accrual is shown below:

	Nine Months Ended September 30, 2015	Nine Months Ended September 30, 2014
Balance at December 31	$ 92	$ —
Charged to expense	1,569	1,970
Payments	(1,052)	(1,580)
Balance at September 30	$ 609	$ 390

18) Commitments and Contingencies

The Company is subject to various legal proceedings and claims, which have arisen in the ordinary course of business. In the opinion of management, the ultimate disposition of these matters will not have a material adverse effect on the Company's results of operations, financial condition or cash flows.

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

This Quarterly Report on Form 10-Q contains "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). When used herein, the words "believes," "anticipates," "plans," "expects," "estimates," "would," "will," "intends" and similar expressions are intended to identify forward-looking statements. These forward-looking statements reflect management's current opinions and are subject to certain risks and uncertainties that could cause results to differ materially from those stated or implied. While we may elect to update forward looking statements in the future, we specifically disclaim any obligation to do so even if our estimates or expectations change. Risks and uncertainties include, but are not limited to those discussed in our Annual Report on Form 10-K for the year ended December 31, 2014 in the section entitled "Risk Factors" as referenced in Part II, Item 1A "Risk Factors" of this Quarterly Report on Form 10-Q.

Overview

We are a global provider of instruments, subsystems and process control solutions that measure, control, power, monitor and analyze critical parameters of advanced manufacturing processes to improve process performance and productivity. We also provide services relating to the maintenance and repair of our products, software maintenance, installation services and training.

Our products are derived from our core competencies in pressure measurement and control, materials delivery, gas composition analysis, control and information technology, power and reactive gas generation and vacuum technology. Our products are used in diverse markets, applications and processes. Our primary served markets are manufacturers of capital equipment for semiconductor devices, and for other thin film applications including flat panel displays, solar cells and light emitting diodes ("LEDs"), data storage media and other advanced coatings. We also leverage our technology into other markets with advanced manufacturing applications including medical equipment, pharmaceutical manufacturing, energy generation and environmental monitoring.

We have a diverse base of customers that includes manufacturers of semiconductor capital equipment and semiconductor devices, thin film capital equipment used in the manufacture of flat panel displays, LEDs, solar cells, data storage media, analysis metrology and other coating applications; and other industrial, medical, pharmaceutical manufacturing, energy generation, environmental monitoring and other advanced manufacturing companies, as well as university, government and industrial research laboratories. For both the nine months ended September 30, 2015 and 2014, approximately 70% of our net revenues were from sales to semiconductor capital equipment manufacturers and semiconductor device manufacturers. We expect that sales to semiconductor capital equipment manufacturers and semiconductor device manufacturers will continue to account for a substantial portion of our sales.

Effective January 1, 2015, we changed the structure of our reportable segments based upon how the information is provided to our Chief Operating Decision Maker. Our four reportable segments prior to the change in structure were: Advanced Manufacturing Capital Equipment, Analytical Solutions Group, Europe Region Sales & Service and Asia Region Sales & Service. Our current structure still reflects four reportable segments however, the composition of the segments has changed.

Our current reportable segments are Advanced Manufacturing Capital Equipment, Global Service, Asia Region Sales and Other. The primary change to the segment structure was to separate worldwide service from product sales and create a separate reportable segment known as Global Service. Product sales in the Advanced Manufacturing Capital Equipment segment remained with that segment. Asia product sales became a separate reportable segment. The product sales from the operating segments that made up the Analytical Solutions Group and Europe Region Sales were combined into the Other segment and are not reported separately as they are individually immaterial and collectively below the separate segment guidelines. We report corporate expenses and certain intercompany pricing transactions in a Corporate and Eliminations reconciling column.

The Advanced Manufacturing Capital Equipment segment includes the development, manufacture and sales of instruments and control products, power and reactive gas products and vacuum products, all of which are utilized in semiconductor processing and other similar advanced manufacturing processes. Sales in this segment include both external sales and intercompany product sales, which are recorded at transfer prices in accordance with applicable tax requirements.

The Global Service segment includes the worldwide servicing of instruments and control products, power and reactive gas products and vacuum products, all of which are utilized in semiconductor processing and other similar advanced manufacturing processes. It also includes sales of custom fabrication services.

The Asia Region Sales segment mainly resells products from the Advanced Manufacturing Capital Equipment and Other segments into Asia regions.

The Other segment includes operating segments that are not required to be reported separately as a reportable segment and includes sales for products that are re-sold from the Advanced Manufacturing Capital Equipment into Europe regions as well as sales from other operating segments.

