

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

Form 10-K

(MARK ONE)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934  
For the fiscal year ended December 31, 2012

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)

2 Tech Drive, Suite 201, Andover, Massachusetts  
(Address of Principal Executive Offices)

04-2277512  
(IRS Employer  
Identification No.)

01810  
(Zip Code)

Registrant's Telephone Number, including area code  
(978) 645-5500

Securities registered pursuant to Section 12(b) of the Act:

<u>Title of class</u>	<u>Name of exchange on which registered</u>
Common Stock, no par value	NASDAQ Global Select Market

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes  No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes  No

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 if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§ 229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

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  Smaller reporting company   
(Do not check if a 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

Aggregate market value of the voting and non-voting common equity held by nonaffiliates of the registrant as of June 30, 2012 based on the closing price of the registrant's Common Stock on such date as reported by the NASDAQ Global Select Market: \$1,525,840,465.

Number of shares outstanding of the issuer's Common Stock, no par value, as of February 19, 2013: 52,761,825

**DOCUMENTS INCORPORATED BY REFERENCE**

Portions of the definitive Proxy Statement for MKS' Annual Meeting of Stockholders to be held on May 6, 2013 are incorporated by reference into Part III of this Form 10-K.

**TABLE OF CONTENTS**

**PART I**

Item 1.	<a href="#">Business</a>	2
Item 1A.	<a href="#">Risk Factors</a>	9
Item 1B.	<a href="#">Unresolved Staff Comments</a>	17
Item 2.	<a href="#">Properties</a>	18
Item 3.	<a href="#">Legal Proceedings</a>	20
Item 4.	<a href="#">Mine Safety Disclosures</a>	20

**PART II**

Item 5.	<a href="#">Market for the Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities</a>	21
Item 6.	<a href="#">Selected Financial Data</a>	24
Item 7.	<a href="#">Management's Discussion and Analysis of Financial Condition and Results of Operations</a>	25
Item 7A.	<a href="#">Quantitative and Qualitative Disclosures about Market Risk</a>	41
Item 8.	<a href="#">Financial Statements and Supplementary Data</a>	43
Item 9.	<a href="#">Changes in and Disagreements with Accountants on Accounting and Financial Disclosure</a>	83
Item 9A.	<a href="#">Controls and Procedures</a>	83
Item 9B.	<a href="#">Other Information</a>	84

**PART III**

Item 10.	<a href="#">Directors, Executive Officers and Corporate Governance</a>	85
Item 11.	<a href="#">Executive Compensation</a>	85
Item 12.	<a href="#">Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters</a>	85
Item 13.	<a href="#">Certain Relationships and Related Transactions and Director Independence</a>	85
Item 14.	<a href="#">Principal Accountant Fees and Services</a>	85

**PART IV**

Item 15.	<a href="#">Exhibits and Financial Statement Schedules</a>	86
<a href="#">SIGNATURES</a>		90

## SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K 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. When used herein, the words “believe,” “anticipate,” “plan,” “expect,” “estimate,” “intend,” “may,” “see,” “will,” “would” and similar expressions are intended to identify forward-looking statements although not all forward looking statements contain these identifying words. These forward-looking statements reflect management’s current opinions and are subject to certain risks and uncertainties that could cause actual results to differ materially from those stated or implied. MKS assumes no obligation to update this information. Risks and uncertainties include, but are not limited to, those discussed in the section entitled “Risk Factors” of this annual report on Form 10-K.

### PART I

#### **Item 1. Business**

MKS Instruments, Inc. (the “Company” or “MKS”) was founded in 1961 as a Massachusetts corporation. 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.

We group our products into four groups of similar products based upon the similarity of product function. These four groups of products are: Instruments and Control Products, Power and Reactive Gas Products, Vacuum Products and Analytical Solutions Group Products. 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, light emitting diodes (“LEDs”), data storage media and other advanced coatings. We also leverage our technology into other markets with advanced manufacturing processes including medical equipment, pharmaceutical manufacturing, energy generation and environmental monitoring.

Effective in the second quarter of fiscal 2012, we changed our reporting segments from one to four reporting segments based upon the information that is provided to the Company’s chief operating decision maker. Our new reportable segments are: Advanced Manufacturing Capital Equipment, Analytical Solutions Group, Europe Region Sales & Service and Asia Region Sales & Service.

The Advanced Manufacturing Capital Equipment segment includes the development, manufacture, sales and 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. Sales in this segment include both external sales and intercompany sales (which are recorded at agreed upon transfer prices). External sales of these products made in Europe or Asia are reported as sales in the Europe Region Sales & Service or Asia Region Sales & Service segments. The Analytical Solutions Group includes, gas composition analysis, information technology products and custom fabrication services. The Europe and Asia region sales and service segments mainly resell and service the Advanced Manufacturing Capital Equipment and Analytical Solutions Group products sold into their respective regions.

For over 50 years, we have focused on satisfying the needs of our customers by establishing long-term, collaborative relationships. 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

## [Table of Contents](#)

displays, LEDs, solar cells, data storage media 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.

We file reports, proxy statements and other documents with the Securities and Exchange Commission (“SEC”). You may read and copy any document we file at the SEC Headquarters at the Office of Investor Education and Assistance, 100 F Street, NE, Washington, D.C. 20549. You should call 1-800-SEC-0330 for more information on the public reference room. Our SEC filings are also available to you on the SEC’s internet site at <http://www.sec.gov>.

Our internet address is <http://www.mksinst.com>. We are not including the information contained in our website as part of, or incorporating it by reference into, this annual report on Form 10-K. We make available free of charge through our internet site our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to these reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), as soon as reasonably practicable after we electronically file such materials with, or furnish it to, the SEC.

### **Markets and Applications**

We are focused on improving process performance and productivity by measuring, controlling, powering, monitoring and analyzing advanced manufacturing processes in semiconductor, thin film and certain other advanced market sectors. Approximately 62%, 61% and 64% of our net sales for the years 2012, 2011 and 2010, respectively, were to semiconductor capital equipment manufacturers and semiconductor device manufacturers. Approximately 38%, 39% and 36% of our net sales in the years 2012, 2011 and 2010, respectively, were for other advanced manufacturing applications. These include, but are not limited to, thin film processing equipment applications such as flat panel displays, LEDs, solar cells, data storage media and other thin film coatings as well as medical equipment; pharmaceutical manufacturing, energy generation and environmental monitoring processes; other industrial manufacturing; and university, government and industrial research laboratories.

During the years 2012, 2011 and 2010, international net sales accounted for approximately 49%, 52% and 43% of our net sales, respectively. Net sales by our Japanese subsidiary were 13%, 13% and 14% for the years 2012, 2011 and 2010, respectively. Long-lived assets located in the U.S. were \$62.2 million, \$56.8 million and \$54.8 million as of December 31, 2012, 2011 and 2010, respectively. Long-lived assets located outside the U.S. were \$20.5 million, \$17.7 million and \$17.8 million as of December 31, 2012, 2011 and 2010, respectively.

#### ***Semiconductor Manufacturing Applications***

The majority of our sales are derived from products sold to semiconductor capital equipment manufacturers and semiconductor device manufacturers. Our products are used in the major semiconductor processing steps such as depositing thin films of material onto silicon wafer substrates and etching and cleaning circuit patterns. In addition, we provide specialized instruments and software to monitor and analyze process performance.

We anticipate that the semiconductor manufacturing market will continue to account for a substantial portion of our sales. While the semiconductor device manufacturing market is global, major semiconductor capital equipment manufacturers are concentrated in Japan, Taiwan, Korea and the United States.

#### ***Other Advanced Manufacturing Applications***

Our products are used in the manufacture of flat panel displays, LEDs, data storage media, solar cells and other coatings including architectural glass that require the same or similar thin film deposition processes as semiconductor manufacturing.

## [Table of Contents](#)

### *Flat Panel Display Manufacturing*

Flat panel displays are used in electronic hand-held devices, laptop computers, desktop computer monitors and television sets. We sell products to flat panel display equipment manufacturers and to end-users in the flat panel display market. Major manufacturers of flat panel displays are concentrated in Japan, Korea and Taiwan, and major manufacturers of flat panel display equipment are concentrated in Japan and the United States. The transition to larger panel sizes and higher display resolution is driving the need for improved process control to reduce defects.

### *Light Emitting Diodes*

LEDs are made using vacuum processes similar to semiconductor chip manufacturing. Because of their high brightness and long life, as well as environmentally friendly benefits such as lower power consumption, LEDs are expected to experience rapid acceptance in back side lighting of flat screen television displays and are emerging in general lighting applications.

### *Solar Cells*

Our products are used in crystalline silicon and emerging thin film processes to manufacture photovoltaic cells. Crystalline silicon technology requires wafer based deposition systems and is currently the dominant manufacturing technology. Thin film deposition on a non-silicon substrate, such as glass, is the emerging technology.

### *Data Storage Media*

Our products are used to manufacture storage media that store and read data magnetically; optical storage media that store and read data using laser technology; hard disks; data storage devices; and digital video discs.

The transition to higher density storage capacity requires manufacturing processes incorporating tighter process controls. Major manufacturers of storage media are concentrated in Japan and the Asia Pacific region, and major manufacturers of storage media capital equipment are concentrated in Europe, Japan and the United States.

### *Other Advanced Coatings*

Thin film coatings for diverse applications such as architectural glass and packaging are deposited using processes similar to those used in semiconductor manufacturing. Thin film processing manufacturers are concentrated in Europe, Japan and the United States.

### *Other Advanced Applications*

Our products are used in other advanced applications, including energy generation and environmental monitoring processes such as nuclear fuel processing, fuel cell research, greenhouse gas monitoring, and chemical agent detection; medical instrument sterilization; consumable medical supply manufacturing and pharmaceutical applications. Our power delivery products are also incorporated into other end-market products such as medical imaging equipment. In addition, our products are sold to government, university and industrial laboratories for vacuum applications involving research and development in materials science, physical chemistry and electronics materials. Major equipment and process providers and research laboratories are concentrated in Europe, Japan and the United States.

## **Product Groups**

We group our products into four product groups, based upon the similarity of the product function, type of product and manufacturing processes. These four groups of products are: Instruments and Control Products, Power and Reactive Gas Products, Vacuum Products and Analytical Solutions Group Products.

## [Table of Contents](#)

### **Instruments and Control Products**

This product group includes pressure measurement and control, materials delivery and control products.

**Pressure Measurement and Control Products.** Each of our pressure measurement and control product lines consists of products that are designed for a variety of pressure ranges and accuracies.

**Baratron® Pressure Measurement Products.** These products are typically used to measure the pressure of the gases being distributed upstream of the process chambers, process chamber pressures and pressures between process chambers, vacuum pumps and exhaust lines. We believe we offer the widest range of gas pressure measurement instruments in the semiconductor and advanced thin film materials processing industries.

**Automatic Pressure and Vacuum Control Products.** These products enable precise control of process pressure by electronically actuating valves that control the flow of gases in and out of the process chamber to minimize the difference between desired and actual pressure in the chamber.

In most cases, Baratron® pressure measurement instruments provide the pressure input to the automatic pressure control device. Together, these components create an integrated automatic pressure control subsystem. Our pressure control products can also accept inputs from other measurement instruments, enabling the automatic control of gas input or exhaust based on parameters other than pressure.

**Materials Delivery Products.** Each of our materials delivery product lines combines MKS flow, pressure measurement and control technologies to provide customers with integrated subsystems and precise control capabilities that are optimized for a given application.

**Flow Measurement and Control Products.** Flow measurement products include gas and vapor flow measurement products based upon thermal conductivity, pressure and direct liquid injection technologies. The flow control products combine the flow measurement device with valve control elements based upon solenoid, piezo-electric and piston pump technologies. These products measure and automatically control the mass flow rate of gases and vapors into the process chamber.

**Control Products.** We design and manufacture a suite of products that allow semiconductor and other manufacturing customers to better control their processes through computer-controlled automation. These products include digital control network products, process chamber, system controllers and connectivity products.

**Control Products.** Digital control network products are used to connect sensors, actuators and subsystems to the chamber and system control computers. They support a variety of industry-standard connection methods as well as conventional discrete digital and analog signals. Chamber and system control computers process these signals in real time and allow customers to precisely manage the process conditions.

Connecting sensors, chambers and tools to the factory network is essential for improving quality and productivity. Our connectivity products allow information to flow from the process sensors and subsystems and from the process tool control computer to the factory network. By enabling this information flow, we believe that we help customers optimize their processes through advanced process control, and diagnose equipment problems from a remote location, which is referred to as “e-diagnostics.”

### **Power and Reactive Gas Products**

This group of products includes power delivery and reactive gas generation products used in semiconductor and other thin film applications, including solar and in medical imaging equipment applications.

## Table of Contents

**Power Delivery Products.** We design and manufacture microwave, direct current and radio frequency power delivery systems as well as radio frequency matching networks and metrology products. In the semiconductor, thin film and other market sectors, our power supplies are used to provide energy to various etching, stripping and deposition processes. Our power amplifiers are also used in medical imaging equipment.

**Reactive Gas Generation Products.** We design and manufacture reactive gas generation products, which create reactive species. A reactive species is an atom or molecule in an unstable state, which is used to facilitate various chemical reactions in processing of thin films (deposition of films, etching and cleaning of films and surface modifications). A number of different technologies are used to create reactive gas including different plasma technologies and barrier discharge technologies.

**Processing Thin Films.** Our reactive gas products include ozone generators and subsystems used for deposition of insulators onto semiconductor devices, ozonated water delivery systems for advanced semiconductor wafer and flat panel display cleaning, microwave plasma based products for photo resist removal and a line of remote plasma generators which provide reactive gases for a wide range of semiconductor, flat panel and other thin film process applications.

**Equipment Cleaning.** As materials are deposited on wafers, films, or solar cells, the deposited material also accumulates on the walls of the vacuum process chamber. Our atomic fluorine generators are used to clean the process chambers between deposition steps to reduce particulates and contamination caused by accumulated build up on the chamber walls.

### Vacuum Products

This group of products consists of vacuum technology products, including vacuum containment components, vacuum gauges, vacuum valves, effluent management subsystems and custom stainless steel chambers, vessels and pharmaceutical process equipment (BPE) hardware and housings.

**Vacuum Gauging Products.** We offer a wide range of vacuum instruments consisting of vacuum measurement sensors and associated power supply and readout units as well as transducers where the sensor and electronics are integrated within a single package. These gauges complement our Baratron® capacitance manometers for medium and high vacuum ranges. Our indirect gauges use thermal conductivity and ionization gauge technologies to measure pressure and vacuum levels, and our direct gauges use the pressure measurement technology of a MEMS-based piezo sensor.

**Vacuum Valves, Stainless Steel Components, Process Solutions and Custom Stainless Steel Hardware.** Our vacuum valves are used for vacuum isolation of vacuum lines, load locks, vacuum chambers and pumps for chamber isolation and vacuum containment. Our vacuum process solutions consist of vacuum fittings, traps and heated lines that are used downstream from the semiconductor process chamber to control process effluent gasses by preventing condensable materials from depositing particles near or back into the process chamber.

**Custom Manufactured Components.** Our design and manufacturing facilities build high purity chambers for material and thin film coating processes. We design and build custom panels, weldments, American Society of Manufacturing Engineers vessels and housings, as well as a line of Bioprocessing Equipment Standard certified components for biopharmaceutical processes.

### Analytical Solutions Group Products

This product group includes gas composition analysis products, information technology products and custom fabrication services.

**Gas Composition Analysis Products.** Gas composition analysis instruments are sold to a wide variety of industries including the engine development, environmental emissions monitoring, air safety monitoring and semiconductor industries.

## [Table of Contents](#)

**Mass Spectrometry-Based Gas Composition Analysis Instruments.** These products are based on quadrupole mass spectrometer sensors that separate gases based on molecular weight. These sensors include built-in electronics and are provided with software that analyzes the composition of background and process gases in the process chamber. These instruments are provided both as bench top laboratory systems and as process gas monitoring systems used in the diagnosis of semiconductor manufacturing process systems.

**Fourier Transform Infra-Red (FTIR) Based Gas Composition Analysis Products.** FTIR-based products provide information about the composition of gases by measuring the absorption of infra-red light as it passes through the sample being measured. Gas analysis applications include measuring the compositions of mixtures of reactant gases; measuring the purity of individual process gases; measuring the composition of process exhaust gas streams to determine process health; monitoring emissions to ensure environmental compliance and monitoring ambient air for safety. These instruments are provided as standalone monitors and as process gas monitoring systems.

Mass spectrometry-based and FTIR-based gas monitoring systems can indicate out-of-bounds conditions, such as the presence of undesirable contaminant gases and water vapor or out-of-tolerance amounts of specific gases in the process, which alert operators to diagnose and repair faulty equipment.

**Information Technology Products.** We design software products including design of experiment and multivariate analysis software for analyzing large and complex data sets. Our focus is on providing solutions which improve the quality and yield of manufacturing processes for the pharmaceutical, biotech and other industries.