Net revenues from semiconductor capital equipment manufacture and semiconductor device manufacture customers increased by 11% for the nine months ended September 30, 2015 compared to the same period in the prior year. We had a 7% decrease in revenue during the three months ended September 30, 2015 compared to the three months ended June 30, 2015, after increasing sequentially for the previous three quarters starting in the fourth quarter of 2014. Due to recent capex reductions in the semiconductor equipment market, we anticipate our revenue for the three months ended December 31, 2015 could be lower than our revenue for the three months ended September 30, 2015. The semiconductor capital equipment industry is subject to rapid demand shifts, which are difficult to predict, and we are uncertain as to the timing or extent of future demand or any future weakness in the semiconductor capital equipment industry.

Our net revenues sold to customers in other advanced markets, which exclude semiconductor capital equipment and semiconductor device product applications, increased 10% for the nine months ended September 30, 2015 compared to the same period in the prior year. We have had eight consecutive quarters of growth in our other advanced markets starting in the quarter ended December 31, 2013. Revenues from customers in other advanced markets are made up of many different markets, including general industrial, solar, film, medical, analysis metrology and other markets. The increase for the nine months ended September 30, 2015, compared to the same period in the prior year, was primarily attributed to increases in solar, data storage and analysis metrology markets.

A significant portion of our net revenues is from sales to customers in international markets. For the nine months ended September 30, 2015 and 2014, international net revenues accounted for approximately 43% and 42% of our net revenues, respectively. A significant portion of our international net revenues were in Korea and Japan. We expect that international net revenues will continue to represent a significant percentage of our total net revenues.

On March 17, 2015, we acquired Precisive, LLC ("Precisive") for $12.1 million, net of cash acquired of $0.4 million. Precisive is an innovative developer of optical analyzers based on Tunable Filter Spectroscopy, which provide real-time gas analysis in the natural gas and hydrocarbon processing industries, including refineries, hydrocarbon processing plants, gas-to-power machines, biogas processes and fuel gas transportation and metering, while delivering customers a lower total cost of ownership.

Critical Accounting Policies and Estimates

The preparation of our consolidated financial statements and related disclosures in conformity with accounting principles generally accepted in the United States of America requires management to make judgments, assumptions and estimates that affect the amounts reported. There have been no material changes in our critical accounting policies since December 31, 2014. For further information, please see the discussion of critical accounting policies in our Annual Report on Form 10-K for the year ended December 31, 2014 in the section captioned "Management's Discussion and Analysis of Financial Condition and Results of Operations – Critical Accounting Policies and Estimates."

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Results of Operations

The following table sets forth, for the periods indicated, the percentage of total net revenues of certain line items included in our consolidated statements of operations and comprehensive income data.

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2015	2014	2015	2014
Net revenues:				
Product	85.7%	84.9%	86.4%	86.0%
Services	14.3	15.1	13.6	14.0
Total net revenues	100.0	100.0	100.0	100.0
Cost of revenues:				
Cost of product revenues	45.7	47.7	45.9	47.9
Cost of service revenues	9.3	9.8	8.9	9.1
Total cost of revenues (exclusive of amortization shown separately below)	55.0	57.5	54.8	57.0
Gross profit	45.0	42.5	45.2	43.0
Research and development	8.2	8.5	8.0	8.1
Selling, general and administrative	15.9	17.3	15.2	17.2
Acquisition costs	—	—	—	0.1
Restructuring	0.3	0.7	0.2	0.3
Amortization of intangible assets	0.8	0.9	0.8	0.6
Income from operations	19.8	15.1	21.0	16.7
Interest income, net	0.3	0.2	0.3	0.1
Income from operations before income taxes	20.1	15.3	21.3	16.8
Provision (benefit) for income taxes	5.9	(0.3)	6.2	2.7
Net income	14.2%	15.6%	15.1%	14.1%

Net Revenues

	Three Months Ended September 30,			Nine Months Ended September 30,		
(dollars in millions)	2015	2014	% Change	2015	2014	% Change
Product	$179.4	$ 158.5	13.2%	$553.8	$497.2	11.4%
Service	29.9	28.3	5.7	87.3	80.6	8.2
Total net revenues	$209.3	$ 186.8	12.1%	$641.1	$577.8	11.0%

Product revenues increased $20.9 million and $56.6 million during the three and nine months ended September 30, 2015, respectively, compared to the same periods in the prior year. The increase in both periods was primarily attributed to net revenues from semiconductor capital equipment manufacture and semiconductor device manufacture customers, which increased by $15.5 million and $40.7 million during the three and nine months ended September 30, 2015, respectively, compared to the same periods in the prior year. The remainder of the increase in both periods was primarily attributed to product revenue increases in our other advanced markets including solar, data storage and analysis metrology markets for the three and nine months ended September 30, 2015 compared to the same periods in the prior year.