**Custom Fabrication.** Our fabrication facility builds precision machined components and electromechanical assemblies for the analytical instrument, scientific, semiconductor and medical industries to ultra-high vacuum standards.

### **Customers**

Our largest customers include leading semiconductor capital equipment manufacturers such as Applied Materials, Lam Research and Tokyo Electron. Sales to our top ten customers accounted for approximately 42%, 41% and 45% of net sales for the years 2012, 2011 and 2010, respectively. Applied Materials accounted for approximately 14%, 14% and 16% of our net sales for the years 2012, 2011 and 2010, respectively.

### **Sales, Marketing, Service and Support**

Our worldwide sales, marketing, service and support organization is critical to our strategy of maintaining close relationships with semiconductor capital equipment and device manufacturers, and manufacturers of other advanced applications. We sell our products primarily through our direct sales force. As of December 31, 2012, we had 166 sales employees worldwide, located in China, France, Germany, Japan, Korea, the Netherlands, Singapore, Sweden, Taiwan, the United Kingdom and the United States. We also maintain sales representatives and agents in a number of countries, who supplement our direct sales force. We maintain a marketing staff that identifies customer requirements, assists in product planning and specifications, and focuses on future trends in semiconductor and other markets.

As semiconductor device manufacturers have become increasingly sensitive to the significant costs of system downtime, they have required that suppliers offer comprehensive local repair service and close customer support. Manufacturers require close support to enable them to repair, modify, upgrade and retrofit their equipment to improve yields and adapt new materials or processes. To meet these market requirements, we maintain internal worldwide sales and support organizations in nine countries and external third party worldwide sales and support organizations in six countries. Technical support is provided from offices in China, France,



## [Table of Contents](#)

Germany, Japan, Korea, Singapore, Taiwan, the United Kingdom and the United States. Repair and calibration services are provided at nineteen internal and four third party service depots located worldwide. We typically provide warranties from one to three years, depending upon the type of product, with the majority of our products ranging from one to two years.

### **Research and Development**

Our products incorporate sophisticated technologies to power, measure, control and monitor increasingly complex gas-related semiconductor and other advanced manufacturing processes, thereby enhancing uptime, yield and throughput for our customers. Our products have continuously advanced as we strive to meet our customers' evolving needs. We have developed, and continue to develop, new products to address industry trends, such as the shrinking of integrated circuit critical dimensions to 22 nanometers and below and, in the flat panel display and solar markets, the transition to larger substrate sizes, which require more advanced process control technology. In addition, we have developed, and continue to develop, products that support the migration to new classes of materials and ultra-thin layers, such as copper for low resistance conductors, high-k dielectric materials for capacitors and gates and low-k dielectric materials for low loss insulators that are used in small geometry manufacturing. We involve our marketing, engineering, manufacturing and sales personnel in the development of new products in order to reduce the time to market for new products. Our employees also work closely with our customers' development personnel helping us to identify and define future technical needs on which to focus research and development efforts. We support research at academic institutions targeted at advances in materials science and semiconductor process development.

As of December 31, 2012, we had 377 research and development employees, primarily located in the United States. Our research and development expenses were \$60.1 million, \$61.0 million and \$62.7 million for the years 2012, 2011 and 2010, respectively. Our research and development efforts include numerous projects, none of which are individually material, and generally have a duration 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.

### **Manufacturing**

Our primary manufacturing facilities are located primarily in the United States and China and also in Mexico, Germany, the United Kingdom and Israel. Manufacturing activities include the assembly and testing of components and subassemblies, which are integrated into our products. We outsource some of our subassembly work. We purchase a wide range of electronic, mechanical and electrical components, some of which are designed to our specifications. We consider our lean manufacturing techniques and responsiveness to customers' significantly fluctuating product demands to be a competitive advantage. As of December 31, 2012, we had 1,451 manufacturing related employees located mostly in the United States and China.

### **Competition**

The market for our products is highly competitive. Principal competitive factors include:

- historical customer relationships;
- product quality, performance and price;
- breadth of product line;
- manufacturing capabilities; and
- customer service and support.

Although we believe that we compete favorably with respect to these factors, there can be no assurance that we will continue to do so.

## [Table of Contents](#)

We encounter substantial competition in most of our product lines, although no single competitor competes with us across all product lines. Certain of our competitors may have greater financial and other resources than us. In some cases, competitors are smaller than we are, but are well established in specific product niches. Hitachi and Horiba offer materials delivery products that compete with our product line of mass flow controllers. Nor-Cal Products, Inc. and VAT, Inc. offer products that compete with our vacuum components. Inficon offers products that compete with our vacuum measurement and gas analysis products. Brooks Automation and Inficon offer products that compete with our vacuum gauging products. Advanced Energy offers products that compete with our power delivery and reactive gas generator products.

### **Patents and Other Intellectual Property Rights**

We rely on a combination of patent, copyright, trademark and trade secret laws and license agreements to establish and protect our proprietary rights. As of December 31, 2012, we owned 370 U.S. patents, 440 foreign patents and had 116 pending U.S. patent applications that expire at various dates through 2031. Foreign counterparts of certain of these applications have been filed or may be filed at the appropriate time.

We require each of our employees, including our executive officers, to enter into standard agreements pursuant to which the employee agrees to keep confidential all of our proprietary information and to assign to us all inventions while they are employed by us.

### **Employees**

As of December 31, 2012, we employed 2,305 persons. We believe that our ongoing success depends upon our continued ability to attract and retain highly skilled employees for whom competition is intense. None of our employees are represented by a labor union or are party to a collective bargaining agreement. We believe that our employee relations are good.

### **Acquisition**

On August 29, 2012, we completed our acquisition of Plasmart, Inc. ("Plasmart") located in Daejeon, Korea. Plasmart develops radio frequency (RF), plasma generation and monitoring systems for the semiconductor, flat panel display, active matrix organic light emitting diodes and solar photovoltaic industries. The purchase price was \$22.6 million, net of \$0.1 of cash acquired, after final working capital post close adjustments.

### **Discontinued Operations**

During 2010, we executed a plan to divest two product lines, as their growth potential no longer met our long-term strategic objectives. We completed the sale of Ion Systems, Inc. ("Ion") during the second quarter of 2010 and the sale of the assets of the Yield Dynamics, LLC ("YDI") business during the third quarter of 2010. The results of operations of these two product lines have been classified as discontinued operations in the consolidated statements of operations and comprehensive income for all periods presented.

### **Item 1A. Risk Factors**

The following factors could materially affect MKS' business, financial condition or results of operations and should be carefully considered in evaluating the Company and its business, in addition to other information presented elsewhere in this report.

***Our business depends substantially on capital spending in the semiconductor industry which is characterized by periodic fluctuations that may cause a reduction in demand for our products.***

Approximately 62%, 61% and 64% of our net sales for the years 2012, 2011 and 2010, respectively, were to semiconductor capital equipment manufacturers and semiconductor device manufacturers, and we expect that

## [Table of Contents](#)

sales to such customers will continue to account for a substantial portion of our sales. Our business depends upon the capital expenditures of semiconductor device manufacturers, which in turn depends upon the demand for semiconductors.

Historically, the semiconductor market has been highly cyclical and has experienced periods of overcapacity, resulting in significantly reduced demand for capital equipment which may result in lower gross margins due to reduced absorption of manufacturing overhead. In addition, many semiconductor manufacturers have operations and customers in Asia, a region that in past years has experienced serious economic problems including currency devaluations, debt defaults, lack of liquidity and recessions.

The cyclicity of the semiconductor market is demonstrated by the changes in sales to semiconductor capital equipment and device manufacturers in past years. For example, our sales to semiconductor capital equipment manufacturers and semiconductor device manufacturers decreased by 20% and 8% in 2012 and 2011, respectively, compared to the prior year. However, in 2010, sales to semiconductor capital equipment manufacturers and semiconductor device manufacturers increased by 167%. We cannot be certain of the timing or magnitude of future semiconductor industry downturns or recoveries. A decline in the level of orders as a result of any additional downturn or slowdown in the semiconductor capital equipment industry could have a material adverse effect on our business, financial condition and results of operations.

### ***We are exposed to risks associated with instability in the financial markets and any weakness in the global economy.***

The markets for semiconductors and flat panel displays in particular depend largely on consumer spending. Economic uncertainty exacerbates negative trends in consumer spending and may cause certain of our customers to push out, cancel, or refrain from placing equipment or service orders, which may affect our ability to convert backlog to sales and may reduce our net sales. Difficulties in obtaining capital and deteriorating market conditions may also lead to the inability of some customers to obtain affordable financing, resulting in lower sales for us. Customers with liquidity issues may lead to additional bad debt expense for us. These conditions may also similarly affect key suppliers, which could affect their ability to deliver parts and result in delays for our products. Further, these conditions and uncertainty about future economic conditions make it challenging for us to forecast our operating results, make business decisions, and identify the risks that may affect our business, financial condition and results of operations. If we are not able to timely and appropriately adapt to changes resulting from a difficult macroeconomic environment, our business, financial condition or results of operations may be materially and adversely affected.

International sales accounted for approximately 49%, 52% and 43%, of net sales for the years 2012, 2011 and 2010, respectively, a substantial portion of which were sales to China, Japan, Korea and other Asian countries and we anticipate that international sales will continue to account for a significant portion of our net sales. In addition, certain of our key domestic customers derive a significant portion of their revenues from sales in international markets. Therefore, our sales and results of operations could be adversely affected by economic slowdowns affecting the global economy generally, as well as economic slow downs in particular regions, such as Asia or Europe, or specific countries such as Japan.

### ***Our quarterly operating results have fluctuated, and are likely to continue to vary significantly, which may result in volatility in the market price of our Common Stock.***

A substantial portion of our shipments occurs shortly after an order is received and therefore, we operate with a low level of backlog. As a result, a decrease in demand for our products from one or more customers could occur with limited advance notice and could have a material adverse effect on our results of operations in any particular period. A significant percentage of our expenses is relatively fixed and based in part on expectations of future net sales. The inability to adjust spending quickly enough to compensate for any shortfall would magnify the adverse impact of a shortfall in net sales on our results of operations. Factors that could cause fluctuations in our net sales include:

- the timing of the receipt of orders from major customers;

## Table of Contents

- shipment delays;
- disruption in sources of supply;
- seasonal variations in capital spending by customers;
- production capacity constraints; and
- specific features requested by customers.

In addition, our quarterly operating results may be adversely affected due to charges incurred in a particular quarter, for example, relating to inventory obsolescence, warranty or asset impairments.

As a result of the factors discussed above, it is likely that we may in the future experience quarterly or annual fluctuations and that, in one or more future quarters, our operating results may fall below the expectations of public market analysts or investors. In any such event, the price of our Common Stock could fluctuate or decline significantly.

### ***The loss of net sales to any one of our major customers would likely have a material adverse effect on us.***

Our top ten customers accounted for approximately 42%, 41% and 45% of our net sales for the years 2012, 2011 and 2010, respectively. During the years 2012, 2011 and 2010, one customer, Applied Materials, accounted for approximately 14%, 14% and 16%, respectively, of our net sales. The loss of a major customer or any reduction in orders by these customers, including reductions due to market or competitive conditions, would likely have a material adverse effect on our business, financial condition and results of operations. None of our significant customers, including Applied Materials, has entered into an agreement requiring it to purchase any minimum quantity of our products. The demand for our products from our semiconductor capital equipment customers depends in part on orders received by them from their semiconductor device manufacturer customers.

Attempts to lessen the adverse effect of any loss or reduction of net sales through the rapid addition of new customers could be difficult because prospective customers typically require lengthy qualification periods prior to placing volume orders with a new supplier. Our future success will continue to depend upon:

- our ability to maintain relationships with existing key customers;
- our ability to attract new customers and satisfy any required qualification periods;
- our ability to introduce new products in a timely manner for existing and new customers; and
- the successes of our customers in creating demand for their capital equipment products that incorporate our products.

### ***As part of our business strategy, we have entered into and may enter into or seek to enter into business combinations and acquisitions that may be difficult and costly to integrate, may be disruptive to our business, may dilute stockholder value or may divert management attention.***

We have made numerous acquisitions and, as a part of our business strategy, we may enter into additional business combinations and acquisitions. Acquisitions are typically accompanied by a number of risks, including the difficulty of integrating the operations, technology and personnel of the acquired companies, the potential disruption of our ongoing business and distraction of management, possible internal control weaknesses of the acquired companies, expenses related to the acquisition and potential unknown liabilities associated with acquired businesses. If we are not successful in completing acquisitions that we may pursue in the future, we may be required to reevaluate our growth strategy, and we may incur substantial expenses and devote significant management time and resources in seeking to complete proposed acquisitions that may not generate benefits for us.

## [Table of Contents](#)

In addition, with future acquisitions, we could use substantial portions of our available cash as all or a portion of the purchase price. We could also issue additional securities as consideration for these acquisitions, which could cause significant stockholder dilution without achieving the desired accretion to our business. Further, our prior acquisitions and any future acquisitions may not ultimately help us achieve our strategic goals and may pose other risks to us.

As a result of our previous acquisitions, we have several different decentralized operating and accounting systems. We will need to continue to modify our accounting policies, internal controls, procedures and compliance programs to provide consistency across all of our operations. In order to increase efficiency and operating effectiveness and improve corporate visibility into our decentralized operations, we are currently implementing a worldwide Enterprise Resource Planning (“ERP”) system. We expect to continue to implement the ERP system in phases over the next few years. Any future implementations may risk potential disruption of our operations during the conversion periods and the implementations could require significantly more management time and higher implementation costs than currently estimated.

***An inability to convince semiconductor device manufacturers to specify the use of our products to our customers that are semiconductor capital equipment manufacturers would weaken our competitive position.***

The markets for our products are highly competitive. Our competitive success often depends upon factors outside of our control. For example, in some cases, particularly with respect to mass flow controllers, semiconductor device manufacturers may direct semiconductor capital equipment manufacturers to use a specified supplier’s product in their equipment. Accordingly, for such products, our success will depend in part on our ability to have semiconductor device manufacturers specify that our products be used at their semiconductor fabrication facilities. In addition, we may encounter difficulties in changing established relationships of competitors that already have a large installed base of products within such semiconductor fabrication facilities.

***If our products are not designed into successive generations of our customers’ products, we will lose significant net sales during the lifespan of those products.***

New products designed by capital equipment manufacturers typically have a lifespan of five to ten years. Our success depends on our products being designed into new generations of equipment. We must develop products that are technologically advanced so that they are positioned to be chosen for use in each successive generation of capital equipment. If customers do not choose our products, our net sales may be reduced during the lifespan of our customers’ products. In addition, we must make a significant capital investment to develop products for our customers well before our products are introduced and before we can be sure that we will recover our capital investment through sales to the customers in significant volume. We are thus also at risk during the development phase that our products may fail to meet our customers’ technical or cost requirements and may be replaced by a competitive product or alternative technology solution. If that happens, we may be unable to recover our development costs.

***The semiconductor industry is subject to rapid demand shifts which are difficult to predict. As a result, our inability to expand our manufacturing capacity in response to these rapid shifts may cause a reduction in our market share.***

Our ability to increase sales of certain products depends in part upon our ability to expand our manufacturing capacity for such products in a timely manner. If we are unable to expand our manufacturing capacity on a timely basis or to manage such expansion effectively, our customers could implement our competitors’ products and, as a result, our market share could be reduced. Because the semiconductor industry is subject to rapid demand shifts which are difficult to foresee, we may not be able to increase capacity quickly enough to respond to a rapid increase in demand. Additionally, capacity expansion could increase our fixed operating expenses and if sales levels do not increase to offset the additional expense levels associated with any such expansion, our business, financial condition and results of operations could be materially adversely affected.

## [Table of Contents](#)

### ***Manufacturing interruptions or delays could affect our ability to meet customer demand and lead to higher costs, while the failure to estimate customer demand accurately could result in excess or obsolete inventory.***

Our business depends on its timely supply of equipment, services and related products that meet the rapidly changing technical and volume requirements of our customers, which depends in part on the timely delivery of parts, components and subassemblies (collectively, parts) from suppliers, including contract manufacturers. Cyclical industry conditions and the volatility of demand for manufacturing equipment increase capital, technical, operational and other risks for us and for companies throughout our supply chain. We may also experience significant interruptions of our manufacturing operations, delays in our ability to deliver products or services, increased costs or customer order cancellations as a result of:

- volatility in the availability and cost of materials, including rare earth elements;
- information technology or infrastructure failures; and
- natural disasters or other events beyond our control (such as earthquakes, floods or storms, regional economic downturns, pandemics, social unrest, political instability, terrorism, or acts of war), particularly where we conduct manufacturing.

In addition, if we need to rapidly increase our business and manufacturing capacity to meet increases in demand or expedited shipment schedules, this may exacerbate any interruptions in our manufacturing operations and supply chain and the associated effect on our working capital. Moreover, if actual demand for our products is different than expected, we may purchase more/fewer parts than necessary or incur costs for canceling, postponing or expediting delivery of parts. If we purchase inventory in anticipation of customer demand that does not materialize, or if our customers reduce or delay orders, we may incur excess inventory charges. Any or all of these factors could materially and adversely affect our business, financial condition and results of operations.

### ***A material amount of our assets represents goodwill and intangible assets, and our net income will be reduced if our goodwill or intangible assets become impaired.***

As of December 31, 2012, our goodwill and intangible assets, net, represented approximately \$162.3 million, or 14% of our total assets. Goodwill is generated in our acquisitions when the cost of an acquisition exceeds the fair value of the net tangible and identifiable intangible assets we acquire. Goodwill is subject to an impairment analysis at least annually based on the fair value of the reporting unit. Intangible assets, which relate primarily to the developed technologies, customer relationships, patents and trademarks and in-process research and development acquired by us as part of our acquisitions of other companies, are subject to an impairment analysis whenever events or changes in circumstances exist that indicate that the carrying value of the intangible asset might not be recoverable. We will continue to monitor and evaluate the carrying value of goodwill and intangible assets. If market and economic conditions or business performance deteriorate, the likelihood of the Company recording an impairment charge would increase, which could materially and adversely affect our results of operations.

### ***We operate in a highly competitive industry.***

The market for our products is highly competitive. Principal competitive factors include:

- historical customer relationships;
- product quality, performance and price;
- breadth of product line;
- manufacturing capabilities; and
- customer service and support.

## [Table of Contents](#)

Although we believe that we compete favorably with respect to these factors, we may not be able to continue to do so. We encounter substantial competition in most of our product lines. Certain of our competitors may have greater financial and other resources than we have. In some cases, competitors are smaller than we are, but well established in specific product niches. We may encounter difficulties in changing established relationships of competitors with a large installed base of products at such customers' fabrication facilities. In addition, our competitors can be expected to continue to improve the design and performance of their products. Competitors may develop products that offer price or performance features superior to those of our products. If our competitors develop superior products, we may lose existing customers and market share.

### ***We have significant foreign operations, and outsource certain operations offshore, which pose significant risks.***

We have significant international sales, service, engineering and manufacturing operations in Europe, Israel and Asia, and have outsourced a portion of our manufacturing and service to a subcontractor in Mexico. In the future, we may expand the level of manufacturing and certain other operations that we perform offshore in order to take advantage of cost efficiencies available to us in those countries. However, we may not achieve the significant cost savings or other benefits that we would anticipate from moving manufacturing and other operations to a lower cost region. These foreign operations expose us to operational and political risks that may harm our business, including:

- political and economic instability;
- fluctuations in the value of currencies and high levels of inflation, particularly in Asia and Europe;
- changes in labor conditions and difficulties in staffing and managing foreign operations, including, but not limited to, the formation of labor unions;
- reduced or less certain protection for intellectual property rights;
- greater difficulty in collecting accounts receivable and longer payment cycles;
- burdens and costs of compliance with a variety of foreign laws;
- increases in duties and taxation;
- costs associated with compliance programs for import and export regulations;
- imposition of restrictions on currency conversion or the transfer of funds;
- changes in export duties and limitations on imports or exports;
- expropriation of private enterprises; and
- unexpected changes in foreign regulations.

If any of these risks materialize, our operating results may be adversely affected.

### ***The Company may have risks associated with export violations in its Shanghai office.***

In May 2012, an employee from the Company's Shanghai, China subsidiary was arrested as part of a U.S. government investigation into violations of U.S. law, including providing false information to obtain U.S. export licenses for certain MKS pressure transducers. U.S. government authorities have made it clear that MKS is not a target of the investigation. MKS is cooperating with the government's investigation. In addition, MKS conducted its own investigation into these matters. Although MKS has taken corrective human resources actions, has implemented additional export compliance procedures and is continuing to review and expand upon procedures, we cannot be certain these efforts will be sufficient to avoid similar situations. While MKS does not expect any of the alleged violations to have a material adverse effect upon its business, the disruption caused by this matter could adversely affect its Shanghai sales office. Additionally, the Company cannot be certain of the outcome of the governmental investigation, which could include the identification of other violations, fines, penalties, restrictions on export activities or other governmental actions.

***Unfavorable currency exchange rate fluctuations may lead to lower operating margins or may cause us to raise prices, which could result in reduced sales.***

Currency exchange rate fluctuations could have an adverse effect on our net sales and results of operations and we could experience losses with respect to our hedging activities. Unfavorable currency fluctuations could require us to increase prices to foreign customers, which could result in lower net sales by us to such customers. Alternatively, if we do not adjust the prices for our products in response to unfavorable currency fluctuations, our results of operations could be adversely affected. In addition, most sales made by our foreign subsidiaries are denominated in the currency of the country in which these products are sold and the currency they receive in payment for such sales could be less valuable at the time of receipt as a result of exchange rate fluctuations. We enter into forward foreign exchange contracts to reduce currency exposure arising from intercompany sales of inventory. However, we cannot be certain that our efforts will be adequate to protect us against significant currency fluctuations or that such efforts will not expose us to additional exchange rate risks.

***Changes in tax rates or tax regulation could affect results of operations.***

As a global company, we are subject to taxation in the United States and various other countries. Significant judgment is required to determine and estimate worldwide tax liabilities. Our future annual and quarterly effective tax rates could be affected by numerous factors, including changes in the: applicable tax laws; composition of pre-tax income in countries with differing tax rates; and/or valuation of our deferred tax assets and liabilities. In addition, we are subject to regular examination by the Internal Revenue Service, state, local and foreign tax authorities. We regularly assess the likelihood of favorable or unfavorable outcomes resulting from these examinations to determine the adequacy of our provision for income taxes. Although we believe our tax estimates are reasonable, there can be no assurance that any final determination will not be materially different from the treatment reflected in our historical income tax provisions and accruals, which could materially and adversely affect our financial condition and results of operations.

***Key personnel may be difficult to attract and retain.***

Our success depends to a large extent upon the efforts and abilities of a number of key employees and officers, particularly those with expertise in the semiconductor manufacturing and similar industrial manufacturing industries. The loss of key employees or officers could have a material adverse effect on our business, financial condition and results of operations. We believe that our future success will depend in part on our ability to attract and retain highly skilled technical, financial, managerial and sales and marketing personnel. We cannot be certain that we will be successful in attracting and retaining such personnel.

***Our proprietary technology is important to the continued success of our business. Our failure to protect this proprietary technology may significantly impair our competitive position.***

As of December 31, 2012, we owned 370 U.S. patents, 440 foreign patents and had 116 pending U.S. patent applications that expire at various dates through 2031. Although we seek to protect our intellectual property rights through patents, copyrights, trade secrets and other measures, we cannot be certain that:

- we will be able to protect our technology adequately;
- competitors will not be able to develop similar technology independently;
- any of our pending patent applications will be issued;
- domestic and international intellectual property laws will protect our intellectual property rights; or
- third parties will not assert that our products infringe patent, copyright or trade secrets of such parties.

***Protection of our intellectual property rights may result in costly litigation.***

Litigation may be necessary in order to enforce our patents, copyrights or other intellectual property rights, to protect our trade secrets, to determine the validity and scope of the proprietary rights of others or to defend against claims of infringement. We are, from time to time, involved in lawsuits enforcing or defending our



## [Table of Contents](#)

intellectual property rights. Such litigation could result in substantial costs and diversion of resources and could have a material adverse effect on our business, financial condition, results of operations, or cash flows.

We may need to expend significant time and expense to protect our intellectual property regardless of the validity or successful outcome of such intellectual property claims. If we lose any litigation, we may be required to seek licenses from others, pay royalties, change, stop manufacturing or stop selling some of our products.

### ***The market price of our Common Stock has fluctuated and may continue to fluctuate for reasons over which we have no control.***

The stock market has from time to time experienced, and is likely to continue to experience, extreme price and volume fluctuations. Prices of securities of technology companies have been especially volatile and have often fluctuated for reasons that are unrelated to the operating performance of the companies. Historically, the market price of shares of our Common Stock has fluctuated greatly and could continue to fluctuate due to a variety of factors. In the past, companies that have experienced volatility in the market price of their stock have been the objects of securities class action litigation. If we were the object of securities class action litigation, it could result in substantial costs and a diversion of our management's attention and resources.

### ***We may not pay dividends on our Common Stock.***

Holders of our Common Stock are only entitled to receive such dividends when and if they are declared by our board of directors. Although we have declared cash dividends on our Common Stock for the past two years, we are not required to do so and may reduce or eliminate our cash dividend in the future. This could adversely affect the market price of our Common Stock.

### ***Our dependence on sole, limited source suppliers, and international suppliers, could affect our ability to manufacture products and systems.***

We rely on sole, limited source suppliers and international suppliers for a few of our components and subassemblies that are critical to the manufacturing of our products. This reliance involves several risks, including the following:

- the potential inability to obtain an adequate supply of required components;
- reduced control over pricing and timing of delivery of components; and
- the potential inability of our suppliers to develop technologically advanced products to support our growth and development of new systems.

We believe we could obtain and qualify alternative sources for most sole, limited source and international supplier parts however, the transition time may be long. Seeking alternative sources for these parts could require us to redesign our systems, resulting in increased costs and likely shipping delays. We may be unable to redesign our systems, which could result in further costs and shipping delays. These increased costs would decrease our profit margins if we could not pass the costs to our customers. Further, shipping delays could damage our relationships with current and potential customers and have a material adverse effect on our business and results of operations.

### ***We are subject to governmental regulations. If we fail to comply with these regulations, our business could be harmed.***

We are subject to federal, state, local and foreign regulations, including environmental regulations and regulations relating to the design and operation of our products. We must ensure that the affected products meet a variety of standards, many of which vary across the countries in which our systems are used. For example, the

## [Table of Contents](#)

European Union has published directives specifically relating to power supplies. In addition, the European Union has issued directives relating to regulation of recycling and hazardous substances, which may be applicable to our products, or to which some customers may voluntarily elect to adhere to. China has adopted, and certain other Asian countries have indicated, an intention to adopt similar regulations. The U.S. adopted a final rule that will require public companies to make disclosures about the use of certain “conflict minerals” in the products they manufacture or contract to manufacture. We must comply with any applicable regulation adopted in connection with these types of directives in order to ship affected products into countries that adopt these types of regulations. We believe we are in compliance with current applicable regulations, directives and standards and have obtained all necessary permits, approvals and authorizations to conduct our business. However, compliance with future regulations, directives and standards, or customer demands beyond such requirements, could require us to modify or redesign certain systems, make capital expenditures or incur substantial costs. If we do not comply with current or future regulations, directives and standards:

- we could be subject to fines;
- our production could be suspended; or
- we could be prohibited from offering particular systems in specified markets.

***Some provisions of our restated articles of organization, as amended, our amended and restated by-laws and Massachusetts law could discourage potential acquisition proposals and could delay or prevent a change in control.***

Anti-takeover provisions could diminish the opportunities for stockholders to participate in tender offers, including tender offers at a price above the then current market price of the Common Stock. Such provisions may also inhibit increases in the market price of the Common Stock that could result from takeover attempts. For example, while we have no present plans to issue any preferred stock, our board of directors, without further stockholder approval, may issue preferred stock that could have the effect of delaying, deterring or preventing a change in control of us. The issuance of preferred stock could adversely affect the voting power of the holders of our Common Stock, including the loss of voting control to others. In addition, our amended and restated by-laws provide for a classified board of directors consisting of three classes. The classified board could also have the effect of delaying, deterring or preventing a change in control of the Company.

***Changes in financial accounting standards may adversely affect our reported results of operations.***

A change in accounting standards or practices could have a significant effect on our reported results and may even affect our reporting of transactions completed before the change was effective. New accounting pronouncements and varying interpretations of existing accounting pronouncements have occurred and may occur in the future. Such changes may adversely affect our reported financial results or may impact our related business practice.

### **Item 1B. *Unresolved Staff Comments***

None.

## [Table of Contents](#)

### Item 2. *Properties*

The following table provides information concerning MKS' principal and certain other owned and leased facilities as of December 31, 2012:

<u>Location</u>	<u>Sq. Ft.</u>	<u>Activity</u>	<u>Reportable Segment</u>	<u>Lease Expires</u>
Akishima, Japan	26,300	Manufacturing, Customer Support and Service	Asia Region Sales & Service	September 11, 2018
Andover, Massachusetts	118,000	Manufacturing, Research & Development and Corporate Headquarters	Advanced Manufacturing Capital Equipment and Analytical Solutions Group	(1)
Austin, Texas	20,880	Manufacturing, Sales, Customer Support, Service and Research & Development	Advanced Manufacturing Capital Equipment and Analytical Solutions Group	June 30, 2015
Berlin, Germany	20,750	Manufacturing, Customer Support, Service and Research & Development	Advanced Manufacturing Capital Equipment	December 13, 2013
Boulder, Colorado	124,000	Manufacturing, Customer Support, Service and Research & Development	Advanced Manufacturing Capital Equipment	(2)
Carmiel, Israel	11,800	Manufacturing and Research & Development	Advanced Manufacturing Capital Equipment	(3)
Cheshire, United Kingdom	16,000	Manufacturing, Sales, Customer Support and Service	Analytical Solutions Group and Europe Region Sales & Service	November 6, 2018
Colorado Springs, Colorado	24,000	Research & Development	Advanced Manufacturing Capital Equipment	(4)
Daejeon, Korea	21,400	Manufacturing, Sales, Customer Support, Service and Research & Development	Advanced Manufacturing Capital Equipment	(5)
Filderstadt, Germany	9,300	Sales and Service	Europe Region Sales & Service	July 31, 2014
Hellebaek, Denmark	6,400	Manufacturing and Research & Development	Advanced Manufacturing Capital Equipment	December 31, 2013
Kyunggi, Korea	45,600	Sales, Customer Support and Service	Asia Region Sales & Service	(6)
Lawrence, Massachusetts	40,000	Manufacturing	Advanced Manufacturing Capital Equipment and Analytical Solutions Group	(4)
Lod, Israel	7,600	Customer Support and Research & Development	Advanced Manufacturing Capital Equipment	December 31, 2014
Methuen, Massachusetts	85,000	Manufacturing, Customer Support, Service and Research & Development	Advanced Manufacturing Capital Equipment and Analytical Solutions Group	(4)

## Table of Contents

<u>Location</u>	<u>Sq. Ft.</u>	<u>Activity</u>	<u>Reportable Segment</u>	<u>Lease Expires</u>
Munich, Germany	20,100	Manufacturing, Sales, Customer Support, Service and Research & Development	Europe Region Sales & Service	(7)
Nogales, Mexico	101,600	Manufacturing	Advanced Manufacturing Capital Equipment	August 31, 2022
Osaka, Japan	5,000	Sales, Customer Support and Service	Asia Region Sales & Service	August 31, 2013
Richardson, Texas	8,800	Sales, Customer Support and Service	Advanced Manufacturing Capital Equipment and Analytical Solutions Group	May 31, 2013
Rochester, New York	156,000	Manufacturing, Sales, Customer Support, Service and Research & Development	Advanced Manufacturing Capital Equipment	(4)
San Jose, California	20,400	Sales, Customer Support and Service	Advanced Manufacturing Capital Equipment and Analytical Solutions Group	January 31, 2018
Shanghai, China	18,700	Sales, Customer Support and Service	Asia Region Sales & Service	February 28, 2014
Shenzhen, China	242,000	Manufacturing	Advanced Manufacturing Capital Equipment	May 31, 2017
Shropshire, United Kingdom	25,000	Manufacturing	Analytical Solutions Group	June 23, 2022
Singapore	13,700	Sales, Customer Support and Service	Asia Region Sales & Service	November 30, 2015
Taiwan	24,900	Sales, Customer Support and Service	Asia Region Sales & Service	August 31, 2015
Tokyo, Japan	6,000	Sales and Customer Support	Asia Region Sales & Service	December 31, 2013
Umea, Sweden	7,000	Sales, Customer Support and Research & Development	Analytical Solutions Group	August 31, 2013
Wilmington, Massachusetts	118,000	Manufacturing, Sales, Customer Support, Service and Research & Development	Advanced Manufacturing Capital Equipment	(4)

- (1) MKS owns one facility with 82,000 square feet of space used for manufacturing and research and development and leases 36,000 square feet of space used for its corporate headquarters with a lease term that expires on January 1, 2018.
- (2) MKS leases two facilities, of which one has 39,000 square feet of space and the other has 38,000 square feet of space. Both leases expire on May 31, 2015. MKS also owns a third and fourth facility with 27,000 and 20,000 square feet of space, respectively.
- (3) This lease expired on December 31, 2012. A lease renewal is currently being negotiated.
- (4) This facility is owned by MKS.
- (5) MKS owns 18,100 square feet of space and leases 3,300 square feet of space with an expiration date of March 1, 2013.
- (6) MKS leases 36,500 square feet of space with an expiration date of May 2, 2020. MKS leases 9,100 square feet of space with an expiration date of January 31, 2014.