Service revenues consisted mainly of fees for services related to the maintenance and repair of our products and software services, installation and training. Service revenues increased $1.6 million and $6.7 million during the three and nine months ended September 30, 2015, respectively, compared to the same periods in the prior year. The increase for the three and nine months ended September 30, 2015, compared to the same periods in the prior year, was primarily attributed to increases in our semiconductor and medical markets.

Total international net revenues, including product and services, were $87.0 million and $275.2 million for the three and nine months ended September 30, 2015, respectively, compared to $79.2 million and $245.0 million for the three and nine months ended September 30, 2014, respectively. The increase of $7.8 million and $30.2 million for the three and nine months ended September 30, 2015, respectively, compared to the same periods in the prior year, related mainly to an increase in net revenues in Korea and Taiwan, where we sell primarily into the semiconductor markets.

The following is our net revenues by reportable segment:

(dollars in millions)	Three Months Ended September 30, 2015	2014	% Change	Nine Months Ended September 30, 2015	2014	% Change
Net revenues:						
Advanced Manufacturing Capital Equipment	$ 174.1	$ 146.4	19.0%	$ 532.3	$ 458.3	16.1%
Global Service	29.9	28.3	5.7	87.3	80.7	8.2
Asia Region Sales	46.7	40.5	15.3	158.9	133.4	19.1
Other	19.3	21.4	(10.0)	59.3	61.5	(3.6)
Corporate and Eliminations	(60.7)	(49.8)	21.8	(196.7)	(156.1)	26.0
Total net revenues	$ 209.3	$ 186.8	12.1%	$ 641.1	$ 577.8	11.0%

Net revenues increased in our Advanced Manufacturing Capital Equipment and Asia Region Sales segments by 19.0% and 15.3% for the three months ended September 30, 2015, respectively, compared to the same period in the prior year. Net revenue increased in our Advanced Manufacturing Capital Equipment and Asia Region Sales segments by 16.1% and 19.1% for the nine months ended September 30, 2015, respectively, compared to the same period in the prior year. The increases in both the three and nine month periods were primarily attributed to net revenues from semiconductor capital equipment manufacture and semiconductor device manufacture customers, which increased by 13.5% and 11.3%, respectively, for the three and nine month periods ended September 30, 2015, compared to the same periods in the prior year. These increases were partially offset by the negative impact of changes in foreign exchange rates.

Net revenues in our Global Service segment increased by 5.7% and 8.2% for the three and nine months ended September 30, 2015, respectively, compared to the same periods in the prior year. The increases in both the three and nine month periods were primarily attributed to net revenues from semiconductor capital equipment manufacture and semiconductor device manufacture customers.

Net revenues in our Other segment decreased by 10.0% and 3.6% for the three and nine months ended September 30, 2015, respectively, compared to the same periods in the prior year. This segment, which has operations mainly in Europe, is not impacted as much by the semiconductor capital equipment market. The decreases for the three and nine months ended September 30, 2015 were primarily caused by the negative impact of changes in foreign exchange rates.

Gross Profit

	Three Months Ended September 30 2015	2014	% Points Change	Nine Months Ended September 30, 2015	2014	% Points Change
Gross profit as a percentage of net revenues:						
Product	46.7%	43.7%	3.0%	46.9%	44.3%	2.6%
Service	35.1	35.3	(0.2)	34.9	34.8	0.1
Total gross profit	45.0%	42.5%	2.5%	45.2%	43.0%	2.2%

Gross profit on product revenues increased by 3.0 percentage points for the three months ended September 30, 2015 compared to the same period in the prior year. The increase was primarily due to an increase of 2.5 percentage points due to higher revenue volumes and an increase of 0.9 percentage points from the amortization of inventory step-up adjustment related to our May 2014 acquisition of Granville-Phillips (“GP”). These increases were partially offset by a decrease of 0.4 percentage points due to unfavorable foreign exchange.

Gross profit on product revenues increased by 2.6 percentage points for the nine months ended September 30, 2015 compared to the same period in the prior year. The increase was primarily due to an increase of 2.0 percentage points due to higher revenue volumes and an increase of 0.4 percentage points related to favorable mix.

Gross profit on service revenues changed less than one percentage point for the three and nine month periods ended September 30, 2015 compared to the same periods in the prior year. Cost of service revenues, including salaries and related expenses and other fixed costs, consists primarily of providing services for repair, software services and training.