---

[Table of Contents](#)

- (7) MKS owns 14,800 square feet of space and leases 1,600 square feet of space with an expiration date of August 31, 2013 and 2,400 square feet of space with an expiration date of December 31, 2013.

In addition to manufacturing and other operations conducted at the foregoing leased or owned facilities, MKS provides worldwide sales, customer support and services from various other leased facilities throughout the world not listed in the table above. See “Business—Sales, Marketing, Service and Support.”

**Item 3.      *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 4.      *Mine Safety Disclosures***

Not applicable.

**PART II****Item 5. Market for the Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities****Price Range of Common Stock**

Our Common Stock is traded on the NASDAQ Global Select Market under the symbol MKSI. On February 19, 2013, the closing price of our Common Stock, as reported on the NASDAQ Global Select Market, was \$28.34 per share. The following table sets forth for the periods indicated the high and low sales prices per share of our Common Stock as reported by the NASDAQ Global Select Market.

	2012		2011	
	High	Low	High	Low
First Quarter	\$34.99	\$27.33	\$33.68	\$23.09
Second Quarter	29.75	23.93	33.85	23.37
Third Quarter	29.75	24.18	27.75	20.96
Fourth Quarter	25.87	22.45	28.89	20.01

On February 19, 2013, we had approximately 138 stockholders of record.

**Dividend Policy and Cash Dividends**

Holders of our Common Stock are entitled to receive dividends when and if they are declared by our board of directors. During 2012, our board of directors declared four quarterly dividends, two quarterly dividends of \$0.15 per share and two quarterly dividends of \$0.16 per share, which totaled \$32.7 million or \$0.62 per share. During 2011, our board of directors declared four quarterly dividends of \$0.15 per share, which totaled \$31.4 million or \$0.60 per share. Future dividend declarations, if any, as well as the record and payment dates for such dividends, are subject to the final determination of our board of directors. The board of directors intends to declare and pay cash dividends on our Common Stock based on the financial conditions and results of operations of the Company, although it has no obligation to do so.

On February 11, 2013, our board of directors declared a quarterly cash dividend of \$0.16 per share to be paid on March 15, 2013 to shareholders of record as of March 1, 2013.

**Purchase of Equity Shares**

On July 25, 2011, our board of directors approved and on July 27, 2011, we publicly announced, 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 "Program"). 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.

[Table of Contents](#)

The following table sets forth certain information with respect to repurchases of our Common Stock during the three months ended December 31, 2012.

**ISSUER PURCHASES OF EQUITY SECURITIES**

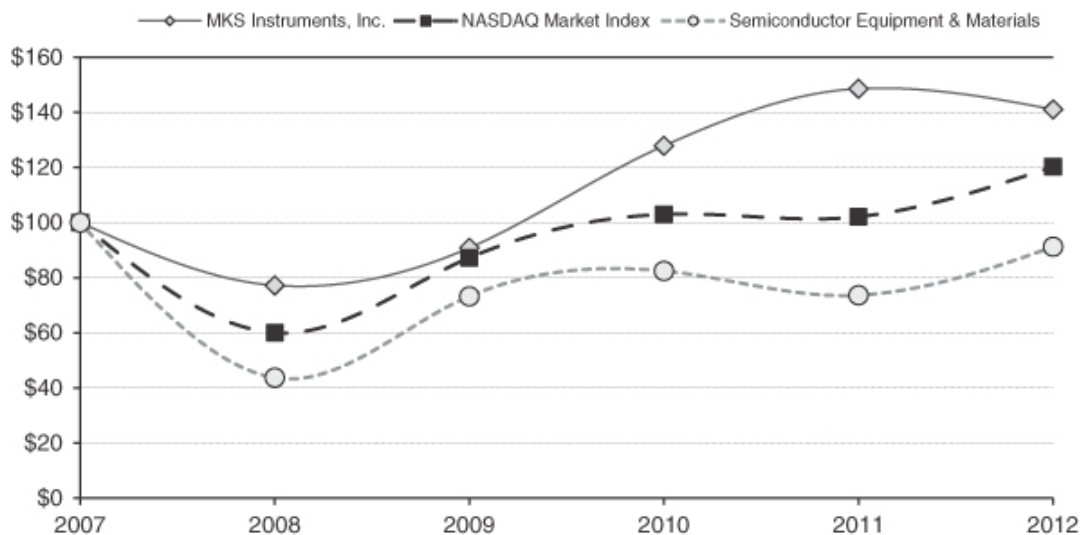
<u>Period</u>	<u>(a)</u> <u>Total Number of</u> <u>Shares</u> <u>Purchased</u>	<u>(b)</u> <u>Average Price Paid</u> <u>per Share</u>	<u>(c)</u> <u>Total Number of</u> <u>Shares</u> <u>Purchased as</u> <u>Part of Publicly</u> <u>Announced Plans</u> <u>or Programs<sup>(1)</sup></u>	<u>(d)</u> <u>Approximate</u> <u>Dollar</u> <u>Value of Shares that</u> <u>May Yet Be</u> <u>Purchased Under</u> <u>the Plans or</u> <u>Programs<sup>(1)</sup></u>
October 1 – October 31, 2012	190,000	\$ 23.55	190,000	\$ 186,493,000
November 1 – November 30, 2012	—	—	—	\$ 186,493,000
December 1 – December 31, 2012	—	—	—	\$ 186,493,000
Total	<u>190,000</u>	<u>\$ 23.55</u>	<u>190,000</u>	

(1) We have repurchased approximately 520,000 shares of our Common Stock pursuant to the Program since its adoption.

**Comparative Stock Performance**

The following graph compares the cumulative total shareholder return (assuming reinvestment of dividends) from investing \$100 on December 31, 2007, and plotted at the last trading day of each of the fiscal years ended December 31, 2008, 2009, 2010, 2011 and 2012, in each of MKS' Common Stock; an industry group index of semiconductor equipment/material manufacturers (the "Morningstar Semiconductor Equipment & Materials Industry Group"), compiled by Morningstar, Inc.; and the NASDAQ Market Index of companies. The stock price performance on the graph below is not necessarily indicative of future price performance. The Company's Common Stock is listed on the NASDAQ Global Select Market under the ticker symbol "MKSI."

**Performance Graph**



	2007	2008	2009	2010	2011	2012
MKS Instruments, Inc.	\$ 100.00	\$ 77.27	\$ 90.91	\$ 127.98	\$ 148.70	\$ 141.02
NASDAQ Market Index	\$ 100.00	\$ 60.02	\$ 87.24	\$ 103.08	\$ 102.26	\$ 120.41
Morningstar Semiconductor Equipment & Materials Industry Group	\$ 100.00	\$ 43.70	\$ 73.37	\$ 82.43	\$ 73.65	\$ 91.19



**Item 6. Selected Financial Data**
**Selected Consolidated Financial Data**

	Years Ended December 31,				
	2012	2011	2010	2009	2008
(in thousands, except per share data)					
<b>Statement of Operations Data</b>					
Net sales(1)	\$ 643,508	\$ 822,517	\$ 853,114	\$ 392,693	\$ 621,380
Gross profit(1)	269,479	374,988	378,638	130,216	248,238
Income (loss) from operations(1)(2)	74,223	184,925	195,507	(171,661)	50,874
Income (loss) from continuing operations	48,029	129,731	132,919	(149,361)	40,010
Income (loss) from discontinued operations, net of taxes(3)	—	—	9,668	(63,298)	(9,893)
Net income (loss)(4)	\$ 48,029	\$ 129,731	\$ 142,587	\$ (212,659)	\$ 30,117
Basic income (loss) per share:					
Continuing operations	\$ 0.91	\$ 2.49	\$ 2.66	\$ (3.03)	\$ 0.81
Net income (loss)	\$ 0.91	\$ 2.49	\$ 2.85	\$ (4.31)	\$ 0.61
Diluted income (loss) per share:					
Continuing operations	\$ 0.90	\$ 2.45	\$ 2.61	\$ (3.03)	\$ 0.79
Net income (loss)	\$ 0.90	\$ 2.45	\$ 2.80	\$ (4.31)	\$ 0.59
Cash dividends paid per common share	\$ 0.62	\$ 0.60	\$ —	\$ —	\$ —
<b>Balance Sheet Data</b>					
Cash and cash equivalents	\$ 287,588	\$ 312,916	\$ 162,476	\$ 111,009	\$ 119,261
Short-term investments	327,653	252,603	269,457	160,786	159,608
Working capital	788,871	788,470	643,209	461,581	452,793
Long-term investments	12,158	7,873	—	4,853	—
Total assets	1,134,842	1,118,654	982,413	774,069	984,939
Short-term obligations	—	1,932	—	12,885	18,678
Long-term obligations, less current portion	—	—	—	—	396
Stockholders' equity	\$1,012,156	\$ 990,012	\$ 847,039	\$ 684,933	\$ 886,698

(1) For the years 2008 through 2009, shown in the table above, the amounts have been revised to exclude the results of two product lines that have been classified as discontinued operations.

(2) Income from operations for 2012 includes \$5.3 million for litigation settlement and \$1.3 million of acquisition related costs from our acquisition of Plasmart, Inc. in August 2012. Loss from operations for 2009 includes an impairment charge of \$143.0 million related to the write-down of goodwill, intangible, and long-lived assets and \$5.5 million of restructuring charges.

(3) Income from discontinued operations, net of taxes for 2010 includes a \$4.4 million gain on the sale of the two discontinued product lines. Loss from discontinued operations, net of taxes for 2009 includes charges related to the discontinued product lines of \$53.8 million for the goodwill impairment and \$7.3 million for the intangible assets impairment.

(4) Net income for 2012 includes charges, net of tax, of \$3.3 million for litigation settlement and \$0.8 million of acquisition related costs. Net loss for 2009 includes charges, net of tax, of \$202.7 million related to the write-down of goodwill, intangible and long-lived assets and \$3.6 million of restructuring charges. Net income for 2008 includes an impairment charge of \$3.8 million, net of tax, related to the write-down of intangible assets.

**Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations**

**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 service 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 and other coating applications; and other industrial, medical, energy generation, environmental monitoring and manufacturing companies, and university, government and industrial research laboratories. During the years 2012, 2011 and 2010, approximately 62%, 61% and 64% of our net sales, respectively, were 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 in the second quarter of fiscal 2012, we changed our reporting segments from one to four segments based upon the information that is provided to the Company's chief operating decision maker. The Company's new reportable segments are: Advanced Manufacturing Capital Equipment, Analytical Solutions Group, Europe Region Sales & Service, and Asia Region Sales & Service.

The Advanced Manufacturing Capital Equipment segment includes the development, manufacture, sales and 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. Sales in this segment include both external sales and intercompany sales (which are recorded at agreed upon transfer prices). External sales of these products made in Europe or Asia are reported as sales in the Europe Region Sales & Service or Asia Region Sales & Service segments. The Analytical Solutions Group includes, gas composition analysis, information technology products and custom fabrication services. The Europe and Asia region sales and service groups mainly resell and service the Advanced Manufacturing Capital Equipment and Analytical Solutions Group products sold into their respective regions.

We group our products into four groups of similar products based upon similarity of product function. These four groups of products are: Instruments and Control Products, Power and Reactive Gas Products, Vacuum Products and Analytical Solutions Group Products.

Since the second quarter of 2012, we have seen a weakening in our orders and sales in the semiconductor markets as worldwide economic uncertainty and slowing consumer spending resulted in lower electronics demand and a slowing of investments in semiconductor production capacity. Net revenues to semiconductor capital equipment manufacture and semiconductor device manufacture customers declined by 20% in 2012 compared to 2011 and declined by 8% in 2011 compared to 2010, after growing by 167% in 2010 compared to 2009. 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.

## [Table of Contents](#)

Our net revenues sold to other advanced markets, which exclude semiconductor capital equipment and semiconductor device product applications, decreased 24% in 2012 compared to the prior year. This decline was primarily caused by decreases in the solar and LED markets, which in total declined by 63%, as manufacturers are absorbing existing inventories from 2010 and 2011. Our net revenues to all other non-semiconductor markets (excluding solar and LED) declined by 7% in 2012 compared to the prior year. These advanced markets include general industrial, medical, solar, thin films, pharmaceutical and other markets. Approximately 38% of our net sales for 2012 were to other advanced markets and we anticipate that these markets will grow and will represent a larger portion of our revenue.

A significant portion of our net sales is to operations in international markets. During the years 2012, 2011 and 2010, international net sales accounted for approximately 49%, 52% and 43% of our net sales, respectively. A significant portion of our international net sales were sales in Japan and Korea. We expect that international net sales will continue to represent a significant percentage of our total net sales.

On August 29, 2012, we completed our acquisition of Plasmart, Inc. located in Daejeon, Korea. Plasmart develops radio frequency (RF), plasma generation and monitoring systems for the semiconductor, flat panel display, active matrix organic light emitting diodes and solar photovoltaic industries. The purchase price was \$22.6 million, net of \$0.1 of cash acquired, after final working capital post close adjustments.

During 2010, we executed a plan to divest two product lines, as their growth potential no longer met our long-term strategic objectives. We completed the sale of Ion Systems, Inc. (“Ion”) during the second quarter of 2010 and the sale of the assets of the Yield Dynamics, LLC (“YDI”) business during the third quarter of 2010 and received total net proceeds of \$15.6 million. The results of operations of the two product lines have been classified as discontinued operations in the consolidated statements of operations and comprehensive income for all periods presented.

### **Critical Accounting Policies and Estimates**

Management’s Discussion and Analysis of Financial Condition and Results of Operations discusses our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these 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 financial statements and the reported amounts of revenues and expenses during the reporting period. On an on-going basis, we evaluate our estimates and judgments, including those related to revenue recognition, allowance for doubtful accounts, inventory, warranty costs, stock-based compensation expense, intangible assets, goodwill and other long-lived assets, in-process research and development and income taxes. We base our 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.

We believe the following critical accounting policies affect the most significant judgments, assumptions and estimates we use in preparing our consolidated financial statements:

**Revenue Recognition and Allowance for Doubtful Accounts.** Revenue from product sales is recorded upon transfer of title and risk of loss to the customer provided that there is evidence of an arrangement, the sales price is fixed or determinable, and collection of the related receivable is reasonably assured. In most transactions, we have no obligations to our customers after the date products are shipped other than pursuant to warranty obligations. For revenue arrangements with multiple deliverables, we allocate revenue to each element based upon their relative selling price using vendor-specific objective evidence (“VSOE”), or third-party evidence (“TPE”) or based upon the relative selling price using estimated prices if VSOE or TPE does not exist. We then recognize revenue on each deliverable in accordance with our policies for product and service revenue

## [Table of Contents](#)

recognition. We defer the fair value of any undelivered elements until the undelivered element is delivered. Fair value is the price charged when the element is sold separately. Shipping and handling fees billed to customers, if any, are recognized as revenue. The related shipping and handling costs are recognized in cost of sales.

We monitor and track the amount of product returns, provide for sales return allowances and reduce revenue at the time of shipment for the estimated amount of such future returns, based on historical experience. While product returns have historically been within our expectations and the provisions established, there is no assurance that we will continue to experience the same return rates that we have in the past. Any significant increase in product return rates could have a material adverse impact on our operating results for the period or periods in which such returns materialize.

While we maintain a credit approval process, significant judgments are made by management in connection with assessing our customers' ability to pay at the time of shipment. Despite this assessment, from time to time, our customers are unable to meet their payment obligations. We continuously monitor our customers' credit worthiness, and use our judgment in establishing a provision for estimated credit losses based upon our historical experience and any specific customer collection issues that we have identified. While such credit losses have historically been within our expectations and the provisions established, there is no assurance that we will continue to experience the same credit loss rates that we have in the past. A significant change in the liquidity or financial position of our customers could have a material adverse impact on the collectability of accounts receivable and our future operating results.

**Inventory.** We value our inventory at the lower of cost (first-in, first-out method) or market. We regularly review inventory quantities on hand and record a provision to write-down excess and obsolete inventory to its estimated net realizable value, if less than cost, based primarily on our estimated forecast of product demand. Once our inventory value is written-down and a new cost basis has been established, the inventory value is not increased due to demand increases. Demand for our products can fluctuate significantly. A significant increase in the demand for our products could result in a short-term increase in the cost of inventory purchases as a result of supply shortages or a decrease in the cost of inventory purchases as a result of volume discounts, while a significant decrease in demand could result in an increase in the charges for excess inventory quantities on hand. In addition, our industry is subject to technological change, new product development and product technological obsolescence that could result in an increase in the amount of obsolete inventory quantities on hand. Therefore, any significant unanticipated changes in demand or technological developments could have a significant impact on the value of our inventory and our reported operating results. For 2012, 2011 and 2010, our total charges for excess and obsolete inventory totaled \$15.0 million, \$14.9 million and \$13.2 million, respectively.

**Warranty Costs.** We provide for the estimated costs to fulfill customer warranty obligations upon the recognition of the related revenue. We provide warranty coverage for our products ranging from 12 to 36 months, with the majority of our products ranging from 12 to 24 months. We estimate the anticipated costs of repairing our products under such warranties based on the historical costs of the repairs and any known specific product issues. The assumptions we use to estimate warranty accruals are reevaluated periodically in light of actual experience and, when appropriate, the accruals are adjusted. Our determination of the appropriate level of warranty accrual is based upon estimates. Should product failure rates differ from our estimates, actual costs could vary significantly from our expectations.

**Stock-Based Compensation Expense.** We record compensation expense for all share-based payment awards to employees and directors based upon the estimated fair market value of the underlying instrument. Accordingly, share-based compensation cost is measured at the grant date, based upon the fair value of the award.

We typically issue restricted stock units ("RSUs") as stock-based compensation. We also provide employees the opportunity to purchase shares through an Employee Stock Purchase Program ("ESPP"). For RSUs, the fair value is the stock price on the date of grant. For shares issued under our ESPP, we have estimated the fair value on the date of grant using the Black Scholes pricing model, which is affected by our stock price as well as

## [Table of Contents](#)

assumptions regarding a number of complex and subjective variables. These variables include our expected stock price volatility over the term of the awards, expected life, risk free interest rate and expected dividends. Management determined that blended volatility, a combination of historical and implied volatility, is more reflective of market conditions and a better indicator of expected volatility than historical or implied volatility alone. We are also required to estimate forfeitures at the time of grant and revise those estimates in subsequent periods if actual forfeitures differ from those estimates.

Certain RSUs involve stock to be issued upon the achievement of performance conditions (performance shares) under our stock incentive plans. Such performance shares become available subject to time-based vesting conditions if, and to the extent that, financial or operational performance criteria for the applicable period are achieved. Accordingly, the number of performance shares earned will vary based on the level of achievement of financial or operational performance objectives for the applicable period. Until such time that our performance can ultimately be determined, each quarter we estimate the number of performance shares more likely than not to be earned based on an evaluation of the probability of achieving the performance objectives. Such estimates are revised, if necessary, in subsequent periods when the underlying factors change our evaluation of the probability of achieving the performance objectives. Accordingly, share-based compensation expense associated with performance shares may differ significantly from the amount recorded in the current period.

The assumptions used in calculating the fair value of share-based payment awards represents management's best estimates, but these estimates involve inherent uncertainties and the application of management's judgment. As a result, if factors change and we use different assumptions, our stock-based compensation expense could be materially different in the future.

**Intangible Assets, Goodwill and Other Long-Lived Assets.** As a result of our acquisitions, we have identified intangible assets and generated significant goodwill. Definite-lived intangible assets are valued based on estimates of future cash flows and amortized over their estimated useful life. Goodwill and indefinite-lived intangible assets are subject to annual impairment testing as well as testing upon the occurrence of any event that indicates a potential impairment. Intangible assets and other long-lived assets are also subject to an impairment test if there is an indicator of impairment. The carrying value and ultimate realization of these assets is dependent upon estimates of future earnings and benefits that we expect to generate from their use. If our expectations of future results and cash flows are significantly diminished, intangible assets and goodwill may be impaired and the resulting charge to operations may be material. When we determine that the carrying value of intangibles or other long-lived assets may not be recoverable based upon the existence of one or more indicators of impairment, we use the projected undiscounted cash flow method to determine whether an impairment exists, and then measure the impairment using discounted cash flows.

The estimation of useful lives and expected cash flows require us to make significant judgments regarding future periods that are subject to some factors outside of our control. Changes in these estimates can result in significant revisions to the carrying value of these assets and may result in material charges to the results of operations.

We have elected to perform our annual goodwill impairment test as of October 31 of each year, or more often if events or circumstances indicate that there may be impairment. Goodwill is the amount by which the cost of acquired net assets exceeded the fair value of those net assets on the date of acquisition. We allocate goodwill to reporting units at the time of acquisition or when there is a change in the reporting structure and bases that allocation on which reporting units will benefit from the acquired assets and liabilities. Reporting units are defined as operating segments or one level below an operating segment, referred to as a component.

We have the option of first assessing qualitative factors to determine whether it is necessary to perform the current two-step impairment test or we can perform the two-step impairment test without doing the qualitative assessment. In the current fiscal year, we performed the quantitative two-step goodwill impairment analysis. In the first step, we compare the fair value of our reporting unit to its carrying value. If the carrying value of the net

## [Table of Contents](#)

assets assigned to the reporting unit exceeds the fair value of our reporting unit, then the second step of the impairment test is performed in order to determine the implied fair value of the reporting unit's goodwill. If the carrying value of our reporting unit's goodwill exceeds its implied fair value, then we record an impairment loss equal to the difference.

We determined the fair value of our reporting units using a discounted cash flow analysis, derived from internal earnings and internal and external market forecasts. Discount rates are based on a weighted average cost of capital ("WACC"), which represents the average rate a business must pay its providers of debt and equity. The WACC used to test goodwill was derived from a group of comparable companies. The cash flows employed in the DCF analysis were derived from internal earnings and forecasts and external market forecast. Assumptions in estimating future cash flows are subject to a high degree of judgment and complexity. We make every effort to forecast these future cash flows as accurately as possible with the information available at the time the forecast is developed.

As of October 31, 2012, we performed our annual impairment assessment of goodwill using the two-step analysis and determined that there was no impairment. We will continue to monitor and evaluate the carrying value of goodwill. If market and economic conditions or business performance deteriorate, this could increase the likelihood of us recording an impairment charge.

***In-Process Research and Development.*** We value tangible and intangible assets acquired through our business acquisitions, including in-process research and development ("IPR&D"), at fair value. We determine IPR&D through established valuation techniques for various projects for the development of new products and technologies and capitalize IPR&D as an intangible asset. If the projects are completed, the intangible asset will be amortized to earnings over the expected life of the completed product. If the R&D projects are abandoned, we will write-off the related intangible asset.

The value of IPR&D is determined using the income approach, which discounts expected future cash flows from projects under development to their net present value. Each project is analyzed and estimates and judgments are made to determine the technological innovations included in the utilization of core technology, the complexity, cost, time to complete development, any alternative future use or current technological feasibility and the stage of completion.

***Income Taxes.*** We evaluate the realizability of our net deferred tax assets and assess the need for a valuation allowance on a quarterly basis. The future benefit to be derived from our deferred tax assets is dependent upon our ability to generate sufficient future taxable income to realize the assets. We record a valuation allowance to reduce our net deferred tax assets to the amount that may be more likely than not to be realized. To the extent we established a valuation allowance an expense is recorded within the provision for income taxes line in the consolidated statements of operations and comprehensive income. In future periods, if we were to determine that it was more likely than not that we would not be able to realize the recorded amount of our remaining net deferred tax assets, an adjustment to the valuation allowance would be recorded as an increase to income tax expense in the period such determination was made.

Accounting for income taxes requires a two-step approach to recognize and measure uncertain tax positions. The first step is to evaluate the tax position for recognition by determining if, based on the technical merits, it is more likely than not that the position will be sustained upon audit, including resolutions of related appeals or litigation processes, if any. The second step is to measure the tax benefit as the largest amount that is more than 50% likely of being realized upon ultimate settlement. We re-evaluate these uncertain tax positions on a quarterly basis. This evaluation is based on factors including, but not limited to, changes in facts or circumstances, changes in tax law, effectively settled issues under audit and new audit activity. Any change in these factors could result in the recognition of a tax benefit or an additional charge to the tax provision.

[Table of Contents](#)

**Results of Operations**

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

	Years Ended December 31,		
	2012	2011	2010
Net revenues:			
Product	83.4%	87.4%	89.5%
Service	16.6	12.6	10.5
Total net revenues	100.0%	100.0%	100.0%
Cost of revenues:			
Product	48.2	47.1	49.4
Service	9.9	7.3	6.2
Total cost of revenues	58.1%	54.4%	55.6%
Gross profit	41.9%	45.6%	44.4%
Research and development	9.3	7.4	7.3
Selling, general and administrative	19.8	15.6	14.1
Litigation	0.8	—	—
Completed acquisition costs	0.2	—	—
Restructuring	0.1	—	—
Amortization of acquired intangible assets	0.1	0.1	0.2
Gain on sale of asset	—	—	(0.1)
Income from operations	11.6%	22.5%	22.9%
Interest income, net	0.1	0.1	0.1
Income from continuing operations before income taxes	11.7%	22.6%	23.0%
Provision for income taxes	4.2	6.8	7.4
Income from continuing operations	7.5%	15.8%	15.6%
Income from discontinued operations, net of taxes	—	—	1.1
Net income	7.5%	15.8%	16.7%

**Year Ended 2012 Compared to 2011 and 2010**

*Net Revenues*

(Dollars in millions)	Years Ended December 31,			% Change in 2012	% Change in 2011
	2012	2011	2010		
Product	\$536.8	\$719.0	\$763.4	(25.3)%	(5.8)%
Service	106.7	103.5	89.7	3.1	15.4
Total net revenues	\$643.5	\$822.5	\$853.1	(21.8)%	(3.6)%

Product revenues decreased \$182.2 million during 2012 compared to the prior year. Product revenues related to our semiconductor capital equipment manufacturer and semiconductor device manufacturer customers decreased by \$101.3 million, or 23.3%, as we believe that slowing consumer spending resulted in lower electronics demand, rising chip inventories and a slowing of investment in semiconductor production capacity. Our product revenues for other advanced markets, which exclude semiconductor capital equipment and semiconductor device product applications, decreased by \$80.9 million, or 28.4%. We saw a significant decrease in the solar and LED markets, which in total decreased by 63.4%, as end market customers continued to utilize existing product shipments from 2010 and 2011.

## [Table of Contents](#)

Product revenues decreased \$44.4 million during 2011 compared to the prior year. Product revenues related to our semiconductor capital equipment manufacturer and semiconductor device manufacturer customers decreased by \$51.6 million, or 10.6%, as we believe that slowing consumer spending has resulted in lower electronics demand, rising chip inventories and a slowing of investment in semiconductor production capacity. Our product revenues for other advanced markets, which exclude semiconductor capital equipment and semiconductor device product applications, increased by \$7.2 million, or 2.6%. We saw an increase in our solar and general industrial markets, offset by decreases in film, LED, medical and other markets. Our domestic product revenues decreased by \$93.2 million, or 20.7%, mainly due to a high concentration of sales to the semiconductor markets. Our international markets increased by \$48.8 million, or 15.6%, mainly due to sales in China, which increased by \$36.7 million. This increase was mainly due to product revenues from a thin film solar customer in China.

Service revenues consisted mainly of fees for services related to the maintenance and repair of our products, software maintenance, installation services and training. Service revenues increased \$3.2 million during 2012 compared to the prior year. The increase related primarily to our foreign locations where we have made investments in our service organizations. Service revenues increased \$13.8 million during 2011 compared to 2010 as a result of a larger installed base of products and due to our continued investment in 2011 to grow our worldwide service business.

Total international net revenues, including product and service, were \$316.6 million for 2012 or 49.2% of net sales, compared to \$431.4 million for 2011, or 52.5% of net sales, and \$369.0 million, or 43.2% of net sales, for 2010.

The following table sets forth our net revenues by reportable segment:

### *Net Revenues*

(Dollars in millions)	Years Ended December 31,			% Change in 2012	% Change in 2011
	2012	2011	2010		
Advanced Manufacturing Capital Equipment	\$ 479.8	\$ 647.9	\$ 712.7	(26.0)%	(9.1)%
Analytical Solutions Group	62.8	61.3	52.9	2.4	15.9
Europe Region Sales & Service	51.4	75.3	70.2	(31.6)	7.3
Asia Region Sales & Service	229.7	305.4	274.9	(24.8)	11.1
Corporate, Eliminations and Other	(180.2)	(267.4)	(257.6)	32.6	(3.8)
Total net revenues	<u>\$ 643.5</u>	<u>\$ 822.5</u>	<u>\$ 853.1</u>	<u>(21.8)%</u>	<u>(3.6)%</u>

Net revenues for the Advanced Manufacturing Capital Equipment segment, the Europe Region Sales & Service segment and the Asia Region Sales & Service segment decreased by 26.0%, 31.6% and 24.8%, respectively, for 2012, compared to 2011. This was primarily caused by the decrease in our semiconductor capital equipment manufacturer and semiconductor device manufacturer customers which decreased 23.3% in the same period as noted above. The majority of our sales in these three reportable segments are sold to the semiconductor capital equipment and semiconductor device manufacturers. In addition, the decrease in the Europe Region Sales & Service segment was also impacted by a decrease related to the solar market.

Net revenues for the Advanced Manufacturing Capital Equipment segment decreased by 9.1% for 2011, compared to 2010. This was also primarily caused by the decrease in sales to our semiconductor capital equipment manufacturer and semiconductor device manufacturer customers, which decreased 10.6% in the same period as noted above.



## [Table of Contents](#)

Net revenues for the Europe Region Sales & Service segment and the Asia Region Sales & Service segment increased by 7.3% and 11.1%, respectively, for 2011 compared to 2010. The increase in the Europe Region Sales & Service segment was mainly due to an increase in our other advanced markets and primarily from one customer in our coating/thin film market. The increase in the Asia Region Sales & Service segment was mainly due to an increase in our other advanced markets, primarily in our solar market. Both of the increases in the Europe and Asia Region Sales & Service segments were partially offset by minor decreases in our semiconductor markets in these segments in 2011.

Net revenues for the Analytical Solutions Group segment increased by 2.4% and 15.9% in 2012 and 2011, respectively, compared to the same periods in the prior years. This segment sells more to our other advanced markets rather than to our semiconductor market, and therefore, was not impacted as directly by the decrease in the semiconductor market in 2012 and 2011 as the other segments were. While we have seen a decrease in other advanced markets in 2012 and an increase in other advanced markets in 2011, the overall increases in 2012 and 2011 are primarily attributed to increases in sales in our general and industrial markets, which increased by 7.3% in 2012 and 94.3% in 2011, compared to the same periods in the prior years.

The following is gross profit as a percentage of net revenues by product and service:

### *Gross Profit*

(As a percentage of net revenues)	Years Ended December 31,			% Points Change in 2012	% Points Change in 2011
	2012	2011	2010		
Product	42.2%	46.1%	44.8%	(3.9)	1.3
Service	40.5	42.0	41.2	(1.5)	0.8
Total gross profit percentage	<u>41.9%</u>	<u>45.6%</u>	<u>44.4%</u>	<u>(3.7)</u>	<u>1.2</u>

Gross profit on product revenues decreased by 3.9 percentage points during 2012 compared to the prior year. The decrease was mainly due to a decrease of 3.7 percentage points due to unfavorable product revenue volume and overhead absorption from lower production and 0.3 percentage points due to higher excess and obsolete inventory charges. These decreases were partially offset by an increase of 0.2 percentage points due to lower compensation related expenses.

Gross profit on product revenues increased by 1.3 percentage points during 2011 compared to the prior year. The increase was mainly due to favorable product mix, which accounted for 4.6 percentage points of the overall increase. In addition, 0.9 percentage points of the overall increase is due to favorable foreign exchange rate fluctuations and 0.4 percentage points was due to a duties refund received in late 2011 on duties that were paid in prior years. These increases were partially offset by 2.4 percentage points due to higher overhead, 1.1 percentage points due to higher excess and obsolete inventory net charges and 1.1 percentage points due to unfavorable product revenue volume.

Cost of service revenues consists primarily of costs for providing services for repair and training which includes salaries and related expenses and other overhead costs. Service gross profit for 2012 decreased by 1.5 percentage points compared to the prior year. The decrease was mainly attributed to a decrease of 3.6 percentage points due to higher overhead spending. This decrease was partially offset by an increase of 1.9 percentage points due to favorable product mix and an increase of 0.5 percentage points due to favorable revenue volume. Service gross profit for 2011 increased 0.8 percentage points compared to the same period for the prior year. Of this increase, 1.8 percentage points was due to favorable volume and 1.4 percentage points was due to favorable foreign exchange rate fluctuations. These increases were offset by 2.5 percentage points related to unfavorable mix.

## [Table of Contents](#)

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

### *Gross Profit*

(As a percentage of net revenues)	Years Ended December 31,			% Points	% Points
	2012	2011	2010	Change in 2012	Change in 2011
Advanced Manufacturing Capital Equipment	35.7%	40.7%	41.3%	(5.0)	(0.6)
Analytical Solutions Group	52.2	51.9	48.8	0.3	3.1
Europe Region Sales & Service	29.5	28.3	27.9	1.2	0.4
Asia Region Sales & Service	16.1	14.8	17.8	1.3	(3.0)
Corporate, Eliminations and Other	(7.4)	(4.8)	4.0	(2.6)	(8.8)
Total net revenues	<u>41.9%</u>	<u>45.6%</u>	<u>44.4%</u>	<u>(3.7)</u>	<u>1.2</u>

Gross profit for the Advanced Manufacturing Capital Equipment segment decreased 5.0 percentage points and 0.6 percentage points in 2012 and 2011, respectively, compared to the same periods in the prior year. The decrease of 5.0 percentage points in 2012 is primarily due to a decline in revenue volume. The decrease of 0.6 percentage points in 2011 is primarily due to a decline in revenue volume and higher excess and obsolete inventory charges, partially offset by favorable product mix.