The following is gross profit as a percentage of net revenues by reportable segment:

	Three Months Ended September 30,			Nine Months Ended September 30,		
	2015	2014	% Points Change	2015	2014	% Points Change
Gross profit:						
Advanced Manufacturing Capital Equipment	43.7%	40.5%	3.2	44.6%	40.6%	4.0
Global Service	35.1	35.3	(0.2)	34.9	34.8	0.1
Asia Region Sales	15.3	12.4	2.9	13.8	15.3	(1.5)
Other	28.3	34.9	(6.6)	30.4	34.0	(3.6)
Corporate and Eliminations	8.1	4.9	3.2	8.9	4.7	4.2
Total gross profit	45.0%	42.5%	2.5	45.2%	43.0%	2.2

Gross profit for the Advanced Manufacturing Capital Equipment segment increased 3.2 and 4.0 percentage points for the three and nine months ended September 30, 2015, respectively, compared to the same periods in the prior year. These increases were primarily attributed to increased revenue volume as well as favorable product mix.

Gross profit for the Asia Region Sales segment increased by 2.9 percentage points for the three months ended September 30, 2015 and decreased by 1.5 percentage points for the nine months ended September 30, 2015 compared to the same periods in the prior year. These changes were primarily attributed to favorable product mix, partially offset by unfavorable changes in foreign exchange rates. The nine months ended September 30, 2015 had a larger negative impact from foreign exchange, which caused the overall margin to decrease compared to the same period in the prior year.

Gross profit for the Other segment decreased 6.6 and 3.6 percentage points for the three and nine months ended September 30, 2015, respectively, compared to the same periods in the prior year. These decreases were primarily attributed to unfavorable product mix and unfavorable changes in foreign exchange rates.

Research and Development

	Three Months Ended September 30,			Nine Months Ended September 30,		
(dollars in millions)	2015	2014	% Change	2015	2014	% Change
Research and development expenses	$ 17.2	$ 15.8	8.8%	$ 51.5	$ 46.9	9.8%

Research and development expenses increased $1.4 million for the three months ended September 30, 2015 compared to the same period in the prior year. The increase was primarily attributed to an increase of $0.5 million for project specific expenses and $0.4 million in compensation-related expenses.

Research and development expenses increased $4.6 million for the nine months ended September 30, 2015 compared to the same period in the prior year. The increase was primarily attributed to an increase of $1.8 million in compensation-related expenses and $1.7 million for project specific expenses.

Our research and development efforts are primarily focused on developing and improving our instruments, components, subsystems and process control solutions to improve process performance and productivity.

We have thousands of products and our research and development efforts primarily consist of a large number of projects related to these products, none of which is individually material to us. Current projects typically have durations of 3 to 30 months depending upon whether the product is an enhancement of existing technology or a new product. Our current initiatives include projects to enhance the performance characteristics of older products, to develop new products and to integrate various technologies into subsystems. These projects support in large part the transition in the semiconductor industry to smaller integrated circuit geometries and in the flat panel display and solar markets to larger substrate sizes, which require more advanced process control technology. Research and development expenses consist primarily of salaries and related expenses for personnel engaged in research and development, fees paid to consultants, material costs for prototypes and other expenses related to the design, development, testing and enhancement of our products.

We believe that the continued investment in research and development and ongoing development of new products are essential to the expansion of our markets, and we expect to continue to make significant investment in research and development activities. We are subject to risks if products are not developed in a timely manner, due to rapidly changing customer requirements and competitive threats from other companies and technologies. Our success primarily depends on our products being designed into new generations of equipment for the semiconductor industry and other advanced technology markets. We develop products that are technologically advanced so that they are positioned to be chosen for use in each successive generation of semiconductor capital equipment. If our products are not chosen to be designed into our customers' products, our net revenues may be reduced during the lifespan of those products.

Selling, General and Administrative

(dollars in millions)	Three Months Ended September 30, 2015	2014	% Change	Nine Months Ended September 30, 2015	2014	% Change
Selling, general and administrative expenses	$ 33.4	$ 32.4	3.2%	$ 97.5	$ 99.2	(1.7)%

Selling, general and administrative expenses increased by $1.0 million in the three months ended September 30, 2015 compared to the same period in the prior year. The increase is primarily attributed to a $1.0 million increase in compensation-related expenses.

Selling, general and administrative expenses decreased by $1.7 million in the nine months ended September 30, 2015 compared to the same period in the prior year. The decrease is primarily attributed to a $2.0 million decrease in consulting and professional fees, a $0.7 million decrease in information technology related expenses, and a $0.8 million decrease in bad debt expense, partially offset by increases of $1.1 million in compensation-related expenses, $0.2 million in bank fees and $0.2 million in recruiting fees.

Acquisition Costs

(dollars in millions)	Three Months Ended September 30, 2015	2014	% Change	Nine Months Ended September 30, 2015	2014	% Change
Acquisition costs	$ —	$ —	— %	$ —	$ 0.5	(94.0)%

We incurred $30 thousand of acquisition costs in the nine months ended September 30, 2015, which was comprised primarily of legal fees related to our acquisition of Precisive. We incurred $0.5 million of acquisition costs in the nine months ended September 30, 2014, which was comprised primarily of legal fees related to our acquisition of GP.