Gross profit for the Analytical Solutions Group increased 0.3 percentage points and 3.1 percentage points in 2012 and 2011, respectively, compared to the same periods in the prior year. The slight increase of 0.3 percentage points in 2012 is primarily attributed to product mix, favorable revenue volume and lower warranty charges, partially offset by lower overhead spending. The increase of 3.1 percentage points in 2011 is primarily attributed to favorable revenue volume and favorable product mix.

Gross profit for the Europe Region Sales & Service segment increased 1.2 percentage points and 0.4 percentage points in 2012 and 2011, respectively, compared to the same periods in the prior year. The increase of 1.2 percentage points in 2012 is primarily related to favorable product mix, partially offset by a decline in revenue volume. The increase of 0.4 percentage points is primarily related to lower excess and obsolete inventory charges and favorable product mix, partially offset by higher overhead spending.

Gross profit for the Asia Region Sales & Service segment increased 1.3 percentage points and decreased 3.0 percentage points in 2012 and 2011, respectively, compared to the same periods in the prior year. The increase of 1.3 percentage points in 2012 is primarily related to favorable product mix, partially offset by lower revenue volume. The decrease of 3.0 percentage points in 2011 was primarily due to unfavorable product mix.

### *Research and Development*

(Dollars in millions)	Years Ended December 31,			% Change	% Change
	2012	2011	2010	in 2012	in 2011
Research and development expenses	\$60.1	\$61.0	\$62.7	(1.5)%	(2.6)%

Research and development expenses decreased \$0.9 million during 2012 compared to the prior year. The decrease resulted from additional cost control measures including a decrease of \$0.9 million in consulting costs and a \$0.5 million decrease in project materials. These decreases are partially offset by a \$0.4 million increase in patent related costs.

Research and development expenses decreased \$1.7 million during 2011 compared to the prior year. The decrease consists mainly of a \$1.1 million decrease in spending on project materials and a \$0.6 million decrease in consulting costs, both of which were the result of cost control measures taken primarily in the second half of 2011.

## [Table of Contents](#)

Our research and development is 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 and new product development, 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 as well as legal costs associated with maintaining and defending our intellectual property.

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 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. 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 sales may be reduced during the lifespan of those products.

### *Selling, General and Administrative*

(Dollars in millions)	Years Ended December 31,			% Change in 2012	% Change in 2011
	2012	2011	2010		
Selling, general and administrative expenses	\$ 127.2	\$ 128.0	\$ 119.8	(0.6)%	6.8%

Selling, general and administrative expenses decreased \$0.8 million during 2012 compared to the prior year. The decrease consists mainly of a \$2.5 million favorable impact from foreign exchange fluctuations, a \$0.5 million decrease in facilities related expenses, a \$0.4 million decrease in recruiting and relocation expenses and a \$0.3 million decrease in advertising and investor relations expenses. These decreases are partially offset by a \$1.8 million increase in professional fees, primarily related to legal expenses, a \$0.5 million increase in depreciation expense and a \$0.5 million increase in bad debt expense.

Selling, general and administrative expenses increased \$8.2 million during 2011 compared to the prior year. The increase consists primarily of a \$4.6 million unfavorable impact from foreign exchange fluctuations, mainly related to changes in the Japanese Yen, and a \$4.0 million increase in professional fees, primarily related to information technology projects.

### *Litigation*

(Dollars in millions)	Years Ended December 31,			% Change in 2012	% Change in 2011
	2012	2011	2010		
Litigation	\$ 5.3	\$ —	\$ —	100.0%	0.0%

Litigation with shareholders of one of our former subsidiaries was settled for \$5.3 million during the third quarter of 2012. The complaint alleged certain claims against us including breach of contract and implied

## [Table of Contents](#)

covenants, and statutory violations. The claims sought unspecified damages and equitable relief. This litigation was long standing and we made the decision to reach a settlement primarily to eliminate future legal expenses related to the suit.

### *Completed Acquisition Costs*

(Dollars in millions)	Years Ended December 31,			% Change in 2012	% Change in 2011
	2012	2011	2010		
Completed acquisition costs	\$ 1.3	\$ —	\$ —	100.0%	0.0%

We incurred \$1.3 million of acquisition costs in 2012 related to our August 2012 acquisition of Plasmart. These costs consisted of investment banking fees, legal fees and due diligence costs.

### *Restructuring*

(Dollars in millions)	Years Ended December 31,			% Change in 2012	% Change in 2011
	2012	2011	2010		
Restructuring	\$ 0.3	\$ —	\$ —	100.0%	0.0%

During the fourth quarter of 2012, we implemented a workforce reduction plan as a result of a continued slowdown in our business. We reduced our worldwide workforce by 84 people and recorded a restructuring charge of \$0.3 million. This restructuring was substantially complete at December 31, 2012.

### *Amortization of Acquired Intangible Assets*

(Dollars in millions)	Years Ended December 31,			% Change in 2012	% Change in 2011
	2012	2011	2010		
Amortization of acquired intangible assets	\$ 1.0	\$ 1.0	\$ 1.3	2.1%	(20.9)%

Amortization expense remained relatively flat during 2012 compared to the prior year. Increased amortization expense from our August 2012 Plasmart acquisition was offset by intangible assets that became fully amortized during the year. The decrease of \$0.3 million from 2011 to 2010 was due to acquired intangible assets becoming fully amortized during the year.

### *Gain on Sale of Asset*

(Dollars in millions)	Years Ended December 31,			% Change in 2012	% Change in 2011
	2012	2011	2010		
Gain on sale of asset	\$ —	\$ —	\$ 0.7	0.0%	(100.0)%

During 2010, we sold two vacated facilities for proceeds of \$2.1 million and recorded a net gain of \$0.7 million on the sale.

### *Interest Income, Net*

(Dollars in millions)	Years Ended December 31,			% Change in 2012	% Change in 2011
	2012	2011	2010		
Interest income, net	\$ 0.9	\$ 1.1	\$ 0.9	(18.9)%	22.9%

## [Table of Contents](#)

Net interest income decreased \$0.2 million during 2012 compared to the prior year, partially due to higher interest expense related to the acquisition of Plasmart, which had debt when we acquired them in August 2012. Net interest income increased \$0.2 million during 2011 compared to the prior year due to an increase in investment balances and a change in the mix of the overall investment portfolio.

### *Provision for Income Taxes*

(Dollars in millions)	Years Ended December 31,			% Change in 2012	% Change in 2011
	2012	2011	2010		
Provision for income taxes	\$27.1	\$56.3	\$63.5	(51.9)%	(11.3)%

The provision for income taxes in 2012, 2011 and 2010 are comprised of U.S. federal, state and foreign income taxes.

Our effective tax rate for the years 2012, 2011 and 2010 was 36.1%, 30.3% and 32.3%, respectively. The effective tax rate in 2012 and related tax provision is higher than the U.S. statutory tax rate primarily due to the expiration of certain tax incentives under U.S. tax law, and non-deductible acquisition costs that were offset in part by geographic mix of income and profits earned by our international subsidiaries being taxed at rates lower than the U.S. statutory tax rate. On January 2, 2013, the American Taxpayer Relief Act of 2012 reinstated certain tax incentives with retroactive application to January 1, 2012, the tax effect of which will be recognized as a discrete event in the first quarter of 2013. Had the extension been enacted prior to January 1, 2013, our effective tax rate would have been reduced by approximately 3%.

The effective tax rates in 2011 and 2010 and related tax provisions are lower than the U.S. statutory tax rate primarily due to geographic mix of income and profits earned by our international subsidiaries being taxed at rates lower than the U.S. statutory tax rate.

At December 31, 2012, our total amount of gross unrecognized tax benefits, which excludes interest and penalties, was approximately \$40.7 million. At December 31, 2011, our total amount of gross unrecognized tax benefits, which excludes interest and penalties, was approximately \$36.5 million. The net increase at December 31, 2012 from December 31, 2011 was primarily attributable to an increase in reserves for uncertain tax positions in 2012. As of December 31, 2012, if these benefits were recognized in a future period, the timing of which is not estimable, the net unrecognized tax benefit of \$19.8 million, excluding interest and penalties, would impact our effective tax rate. We accrue interest expense and, if applicable, penalties, for any uncertain tax positions. Interest and penalties are classified as a component of income tax expense. At December 31, 2012, 2011 and 2010, we had accrued interest on unrecognized tax benefits of approximately \$1.6 million, \$1.0 million and \$1.0 million, respectively.

Over the next 12 months it is reasonably possible that we may recognize \$2.5 million to \$3.1 million of previously unrecognized tax benefits related to various U.S. federal, state and foreign tax positions as a result of the conclusion of various audits and the expiration of statutes of limitations. We are subject to examination by federal, state and foreign tax authorities. During the quarter ended June 30, 2012, the Internal Revenue Service commenced an examination of our U.S. federal tax filings for tax years 2007 through 2009. The statute of limitations in our other tax jurisdictions remains open between fiscal years 2006 through present.

On a quarterly basis, we evaluate both positive and negative evidence that affect the realizability of net deferred tax assets and assess the need for a valuation allowance. The future benefit to be derived from our deferred tax assets is dependent upon our ability to generate sufficient future taxable income to realize the assets. During 2012, we increased our valuation allowance by \$1.0 million primarily related to an increase in state tax credit carryforwards because we determined it is more likely than not that the deferred tax assets related to these attributes will not be realized. In 2011, we increased our valuation allowance by \$1.2 million primarily related to

## [Table of Contents](#)

capital losses incurred from our foreign affiliates because we determined it is more likely than not that the deferred tax assets related to these attributes will not be realized. In 2011, we recorded a net benefit to income tax expense of \$2.1 million, excluding interest and penalties, due to discrete reserve releases primarily related to the effective settlement of a German tax audit for years 2001 through 2005.

During 2006, we received a notification letter from the Israeli Ministry of Industry Trade and Labor (“MITL”) indicating that our Israeli operations were in compliance with requirements relating to the tax holiday granted to our manufacturing operations in Israel in 2001. This tax holiday expired at December 31, 2011 and was subject to meeting continued investment, employment and other requirements under the guidelines of the MITL. This tax holiday resulted in income tax savings of approximately \$1.0 million and \$2.7 million for the years 2011 and 2010, respectively. Upon expiration of its tax holiday, the Company elected to be treated under a new preferential Israeli tax regime under which a tax rate of 10% applies for 2012, and is reduced to 7% for 2013.

Our future effective income tax rate depends on various factors, such as tax legislation and the geographic composition of our pre-tax income. We monitor these factors and timely adjust our effective tax rate accordingly. 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. 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 regulations. Additionally, the recognition and measurement of certain tax benefits include estimates and judgment by management and inherently includes subjectivity. Accordingly, we could record additional provisions due to U.S. federal, state, and foreign tax-related matters in the future as we revise estimates or settle or otherwise resolve the underlying matters.

### *Discontinued Operations*

(Dollars in millions)	Years Ended December 31,		
	2012	2011	2010
Income from discontinued operations, net of taxes	\$ —	\$ —	\$ 9.7

During 2010, we divested two product lines as their growth potential no longer met our long-term strategic objectives. We completed the sale of Ion on May 17, 2010 and the sale of the assets of our YDI business on August 11, 2010 for a total of \$15.6 million of net cash proceeds, after expenses, and recorded a \$4.4 million pre-tax gain on the combined sales.

The two product lines have been accounted for as discontinued operations. Accordingly, their results of operations have been reclassified to discontinued operations in the consolidated statements of operations and comprehensive income for all periods presented. The assets and liabilities of these discontinued product lines have not been reclassified or segregated in the consolidated statements of cash flows due to their immaterial amounts.

### **Liquidity and Capital Resources**

Cash, cash equivalents and short-term marketable investments totaled \$615.2 million at December 31, 2012, an increase of \$49.7 million compared to \$565.5 million at December 31, 2011. This increase was mainly due to net cash provided by operating activities as a result of our net income and decreases in working capital, partially offset by net purchases of investments, dividend payments to our common stockholders, capital expenditures, the acquisition of Plasmart and repurchases of Common Stock. The primary driver in our current and anticipated future cash flows is and will continue to be cash generated from operations, consisting mainly of our net income and changes in operating assets and liabilities. In periods when our sales are growing, higher sales to customers

## [Table of Contents](#)

will result in increased trade receivables, and inventories will generally increase as we build products for future sales. This may result in lower cash generated from operations. Conversely, in periods when our sales are declining, our trade accounts receivable and inventory balances will generally decrease, resulting in increased cash from operations.

Net cash provided by operating activities was \$137.2 million for 2012 and resulted mainly from net income of \$48.0 million, which included non-cash net charges of \$42.5 million and a decrease in working capital of \$44.0 million. The decrease in working capital consisted primarily of a decrease in trade accounts receivable of \$38.3 million, a decrease in other current assets of \$7.7 million and a decrease in inventory of \$5.3 million. These decreases are partially offset by a decrease in accounts payable of \$8.3 million. The decrease in accounts payable and accounts receivable was caused by a slowdown in our business in the fourth quarter of 2012 compared to the fourth quarter of 2011.

Net cash provided by operating activities was \$156.0 million for 2011 and resulted mainly from net income of \$129.7 million, which included non-cash net charges of \$39.1 million, partially offset by an increase in working capital of \$15.5 million. The increase in working capital consisted primarily of an increase in inventory of \$11.7 million, a decrease in accounts payable of \$11.6 million, an increase in other operating assets of \$7.7 million and an increase in income taxes of \$5.3 million. These increases were offset by a decrease in accounts receivable of \$17.9 million, and an increase in accrued expenses and other operating liabilities of \$2.9 million. The increase in inventory relates to specific solar projects where shipment has been delayed by our customers. The decrease in accounts payable and accounts receivable is caused by a slowdown in our business in the fourth quarter of 2011 compared to the fourth quarter of 2010.

Net cash used in investing activities was \$117.9 million for 2012 and resulted primarily from the net purchases of investments of \$76.1 million, the acquisition of Plasmart of \$22.6 million net of cash acquired and \$17.7 million in purchases of production related equipment. Net cash used in investing activities was \$6.1 million for 2011 and resulted primarily from the purchase of property and equipment of \$15.6 million, partially offset by net maturities and sales of investments of \$9.9 million. The \$15.6 million increase in plant and equipment was primarily for the purchase of calibration and test equipment.

Net cash used in financing activities was \$47.0 million for 2012 and consisted primarily of \$32.7 million in dividend payments made to common stockholders, \$11.5 million for the repurchase of Common Stock, and \$6.5 million of net payments made on short-term borrowings. These decreases were partially offset by \$2.1 million of excess tax benefit from stock-based compensation. Net cash provided by financing activities was \$2.4 million for 2011 and consisted primarily of \$28.5 million received in net proceeds related to employee stock awards, \$5.3 million related to excess tax benefit from stock-based compensation and \$1.9 million in net proceeds from short-term borrowings. These increases were partially offset by \$31.4 million of dividend payments made to common stockholders and \$2.0 million related to the repurchase of Common Stock.

Our Japanese subsidiary has lines of credit and short-term borrowing arrangements with two financial institutions, which generally expire and are renewed at three month intervals. These lines of credit provide for aggregate borrowings as of December 31, 2012 of up to an equivalent of \$26.7 million U.S. dollars, with interest rates ranging from 0.63% - 1.475%. There were no borrowings outstanding under these arrangements at December 31, 2012. There were \$1.9 million total borrowings outstanding under these arrangements at December 31, 2011.

We acquired an available line of credit with a financial institution in the August 2012 Plasmart acquisition. The available line of credit, which expires in 2014, provides for aggregate borrowings as of December 31 2012 of up to an equivalent of \$1.4 million U.S. dollars, at an average interest rate of 5.19%. There were no borrowings outstanding under this arrangement at December 31, 2012.

We have provided financial guarantees for certain unsecured borrowings and have standby letters of credit, some of which do not have fixed expiration dates. At December 31, 2012, our maximum exposure as a result of these standby letters of credit and performance bonds was approximately \$0.9 million.

## [Table of Contents](#)

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 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 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. During 2012, we repurchased approximately 434,000 shares of our Common Stock for \$11.5 million at an average price of \$26.46 per share. During 2011, we repurchased approximately 86,000 shares of our common stock for \$2.0 million at an average price of \$23.40 per share.

Holders of our Common Stock are entitled to receive dividends when they are declared by our board of directors. For the year ended December 31, 2012, we paid cash dividends of \$32.7 million in aggregate, or \$0.62 per share. Future dividend declarations, if any, as well as the record and payment dates for such dividends, are subject to the final determination of our board of directors.

On February 11, 2013, our board of directors declared a quarterly cash dividend of \$0.16 per share to be paid on March 15, 2013 to shareholders of record as of March 1, 2013.

Future payments due under debt, lease and purchase commitment obligations as of December 31, 2012 are as follows:

<u>Contractual Obligations (In thousands)</u>	<u>Payment Due By Period</u>					
	<u>Total</u>	<u>Less than 1 Year</u>	<u>1-3 years</u>	<u>3-5 years</u>	<u>After 5 years</u>	<u>Other(1)</u>
Operating lease obligations	\$ 26,461	\$ 7,561	\$ 9,722	\$ 5,927	\$ 3,251	\$ —
Purchase obligations(2)	125,378	116,398	8,977	3	—	—
Other long-term liabilities reflected on the Balance Sheet under U.S. GAAP(3)	43,375	—	39	—	19,703	23,633
Total	<u>\$ 195,214</u>	<u>\$ 123,959</u>	<u>\$ 18,738</u>	<u>\$ 5,930</u>	<u>\$ 22,954</u>	<u>\$ 23,633</u>

- (1) This balance relates to our reserve for uncertain tax positions.
- (2) As of December 31, 2012, we have entered into purchase commitments for certain inventory components and other equipment and services used in our normal operations. The majority of these purchase commitments covered by these arrangements are for periods of less than one year and aggregate to approximately \$125.4 million.
- (3) The majority of this balance relates to reserve for uncertain tax positions and accrued compensation for certain executives related to supplemental retirement benefits.

We believe that our current cash and investments position and available borrowing capacity, together with the cash anticipated to be generated from operations, will be sufficient to satisfy our estimated working capital, planned capital expenditure requirements, and any future cash dividends declared by our board of directors or share repurchases through at least the next 12 months and the foreseeable future.

## **Derivatives**

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



## [Table of Contents](#)

By nature, all financial instruments involve market and credit risks. We enter into derivative instruments with major investment grade financial institutions and no collateral is required. We have policies to monitor the credit risk of these counterparties. While there can be no assurance, we do not anticipate any material non-performance by any of these counterparties.

We hedge a portion of our 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 and Euro currencies. To the extent these derivatives are effective in offsetting 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 accumulated other comprehensive income 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. We do not enter into derivative instruments for trading or speculative purposes.

To the extent that hedge accounting criteria is not met, the foreign currency forward contracts are considered 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.

We had forward exchange contracts with notional amounts totaling \$41.4 million outstanding at December 31, 2012 of which \$19.4 million were outstanding to exchange Korean won to U.S. dollars. We had forward exchange contracts with notional amounts totaling \$36.1 million outstanding at December 31, 2011 of which \$18.7 million were outstanding to exchange Japanese yen for U.S. dollars.

As of December 31, 2012, the unrealized loss that will be reclassified from accumulated other comprehensive income to earnings over the next twelve months is immaterial. The ineffective portions of the derivatives are recorded in selling, general and administrative costs and were immaterial in 2012, 2011 and 2010.

We sometimes hedge certain intercompany and other payables with forward exchange contracts. Typically, as these derivatives hedge existing amounts that are denominated in foreign currencies, the derivatives do not qualify for hedge accounting. The foreign exchange gain or loss on these derivatives was \$1.6 million in 2012, and was immaterial in 2011 and 2010.

Realized and unrealized gains and losses on forward exchange contracts that do not qualify for hedge accounting are recognized currently in earnings. The cash flows resulting from forward exchange contracts are classified in our consolidated statements of cash flows as part of cash flows from operating activities. We do not hold or issue derivative financial instruments for trading purposes.

Gains and losses on forward exchange contracts that qualify for hedge accounting are classified in selling, general and administrative expenses in 2012 and totaled a loss of \$0.9 million. In 2011 and 2010, these gains and losses were classified in cost of products and totaled a gain of \$4.0 million and loss of \$1.0 million, respectively.

### **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 other contractually narrow or limited purposes. Accordingly, we are not exposed to any financing, liquidity, market or credit risk that could arise if we had such relationships.

## Recently Issued Accounting Pronouncements

In June 2011, the Financial Accounting Standards Board (“FASB”) issued an Accounting Standards Update (“ASU”) which eliminates the option to present the components of other comprehensive income as part of the statement of equity and requires an entity to present the total of comprehensive income, the components of net income, and the components of other comprehensive income either in a single continuous statement of comprehensive income or in two separate but consecutive statements. The amendments were effective retrospectively for fiscal years, and interim periods within those years, beginning after December 15, 2011. The ASU required changes in presentation only. We adopted this new ASU in the first quarter of 2012, electing to present the components of other comprehensive income as one continuous statement. This new ASU did not have a material effect on our consolidated financial statements.

In May 2011, the FASB issued an ASU which applies to all reporting entities that are required or permitted to measure or disclose the fair value of an asset, a liability, or an instrument classified in a reporting entity’s shareholders’ equity in the financial statements. The amendments do not extend the use of fair value accounting, but provide guidance on how it should be applied where its use is already required or permitted by other standards within United States Generally Accepted Accounting Principles (“U.S. GAAP”). The amendments changed the wording used to describe many requirements in U.S. GAAP for measuring fair value and for disclosing information about fair value measurements. Additionally, the ASU clarifies the FASB’s intent about the application of existing fair value measurements. The amendments in this ASU are to be applied prospectively. For public entities, the amendments were effective during interim and annual periods beginning after December 15, 2011. We adopted the new ASU in the first quarter of 2012. This new ASU did not have a material effect on our consolidated financial statements.

In December 2011, the FASB issued ASU No. 2011-11, “*Disclosures about Offsetting Assets and Liabilities.*” This ASU is intended to enhance the understanding of the effects of netting arrangements on an entity’s financial statements, including financial instruments and derivative instruments that are either offset or subject to a master netting arrangement. The scope of this ASU includes derivatives, sale and repurchase agreements, reverse sale and repurchase agreements, and securities borrowing and lending arrangements. In January 2013, the FASB issued ASU No. 2013-01 “*Clarifying the Scope of Disclosures about Offsetting Assets and Liabilities.*” This standard provided additional guidance on the scope of ASU 2011-11. The provisions of this ASU are effective for interim and annual periods beginning on or after January 1, 2013. This new ASU is not expected to have a material effect on our consolidated financial statements.

## Item 7A. Quantitative and Qualitative Disclosures about Market Risk

### Market Risk and Sensitivity Analysis

Our primary exposures to market risks include fluctuations in interest rates on our investment portfolio, short-term debt as well as fluctuations in foreign currency exchange rates.

#### *Foreign Exchange Rate Risk*

We mainly enter into forward exchange contracts to reduce currency exposure arising from intercompany sales of inventory. We sometimes also enter into forward exchange contracts to reduce foreign exchange risks arising from the change in fair value of certain foreign currency denominated assets and liabilities.

We had forward exchange contracts with notional amounts totaling \$41.4 million outstanding at December 31, 2012, of which \$19.4 million were outstanding to exchange South Korean won to U.S. dollars. We had forward exchange contracts with notional amounts totaling \$36.1 million outstanding at December 31, 2011, of which \$18.7 million were outstanding to exchange Japanese yen for U.S. dollars. The potential fair value loss for a hypothetical 10% adverse change in the currency exchange rate on our forward exchange contracts at

---

## [Table of Contents](#)

December 31, 2012 and 2011 would be \$6.8 million and \$4.0 million, respectively. The potential losses in 2012 and 2011 were estimated by calculating the fair value of the forward exchange contracts at December 31, 2012 and 2011 and comparing that with those calculated using hypothetical forward currency exchange rates.

### ***Interest Rate Risk***

Due to its short-term duration, the fair value of our cash and investment portfolio at December 31, 2012 and 2011 approximated its carrying value. Interest rate risk was estimated as the potential decrease in fair value resulting from a hypothetical 10% increase in interest rates for securities contained in the investment portfolio. The resulting hypothetical fair value was not materially different from the year-end carrying values.

From time to time, we have outstanding lines of credit and short-term borrowings with variable interest rates, primarily denominated in Japanese yen. There were no borrowings outstanding under these arrangements at December 31, 2012. There were \$1.9 million total borrowings outstanding under these arrangements at December 31, 2011, at an average interest rate of 0.65%. Due to the short-term nature and amount of this short-term debt, a hypothetical change of 10% in interest rates would not have had a material effect on our near-term financial condition or results of operations.

**Item 8. Financial Statements and Supplementary Data**

**REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

To Board of Directors and Shareholders of  
MKS Instruments, Inc.:

In our opinion, the consolidated financial statements listed in the index appearing under Item 15(a)(1) present fairly, in all material respects, the financial position of MKS Instruments, Inc. and its subsidiaries at December 31, 2012 and December 31, 2011, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2012 in conformity with accounting principles generally accepted in the United States of America. In addition, in our opinion, the financial statement schedule listed in the index appearing under Item 15(a)(2) presents fairly, in all material respects, the information set forth therein when read in conjunction with the related consolidated financial statements. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2012, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for these financial statements and financial statement schedule, for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on these financial statements, on the financial statement schedule, and on the Company's internal control over financial reporting based on our integrated audits. We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

A company's internal control over financial reporting is a process designed 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. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

As described in Management's Report on Internal Control over Financial Reporting, management has excluded Plasmart, Inc. ("Plasmart") from its assessment of internal control over financial reporting as of December 31, 2012 because Plasmart was acquired by the Company in a purchase business combination during 2012. We have also excluded Plasmart from our audit of internal control over financial reporting. Plasmart is a wholly-owned subsidiary whose total assets and total revenues represent approximately 2.5% and less than 1%, respectively, of the related consolidated financial statement amounts as of and for the year ended December 31, 2012.

/s/ PricewaterhouseCoopers LLP

Boston, Massachusetts  
February 26, 2013

**MKS Instruments, Inc.**  
**Consolidated Balance Sheets**

	<u>December 31,</u>	
	<u>2012</u>	<u>2011</u>
	<u>(in thousands, except share data)</u>	
<b>ASSETS</b>		
Current assets:		
Cash and cash equivalents	\$ 287,588	\$ 312,916
Short-term investments	327,653	252,603
Trade accounts receivable, net of allowances of \$2,879 and \$2,516 at December 31, 2012 and 2011, respectively	82,060	120,894
Inventories	134,639	153,632
Deferred income taxes	8,194	10,618
Other current assets	28,048	34,238
Total current assets	868,182	884,901
Property, plant and equipment, net	80,516	72,487
Long-term investments	12,158	7,873
Goodwill	150,733	140,084
Intangible assets, net	11,561	1,043
Other assets	11,692	12,266
Total assets	<u>\$ 1,134,842</u>	<u>\$ 1,118,654</u>
<b>LIABILITIES AND STOCKHOLDERS' EQUITY</b>		
Current liabilities:		
Short-term borrowings	\$ —	\$ 1,932
Accounts payable	16,803	24,853
Accrued compensation	20,955	21,774
Income taxes payable	4,148	7,548
Other current liabilities	37,405	40,324
Total current liabilities	79,311	96,431
Other liabilities	43,375	32,211
Commitments and contingencies (Note 23)		
Stockholders' equity:		
Preferred Stock, \$0.01 par value, 2,000,000 shares authorized; none issued and outstanding	—	—
Common Stock, no par value, 200,000,000 shares authorized; 52,748,849 and 52,491,948 shares issued and outstanding at December 31, 2012 and 2011, respectively	113	113
Additional paid-in capital	718,005	707,419
Retained earnings	278,583	268,870
Accumulated other comprehensive income	15,455	13,610
Total stockholders' equity	1,012,156	990,012
Total liabilities and stockholders' equity	<u>\$ 1,134,842</u>	<u>\$ 1,118,654</u>

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

**MKS Instruments, Inc.**  
**Consolidated Statements of Operations and Comprehensive Income**

	Years Ended December 31,		
	2012	2011	2010
(in thousands, except per share data)			
<b>Net Revenues:</b>			
Products	\$ 536,774	\$ 719,002	\$ 763,452
Services	106,734	103,515	89,662
Total net revenues	<u>643,508</u>	<u>822,517</u>	<u>853,114</u>
<b>Cost of revenues:</b>			
Cost of products	310,485	387,445	421,777
Cost of service	63,544	60,084	52,699
Total cost of revenues	<u>374,029</u>	<u>447,529</u>	<u>474,476</u>
Gross profit	269,479	374,988	378,638
Research and development	60,118	61,033	62,689
Selling, general and administrative	127,185	128,015	119,841
Litigation	5,316	—	—
Completed acquisition costs	1,258	—	—
Restructuring	343	—	—
Amortization of acquired intangible assets	1,036	1,015	1,283
Gain on sale of asset	—	—	(682)
Income from operations	<u>74,223</u>	<u>184,925</u>	<u>195,507</u>
Interest income	1,059	1,159	1,052
Interest expense	146	32	135
Income from continuing operations before income taxes	<u>75,136</u>	<u>186,052</u>	<u>196,424</u>
Provision for income taxes	27,107	56,321	63,505
Income from continuing operations	<u>48,029</u>	<u>129,731</u>	<u>132,919</u>
Income from discontinued operations, net of taxes	—	—	9,668
Net income	<u>\$ 48,029</u>	<u>\$ 129,731</u>	<u>\$ 142,587</u>
<b>Other comprehensive income:</b>			
Changes in value of financial instruments designated as cash flow hedges, net of tax expense (benefit)(1)	\$ 150	\$ 1,570	\$ (2,600)
Foreign currency translation adjustments, net of tax of \$0 for 2012, 2011 and 2010	1,664	129	3,710
Unrealized gain on investments, net of tax expense(2)	31	133	28
Total comprehensive income	<u>\$ 49,874</u>	<u>\$ 131,563</u>	<u>\$ 143,725</u>
<b>Basic income per share:</b>			
Continuing operations	\$ 0.91	\$ 2.49	\$ 2.66
Discontinued operations	—	—	0.19
Net income	<u>\$ 0.91</u>	<u>\$ 2.49</u>	<u>\$ 2.85</u>
<b>Diluted income per share:</b>			
Continuing operations	\$ 0.90	\$ 2.45	\$ 2.61
Discontinued operations	—	—	0.19
Net income	<u>\$ 0.90</u>	<u>\$ 2.45</u>	<u>\$ 2.80</u>
Cash dividends paid per common share	<u>\$ 0.62</u>	<u>\$ 0.60</u>	<u>\$ —</u>
<b>Weighted average common shares outstanding:</b>			
Basic	<u>52,686</u>	<u>52,169</u>	<u>50,077</u>
Diluted	<u>53,234</u>	<u>52,847</u>	<u>50,927</u>

(1) Tax expense (benefit) was \$88, \$937 and \$(1,576) for the years ended December 31, 2012, 2011 and 2010, respectively.

(2) Tax expense was \$19, \$79 and \$17 for the years ended December 31, 2012, 2011, and 2010, respectively.