Restructuring

(dollars in millions)	Three Months Ended September 30, 2015	2014	% Change	Nine Months Ended September 30, 2015	2014	% Change
Restructuring	$ 0.6	$ 1.2	(54.0)%	$ 1.6	$ 2.0	(20.3)%

Restructuring charges for the three months ended September 30, 2015 related to severance costs from a reduction in workforce of 14 people, arising from the consolidation of certain foreign manufacturing locations. Restructuring charges for the nine months ended September 30, 2015 primarily related to severance costs associated with a reduction in workforce of 137 people, primarily related to the outsourcing of a non-core foreign manufacturing process and the consolidation of certain foreign manufacturing locations. Restructuring charges for the three and nine months ended September 30, 2014 primarily related to severance costs associated with a reduction in workforce throughout the Company.

Amortization of Intangible Assets

(dollars in millions)	Three Months Ended September 30, 2015	2014	% Change	Nine Months Ended September 30, 2015	2014	% Change
Amortization of intangible assets	$ 1.7	$ 1.8	(3.9)%	$ 5.1	$ 3.2	57.8%

Amortization expense decreased by $0.1 million for the three months ended September 30, 2015 and increased by $1.9 million for the nine months ended September 30, 2015 compared to the same periods in the prior year. The increase in the nine months ended September 30, 2015 was primarily attributed to increases in amortization expense from the intangible assets acquired through our acquisition of Precisive and our acquisition of GP.

Interest Income, Net

(dollars in millions)	Three Months Ended September 30, 2015	2014	% Change	Nine Months Ended September 30, 2015	2014	% Change
Interest income, net	$ 0.7	$ 0.4	82.5%	$ 2.0	$ 0.9	134.0%

Interest income, net increased by $0.3 million and $1.1 million for the three and nine months ended September 30, 2015, respectively, compared to the same periods in the prior year. These increases are attributed to a change in the mix of our investment portfolio, as well as a larger average investment balance.

Provision for Income Taxes

(dollars in millions)	Three Months Ended September 30, 2015	2014	% Change	Nine Months Ended September 30, 2015	2014	% Change
Provision (benefit) for income taxes	$ 12.3	$ (0.6)	2,251.4%	$ 39.6	$ 15.9	150.0%

Our effective tax rate for the three and nine months ended September 30, 2015 was 29.3% and 29.1%, respectively. The effective tax rate for the three and nine months ended September 30, 2015 was lower than the U.S. statutory tax rate primarily due to the geographic mix of income and profits earned by the Company's international subsidiaries being taxed at rates lower than the U.S. statutory tax rate and the impact of the deduction for domestic production activities. Our effective tax rate for the three and nine months ended September 30, 2014 was (2.0)% and 16.3%, respectively. The effective tax rate for the three and nine months ended September 30, 2014 was lower than the U.S. statutory tax rate primarily due to the discrete release of income tax reserves related to the effective settlement of foreign tax examinations in the first and third quarters of 2014. The effective tax rate for the three and nine months ended September 30, 2014 also benefited from a third quarter discrete release of income tax reserves related to the expiration of the statute of limitations for a previously open tax year and a third quarter discrete benefit resulting from foreign tax credits recognized on the payment of a dividend from a foreign subsidiary. The geographic mix of income and profits earned by our international subsidiaries being taxed at rates lower than the U.S. statutory tax rate and the deduction for domestic production activities also had a significant impact in reducing the effective tax rate in the three and nine months ended September 30, 2014.

Our future effective tax rate depends on various factors, including the impact of tax legislation, the geographic composition of our pre-tax income, and changes in tax reserves for unrecognized tax benefits. We monitor these factors and timely adjust our estimates of the effective tax rate accordingly. We expect that the geographic mix of pre-tax income will continue to have a favorable impact on our effective tax rate, however the geographic mix of pre-tax income can change based on multiple factors resulting in changes to the effective tax rate in future periods.

Additionally, the effective tax rate could be adversely affected by changes in the valuation of deferred tax assets and liabilities. In particular, the carrying value of deferred tax assets, which are predominantly in the United States, is dependent on our ability to generate sufficient future taxable income in the United States. We have a deferred tax asset of $20.5 million related to a capital loss carryforward for which a full valuation allowance has been recorded. This capital loss expires at December 31, 2015 and we expect to write off this asset against the valuation allowance in the fourth quarter of 2015. We expect no impact to our effective tax rate from this write-off.

While we believe we have adequately provided for all tax positions, amounts asserted by taxing authorities could materially differ from our accrued positions as a result of uncertain and complex application of tax law and regulations. We and our subsidiaries are subject to examination by federal, state and foreign tax authorities. The Internal Revenue Service commenced an examination of our U.S. federal tax filings for open tax years 2011 through 2013 during the three months ended March 31, 2015. Additionally, the recognition and measurement of certain tax benefits include estimates and judgment by management. Accordingly, we could record additional provisions or benefits for U.S. federal, state, and foreign taxes matters in future periods as new information becomes available.

Liquidity and Capital Resources

Cash and cash equivalents and short-term investments totaled $392.0 million at September 30, 2015, compared to $435.0 million at December 31, 2014.

Net cash provided by operating activities was $95.6 million for the nine months ended September 30, 2015 and resulted mainly from net income of $96.8 million, which included non-cash charges of $33.4 million, partially offset by a net increase in working capital of $33.9 million. The net increase in working capital was primarily due to an increase in inventories of $25.2 million and an increase in trade accounts receivable inventories of $11.4 million, both related to an increase in business activities, an increase in other current assets of $7.9 million and a decrease in accounts payable of $7.5 million. These increases in working capital were offset by an increase in income taxes of $10.5 million, an increase in other current and non-current liabilities of $4.6 million and an increase in accrued compensation of $3.6 million.

Net cash provided by operating activities was $67.7 million for the nine months ended September 30, 2014 and resulted mainly from net income of $81.6 million, which included non-cash charges of $33.1 million offset by a net increase in working capital of $46.6 million. The net increase in working capital was primarily due to a net decrease in income taxes of $24.9 million, an increase in inventories of $14.5 million, a decrease in accrued compensation of $14.1 million, mainly related to a retirement payment to our former chief executive officer, a decrease in accounts payable of $9.2 million and an increase in other current assets of $3.1 million. These net increases in working capital were offset by an increase in other current and non-current liabilities of $9.9 million and a decrease in trade accounts receivable of $9.3 million.

Net cash used in investing activities was $170.3 million for the nine months ended September 30, 2015 and resulted primarily from $151.6 million of net purchases of short-term and long-term investments, $9.9 million of cash primarily used for the acquisition of Precisive and $8.8 million in purchases of production-related equipment. Net cash used in investing activities was $8.7 million for the nine months ended September 30, 2014 and resulted primarily from $87.0 million of cash used for the acquisition of GP and $9.4 million in purchases of production- related equipment, partially offset by $86.0 million in net sales and maturities of short-term and long-term investments.

Net cash used in financing activities was $35.7 million for the nine months ended September 30, 2015 and consisted primarily of $26.9 million of dividend payments made to common stockholders and $8.9 million used in the repurchase of our common stock. Net cash used in financing activities was $46.0 million for the nine months ended September 30, 2014 and consisted primarily of $26.1 million of dividend payments made to common stockholders and $20.8 million related to the repurchase of our common stock.

Our Japanese subsidiary has lines of credit and short-term borrowing arrangements with two financial institutions which arrangements generally expire and are renewed at three month intervals. The lines of credit provided for aggregate borrowings as of September 30, 2015 of up to an equivalent of $19.2 million U.S. dollars. One of the borrowing arrangements has an interest rate based on the Tokyo Interbank Offer Rate at the time of borrowing and the other has an interest rate based on the Japanese Short-term Prime Lending Rate. There were no borrowings outstanding under these arrangements at September 30, 2015 and December 31, 2014.

On July 25, 2011, our Board of Directors approved a share repurchase program for the repurchase of up to an aggregate of $200 million of our outstanding common stock from time to time in open market purchases, privately negotiated transactions or through other appropriate means. The timing and quantity of any shares repurchased depends upon a variety of factors, including business conditions, stock market conditions and business development activities, including but not limited to merger and acquisition opportunities. These repurchases may be commenced, suspended or discontinued at any time without prior notice.

During the nine months ended September 30, 2015, we repurchased approximately 244,000 shares of our common stock for $8.9 million, or an average price of $36.32 per share. During the nine months ended September 30, 2014, we repurchased approximately 728,000 shares of our common stock for $20.8 million at an average price of $28.59 per share.

During the nine months ended September 30, 2015, our Board of Directors declared a cash dividend of $0.165 per share during the first quarter of 2015 and a cash dividend of $0.17 per share during the second and third quarters of 2015, which dividends totaled $26.9 million. During the nine months ended September 30, 2014, our Board of Directors declared one quarterly dividend of $0.16 and two quarterly dividends of $0.165 per share, which dividends totaled $26.1 million.

On October 26, 2015, our Board of Directors declared a quarterly cash dividend of $0.17 per share to be paid on December 11, 2015 to shareholders of record as of November 30, 2015. Future dividend declarations, if any, as well as the record and payment dates for such dividends, are subject to the final determination of the Company’s Board of Directors.

Our total cash and cash equivalents and short-term marketable investments at September 30, 2015 consisted of $184.6 million held in the United States and $207.3 million held by our foreign subsidiaries, substantially all of which would be subject to tax in the United States if returned to the United States. We believe our existing United States cash and short-term investment balances are adequate to meet domestic operating needs, including estimated working capital, planned capital expenditure requirements and any future cash dividends, if declared, during the next twelve months and the foreseeable future.

As previously noted, we completed the acquisition of Precisive on March 17, 2015, for approximately $12.1 million, net of cash acquired of $0.4 million. The purchase price includes a deferred payment amount of $2.6 million to cover any potential indemnification claims, which amount will be paid to the sellers after 15 months, assuming there are no indemnification claims.

Off-Balance Sheet Arrangements

We do not have any financial partnerships with unconsolidated entities, such as entities often referred to as structured finance, special purpose entities or variable interest entities, which are often established for the purpose of facilitating off-balance sheet arrangements or for other contractually narrow or limited purposes. Accordingly, we have no off-balance sheet arrangements that have or are reasonably expected to have a current or future effect on our financial condition, results of operations, liquidity, capital expenditures or capital resources that are material to investors.

Recently Issued Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) No. 2014-09, “Revenue from Contracts with Customers (Topic 606),” which supersedes all existing revenue recognition requirements, including most industry-specific guidance. The new standard requires a company to recognize revenue when it transfers goods and services to customers in an amount that reflects the consideration that the company expects to be entitled to in exchange for those goods or services. This ASU also requires additional disclosure about the nature, amount, timing and uncertainty of revenue and cash flows arising from customer contracts, including significant judgments and assets recognized from costs incurred to obtain or fulfill a contract. This pronouncement is effective for annual reporting periods beginning after December 15, 2016, including interim periods within that reporting period. However, in March 2015 the FASB proposed a one-year deferral, and in July 2015, the FASB agreed to defer by one year the mandatory effective date of its revenue recognition standard, but will also provide entities the option to adopt it as of the original effective date. The two permitted transition methods under the new standard are the full retrospective method, in which case the standard would be applied to each prior reporting period presented, or the modified retrospective method, in which case the cumulative effect of applying the standard would be recognized at the date of initial application. We have not yet selected a transition method. We are currently evaluating the requirements of ASU No. 2014-09 and have not yet determined its impact on our consolidated financial statements.

In August 2014, the FASB issued ASU No. 2014-15, “Presentation of Financial Statements—Going Concern (Subtopic 205-40): Disclosure of Uncertainties about an Entity’s Ability to Continue as a Going Concern.” Under this ASU, management will be required to assess an entity’s ability to continue as a going concern, and to provide related footnote disclosures in certain circumstances. The provisions of this ASU are effective for annual periods beginning after December 15, 2016, and for annual and interim periods thereafter. This ASU is not expected to have an impact on our financial statements or disclosures.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

Information concerning market risk is contained in the section entitled “Quantitative and Qualitative Disclosures About Market Risk” contained in our Annual Report on Form 10-K for the year ended December 31, 2014 filed with the Securities and Exchange Commission on February 25, 2015. As of September 30, 2015, there were no material changes in our exposure to market risk from December 31, 2014.

ITEM 4. CONTROLS AND PROCEDURES.

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as of September 30, 2015. The term “disclosure controls and procedures,” as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the “Exchange Act”), means controls and other procedures of an issuer that are designed to ensure that information required to be disclosed by the issuer in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC’s rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by an issuer in the reports that it files or submits under the Exchange Act is accumulated and communicated to the issuer’s management, including its principal executive and principal financial officers, or persons performing similar functions as appropriate to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of our disclosure controls and procedures as of September 30, 2015, our Chief Executive Officer and Chief Financial Officer concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level to ensure that information required to be disclosed by us in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in Securities and Exchange Commission rules and forms and is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer as appropriate to allow timely decisions regarding required disclosure.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the quarter ended September 30, 2015 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS.

We are subject to various legal proceedings and claims, which have arisen in the ordinary course of business.

In the opinion of management, the ultimate disposition of these matters will not have a material adverse effect on our results of operations, financial condition or cash flows.

ITEM 1A. RISK FACTORS.

Information regarding risk factors affecting the Company's business are discussed in the Company's Annual Report on Form 10-K for the year ended December 31, 2014 in the section entitled "Risk Factors." There have been no material changes from the risks disclosed therein.

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

The following table sets forth certain information with respect to repurchases of our common stock during the three months ended September 30, 2015.

ISSUER PURCHASES OF EQUITY SECURITIES

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs(1)(2)	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs(1) (in thousands)
July 1 – July 31, 2015	46,482	$ 36.86	46,482	$ 156,756
August 1 – August 31, 2015	41,013	$ 34.96	41,013	$ 155,322
September 1 – September 30, 2015	41,013	$ 33.59	41,013	$ 153,944
Total	128,508	$ 35.21	128,508	

(1) On July 25, 2011, our Board of Directors approved a share repurchase program (the "Program") for the repurchase of up to an aggregate of $200 million of our common stock from time to time in open market purchases, privately negotiated transactions or through other appropriate means, which we announced on July 27, 2011. The timing and quantity of any shares repurchased will depend upon a variety of factors, including business conditions, stock market conditions and business development activities, including but not limited to merger and acquisition opportunities. These repurchases may be commenced, suspended or discontinued at any time without prior notice.

(2) We have repurchased approximately 1,600,000 shares of our common stock for approximately $46.1 million pursuant to the Program since its adoption.

ITEM 6. EXHIBITS.

The exhibits filed as part of this quarterly report on Form 10-Q are listed in the exhibit index immediately preceding the exhibits and are incorporated herein.

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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.

MKS INSTRUMENTS, INC.

November 4, 2015	By:	/s/ Seth H. Bagshaw
		Seth H. Bagshaw Vice President, Chief Financial Officer and Treasurer (Principal Financial Officer)

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EXHIBIT INDEX

Exhibit No.	Exhibit Description
+3.1(1)	Restated Articles of Organization of the Registrant
+3.2(2)	Articles of Amendment to Articles of Organization, as filed with the Secretary of State of Massachusetts on May 18, 2001
+3.3(3)	Articles of Amendment to Articles of Organization, as filed with the Secretary of State of Massachusetts on May 16, 2002
+3.4(4)	Amended and Restated By-Laws of the Registrant
10.1*	Cash Bonus Award to John T.C. Lee, Senior Vice President of Business Units
31.1	Certification of Principal Executive Officer pursuant to Rule 13a-14(a)/Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended
31.2	Certification of Principal Financial Officer pursuant to Rule 13a-14(a)/Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended
32.1	Certification of Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101.INS	XBRL Instance Document.
101.SCH	XBRL Taxonomy Extension Schema Document.
101.CAL	XBRL Taxonomy Calculation Linkbase Document.
101.LAB	XBRL Taxonomy Labels Linkbase Document.
101.PRE	XBRL Taxonomy Presentation Linkbase Document.
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document.

+ Previously filed
* Management contract or compensatory plan arrangement.
(1) Incorporated by reference to the Registration Statement on Form S-4 (File No. 333-49738) filed with the Securities and Exchange Commission on November 13, 2000.
(2) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2001.
(3) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2002.
(4) Incorporated by reference to the Current Report on Form 8-K filed with the Securities and Exchange Commission on May 6, 2014.

On July 24, 2015, the Compensation Committee awarded John T.C. Lee, Senior Vice President of Business Units, a cash bonus award of $3,000 in recognition of his contributions to the Office of the CTO.

Exhibit 31.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO RULE 13a-14(a)/RULE 15d-14(a) OF THE
SECURITIES EXCHANGE ACT OF 1934, AS AMENDED

I, Gerald G. Colella, certify that:

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

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

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

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

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

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

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

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

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

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

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

Date: November 4, 2015

/s/ Gerald G. Colella
Gerald G. Colella
Chief Executive Officer and President
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO RULE 13a-14(a)/RULE 15d-14(a) OF THE
SECURITIES EXCHANGE ACT OF 1934, AS AMENDED

I, Seth H. Bagshaw, certify that:

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

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

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

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

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

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

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

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

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

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

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

Date: November 4, 2015

/s/ Seth H. Bagshaw
Seth H. Bagshaw
Vice President, Chief Financial Officer and Treasurer
(Principal Financial Officer)

Exhibit 32.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER AND CHIEF FINANCIAL OFFICER

PURSUANT TO 18 U.S.C. SECTION 1350,

AS ADOPTED PURSUANT TO

SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report on Form 10-Q of MKS Instruments, Inc. (the "Company") for the period ended September 30, 2015, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, Gerald G. Colella, Chief Executive Officer and President of the Company, and Seth H. Bagshaw, Vice President, Chief Financial Officer and Treasurer of the Company, each hereby certifies, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, based on his knowledge:

(1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: November 4, 2015

/s/ Gerald G. Colella
Gerald G. Colella
Chief Executive Officer and President

Dated: November 4, 2015

/s/ Seth H. Bagshaw
Seth H. Bagshaw
Vice President, Chief Financial Officer and Treasurer