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

**MKS Instruments, Inc.**  
**Consolidated Statements of Stockholders' Equity**

	Common Stock		Additional Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Income	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2009	49,514,941	\$ 113	\$645,411	\$ 28,769	\$ 10,640	\$ 684,933
Net issuance under stock-based plans	1,133,660		6,524			6,524
Stock-based compensation			10,604			10,604
Tax effect from stock-based plans			1,253			1,253
Comprehensive income (net of tax):						
Net income				142,587		142,587
Other comprehensive income					1,138	1,138
Balance at December 31, 2010	50,648,601	\$ 113	\$663,792	\$171,356	\$ 11,778	\$ 847,039
Net issuance under stock-based plans	1,929,135		28,546			28,546
Stock-based compensation			11,225			11,225
Tax effect from stock-based plans			5,019			5,019
Stock repurchase	(85,788)		(1,163)	(844)		(2,007)
Cash dividend				(31,373)		(31,373)
Comprehensive income (net of tax):						
Net income				129,731		129,731
Other comprehensive income					1,832	1,832
Balance at December 31, 2011	52,491,948	\$ 113	\$707,419	\$268,870	\$ 13,610	\$ 990,012
Net issuance under stock-based plans	691,501		1,564			1,564
Stock-based compensation			13,031			13,031
Tax effect from stock-based plans			1,862			1,862
Stock repurchase	(434,600)		(5,871)	(5,630)		(11,501)
Cash dividend				(32,686)		(32,686)
Comprehensive income (net of tax):						
Net income				48,029		48,029
Other comprehensive income					1,845	1,845
Balance at December 31, 2012	<u>52,748,849</u>	<u>\$ 113</u>	<u>\$718,005</u>	<u>\$278,583</u>	<u>\$ 15,455</u>	<u>\$1,012,156</u>

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

**MKS Instruments, Inc.**  
**Consolidated Statements of Cash Flows**

	Years Ended December 31,		
	2012	2011	2010
	(in thousands)		
<b>Cash flows from operating activities:</b>			
Net income	\$ 48,029	\$ 129,731	\$ 142,587
<b>Adjustments to reconcile net income to net cash provided by operating activities:</b>			
Depreciation and amortization	14,442	12,980	13,823
Stock-based compensation	13,031	11,225	10,604
Provision for excess and obsolete inventory	15,028	14,857	13,230
Gain on disposal of discontinued operations	—	—	(4,432)
Deferred income taxes	3,819	7,549	10,097
Excess tax benefits from stock-based compensation	(2,105)	(5,338)	(2,112)
Other	929	567	(560)
<b>Changes in operating assets and liabilities:</b>			
Trade accounts receivable	38,288	17,923	(42,540)
Inventories	5,341	(11,697)	(52,467)
Income taxes	(3,126)	(5,345)	22,796
Other current assets	7,689	(7,674)	296
Accrued compensation and other liabilities	4,083	2,904	40,928
Accounts payable	(8,281)	(11,646)	11,220
Net cash provided by operating activities	<u>137,167</u>	<u>156,036</u>	<u>163,470</u>
<b>Cash flows from investing activities:</b>			
Acquisition of business, net of cash acquired	(22,607)	—	—
Purchases of investments	(435,961)	(475,777)	(410,551)
Maturities of investments	313,298	385,613	188,819
Sales of investments	46,559	100,094	117,679
Purchases of property, plant and equipment	(17,705)	(15,567)	(15,819)
Proceeds from sale of assets	50	7	2,318
Net proceeds from sale of discontinued operations	—	—	15,582
Other	(1,501)	(448)	(3,651)
Net cash used in investing activities	<u>(117,867)</u>	<u>(6,078)</u>	<u>(105,623)</u>
<b>Cash flows from financing activities:</b>			
Proceeds from short-term borrowings	2,896	41,802	119,209
Payments on short-term borrowings	(9,348)	(39,915)	(132,872)
Repurchases of Common Stock	(11,501)	(2,007)	—
Net proceeds related to employee stock awards	1,564	28,546	6,524
Dividend payments	(32,686)	(31,373)	—
Excess tax benefit from stock-based compensation	2,105	5,338	2,112
Net cash (used in) provided by financing activities	<u>(46,970)</u>	<u>2,391</u>	<u>(5,027)</u>
Effect of exchange rate changes on cash and cash equivalents	2,342	(1,909)	(1,353)
(Decrease) increase in cash and cash equivalents	(25,328)	150,440	51,467
Cash and cash equivalents at beginning of year	312,916	162,476	111,009
Cash and cash equivalents at end of year	<u>\$ 287,588</u>	<u>\$ 312,916</u>	<u>\$ 162,476</u>
<b>Supplemental disclosure of cash flow information:</b>			
Cash paid during the period for:			
Interest	\$ 212	\$ 144	\$ 78
Income taxes	\$ 18,033	\$ 52,561	\$ 47,446

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



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

**1) Business Description**

MKS Instruments, Inc. (“MKS” or the “Company”) was founded in 1961 and is 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 of advanced manufacturing processes. MKS groups its products into four product groups based upon the similarity of the product function, type of product and manufacturing processes. These four groups of products are: Instruments and Control Products, Power and Reactive Gas Products, Vacuum Products and Analytical Solutions Group Products. MKS’ products are derived from its core competencies in pressure measurement and control, materials delivery, gas composition analysis, control and information technology, power and reactive gas generation and vacuum technology.

Effective in the second quarter of fiscal 2012, the Company changed its reporting segments from one to four segments based upon the information that is provided to the Company’s chief operating decision maker. The Company’s new reportable segments are: Advanced Manufacturing Capital Equipment, Analytical Solutions Group, Europe Region Sales & Service, and Asia Region Sales & Service.

**2) Basis of Presentation**

The consolidated financial statements include the accounts of MKS Instruments, Inc. and its wholly owned subsidiaries. All significant intercompany accounts and transactions have been eliminated in consolidation.

**Use of Estimates**

The consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America (“U.S. GAAP”). The preparation of these 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 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 and allowance for doubtful accounts, inventory, warranty costs, stock-based compensation, intangible assets, goodwill, other long-lived assets, in process research and development and other acquisition expenses and income taxes. 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.

**3) Summary of Significant Accounting Policies**

**Revenue Recognition and Accounts Receivable Allowances**

Revenue from product sales is recorded upon transfer of title and risk of loss to the customer provided that there is evidence of an arrangement, the sales price is fixed or determinable, and collection of the related receivable is reasonably assured. In most transactions, the Company has no obligations to customers after the date products are shipped other than pursuant to warranty obligations. In some instances, the Company provides installation, training, support and services to customers after the product has been shipped. For revenue arrangements with multiple deliverables, the Company allocates revenue to each element based upon their relative selling price using vendor-specific objective evidence (“VSOE”), or third-party evidence (“TPE”) or

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

based upon the relative selling price using estimated prices if VSOE or TPE does not exist. The Company then recognizes revenue on each deliverable in accordance with its policies for product and service revenue recognition. The Company provides for the estimated costs to fulfill customer warranty obligations upon the recognition of the related revenue. Shipping and handling fees, if any, billed to customers are recognized as revenue. The related shipping and handling costs are recognized in cost of sales. Accounts receivable allowances include sales returns and bad debt allowances. The Company monitors and tracks the amount of product returns and reduces revenue at the time of shipment for the estimated amount of such future returns, based on historical experience. The Company makes estimates evaluating its allowance for doubtful accounts. The Company continuously monitors collections and payments from its customers and maintains a provision for estimated credit losses based upon its historical experience and any specific customer collection issues that it has identified.

**Research and Development**

Research and development costs are expensed as incurred and consist mainly of compensation related expenses and project materials. The Company's research and development efforts include numerous projects, which generally have a duration of 3 to 30 months. Acquired in-process research and development ("IPR&D") expenses, which are capitalized at fair value as an intangible asset until the related project is completed, are then amortized over the estimated useful life of the product. Projects that are abandoned are immediately written off.

**Advertising Costs**

Advertising costs are expensed as incurred and were immaterial in 2012, 2011 and 2010.

**Stock-Based Compensation**

The accounting for share-based compensation expense requires the measurement and recognition of compensation expense for all share-based payment awards made to employees and directors based on estimated fair values. For restricted stock units ("RSUs"), the fair value is the fair value on the date of grant. The Company also provides employees the opportunity to purchase shares through an Employee Stock Purchase Plan ("ESPP"). For shares issued under its ESPP, the Company has estimated the fair value on the date of grant using the Black Scholes pricing model, which is affected by the Company's stock price as well as assumptions regarding a number of complex and subjective variables. These variables include the Company's expected stock price volatility over the term of the awards, expected life, risk free interest rate and expected dividends. The Company is also required to estimate forfeitures at the time of grant and revise those estimates in subsequent periods if actual forfeitures differ from those estimates.

Management determined that blended volatility, a combination of historical and implied volatility, is more reflective of market conditions and a better indicator of expected volatility than historical or implied volatility alone. The assumptions used in calculating the fair value of share-based payment awards represent management's best estimates, but these estimates involve inherent uncertainties and the application of management judgment. As a result, if factors change and the Company uses different assumptions, its stock-based compensation expense could be materially different in the future.

**Other Comprehensive Income**

For foreign subsidiaries where the functional currency is the local currency, assets and liabilities are translated into U.S. dollars at the current exchange rate on the balance sheet date. Revenue and expenses are translated at average rates of exchange prevailing during the year. Translation adjustments resulting from this process are recorded to Other Comprehensive Income ("OCI").

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

Unrealized gains and losses on securities classified as available-for-sale are included in accumulated other comprehensive income in consolidated stockholders' equity.

For derivative instruments designated as cash-flow hedges, the effective portion of the derivative's gain (loss) is initially reported as a component of OCI and is subsequently recognized in earnings when the hedged exposure is recognized in earnings.

**Net Income Per Share**

Basic net income per share is based on the weighted average number of common shares outstanding, and diluted net income per share is based on the weighted average number of common shares outstanding and all potential dilutive common equivalent shares outstanding. The dilutive effect of options is determined under the treasury stock method using the average market price for the period. Common equivalent shares are included in the per share calculations when the effect of their inclusion would be dilutive.

**Cash and Cash Equivalents and Investments**

All highly liquid investments with a maturity date of three months or less at the date of purchase are considered to be cash equivalents. The appropriate classification of investments in securities is determined at the time of purchase. Debt securities that the Company does not have the intent and ability to hold to maturity are classified as "available-for-sale" and are carried at fair value. Mutual funds that are bought and held principally for the purpose of selling them in the near term are classified as "trading" and are carried at fair value.

The Company reviews its investment portfolio on a monthly basis to identify and evaluate individual investments that have indications of possible impairment. The factors considered in determining whether a loss is other-than-temporary include: the length of time and extent to which fair market value has been below the cost basis, the financial condition and near-term prospects of the issuer, credit quality, and the Company's ability to hold the investment for a period of time sufficient to allow for any anticipated recovery in fair value.

**Concentrations of Credit Risk**

The Company's significant concentrations of credit risk consist principally of cash and cash equivalents, investments, forward exchange contracts and trade accounts receivable. The Company maintains cash and cash equivalents with financial institutions including some banks with which it had borrowings. The Company maintains investments primarily in U.S. Treasury and government agency securities and corporate debt securities. The Company enters into forward currency contracts with high credit-quality financial institutions in order to minimize credit risk exposure. The Company's customers are primarily concentrated in the semiconductor industry, and a limited number of customers account for a significant portion of the Company's revenues. The Company regularly monitors the creditworthiness of its customers and believes it has adequately provided for potential credit loss exposures. Credit is extended for all customers based primarily on financial condition and collateral is not required.

The Company had one customer comprising 14%, 14% and 16% of net sales for 2012, 2011 and 2010, respectively and another customer comprising 10%, 7% and 9% of net sales for 2012, 2011 and 2010. During the years 2012, 2011 and 2010, approximately 62%, 61% and 64% of the Company's net sales, respectively, were to semiconductor capital equipment manufacturers and semiconductor device manufacturers. There was one customer comprising 10% or more of the Company's accounts receivable balance as of December 31, 2012.

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

**Inventories**

Inventories are stated at the lower of cost or market, cost being determined using a standard costing system which approximates cost based on a first-in, first-out method. The Company regularly reviews inventory quantities on hand and records a provision to write-down excess and obsolete inventory to its estimated net realizable value, if less than cost, based primarily on its estimated forecast of product demand.

**Property, Plant and Equipment**

Property, plant and equipment are stated at cost. Equipment acquired under capital leases is recorded at the present value of the minimum lease payments required during the lease period. Expenditures for major renewals and betterments that extend the useful lives of property, plant and equipment are capitalized. Expenditures for maintenance and repairs are charged to expense as incurred. When assets are sold or otherwise disposed of, the cost and related accumulated depreciation are eliminated from the accounts and any resulting gain or loss is recognized in earnings.

Depreciation is provided on the straight-line method over the estimated useful lives of twenty to thirty-one and one-half years for buildings and three to seven years for machinery and equipment, furniture and fixtures and office equipment, which includes enterprise resource planning software. Leasehold improvements are amortized over the shorter of the lease term or the estimated useful life of the leased asset.

**Intangible Assets**

Intangible assets resulting from the acquisitions of businesses are estimated by management based on the fair value of assets acquired. These include acquired customer lists, technology, patents, trade names, covenants not to compete and IPR&D. Intangible assets are amortized from two to ten years on a straight-line basis which represents the estimated periods of benefit and the expected pattern of consumption.

**Goodwill**

Goodwill is the amount by which the cost of acquired net assets exceeded the fair value of those net assets on the date of acquisition. The Company allocates goodwill to reporting units at the time of acquisition or when there is a change in the reporting structure and bases that allocation on which reporting units will benefit from the acquired assets and liabilities. Reporting units are defined as operating segments or one level below an operating segment, referred to as a component. The Company assesses goodwill for impairment on an annual basis as of October 31 or more frequently when events and circumstances occur indicating that the recorded goodwill may be impaired.

The Company has the option of either assessing qualitative factors to determine whether it is necessary to perform the current two-step impairment test or performing the two-step impairment test without doing the qualitative assessment. In the current fiscal year, the Company performed the quantitative two-step goodwill impairment analysis. In the first step, the Company compares the fair value of its reporting unit to its carrying value. If the carrying value of the net assets assigned to the reporting unit exceeds the fair value of our reporting unit, then the second step of the impairment test is performed in order to determine the implied fair value of the reporting unit's goodwill. If the carrying value of the Company's reporting unit's goodwill exceeds its implied fair value, then the Company records an impairment loss equal to the difference.

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

The Company determined the fair value of its reporting units using a discounted cash flow analysis, derived from internal earnings and internal and external market forecasts. Discount rates are based on a weighted average cost of capital (“WACC”), which represents the average rate a business must pay its providers of debt and equity. The WACC used to test goodwill was derived from a group of comparable companies. The cash flows employed in the DCF analysis were derived from internal earnings and forecasts and external market forecast. Assumptions in estimating future cash flows are subject to a high degree of judgment and complexity. The Company makes every effort to forecast these future cash flows as accurately as possible with the information available at the time the forecast is developed.

As of October 31, 2012, the Company performed its annual impairment assessment of goodwill using the two-step analysis and determined that there was no impairment.

**Impairment of Long-Lived Assets**

The Company evaluates the recoverability of its long-lived assets whenever events and changes in circumstances indicate that the carrying amount of an asset may not be fully recoverable. This periodic review may result in an adjustment of estimated depreciable lives or asset impairment. When indicators of impairment are present, the carrying values of the asset are evaluated in relation to their operating performance and future undiscounted cash flows of the underlying business. If the future undiscounted cash flows are less than their carrying value, impairment exists. The impairment is measured as the difference between the carrying value and the fair value of the underlying asset. Fair values are based on estimates of market prices and assumptions concerning the amount and timing of estimated future cash flows and assumed discount rates, reflecting varying degrees of perceived risk.

**Foreign Exchange**

The functional currency of the majority of the Company’s foreign subsidiaries is the applicable local currency. For those subsidiaries, assets and liabilities are translated to U.S. dollars at year-end exchange rates. Income and expense accounts are translated at the average exchange rates prevailing during the year. The resulting translation adjustments are included in accumulated other comprehensive income in consolidated stockholders’ equity. Foreign exchange transaction gains and losses, which arise from transaction activity, are reflected in selling, general and administrative expenses in the statement of operations. Net foreign exchange gains and losses resulting from re-measurement are included in selling general and administrative expense and were a gain of \$301, a loss of \$126 and a loss of \$728, respectively, for the years ended December 31, 2012, 2011 and 2010. These amounts do not reflect the corresponding gain (loss) from foreign exchange contracts. See Note 7 “Derivatives” regarding foreign exchange contracts.

**Income Taxes**

The Company records income taxes using the asset and liability method. Deferred income tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective income tax bases, and operating loss and tax credit carryforwards. On a quarterly basis, the Company evaluates both the positive and negative evidence that affects the realizability of net deferred tax assets and assesses the need for a valuation allowance. The future benefit to be derived from its deferred tax assets is dependent upon its ability to generate sufficient future taxable income to realize the assets. The Company records a valuation allowance to reduce its net deferred tax assets to the amount that is more likely than not to be realized. To the extent the Company establishes a

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

valuation allowance an expense will be recorded as a component of the provision for income taxes on the statement of operations. As of December 31, 2010, the Company had a valuation allowance of \$25,267 primarily related to capital losses incurred from its divested operations, and state tax credit carryforwards. During 2011, the Company increased its valuation allowance by \$1,208 primarily related to capital losses incurred from its foreign affiliates as management determined it is more likely than not that the deferred tax assets related to these attributes will not be realized. As a result, the valuation allowance was \$26,475 at December 31, 2011. During 2012, the Company increased its valuation allowance by \$1,022 primarily related to an increase in state tax credit carryforwards as management determined it is more likely than not that the deferred tax assets related to these attributes will not be realized. As a result, the valuation allowance is \$27,497 at December 31, 2012.

Accounting for income taxes requires a two-step approach to recognize and measure uncertain tax positions. The first step is to evaluate the tax position for recognition by determining if, based on the technical merits, it is more likely than not that the position will be sustained upon audit, including resolutions of related appeals or litigation processes, if any. The second step is to measure the tax benefit as the largest amount that is more than 50% likely of being realized upon ultimate settlement. The Company reevaluates these uncertain tax positions on a quarterly basis. This evaluation is based on factors including, but not limited to, changes in facts or circumstances, changes in tax law, effectively settled issues under audit and new audit activity. Any change in these factors could result in the recognition of a tax benefit or an additional charge to the tax provision.

**4) Recently Issued Accounting Pronouncements**

In June 2011, the Financial Accounting Standards Board (“FASB”) issued an Accounting Standards Update (“ASU”) which eliminates the option to present the components of other comprehensive income as part of the statement of equity and requires an entity to present the total of comprehensive income, the components of net income, and the components of other comprehensive income either in a single continuous statement of comprehensive income or in two separate but consecutive statements. The amendments were effective retrospectively for fiscal years, and interim periods within those years, beginning after December 15, 2011. The ASU required changes in presentation only. The Company adopted this new ASU in the first quarter of 2012, electing to present the components of other comprehensive income as one continuous statement. This new ASU did not have a material effect on the Company’s consolidated financial statements.

In May 2011, the FASB issued an ASU which applies to all reporting entities that are required or permitted to measure or disclose the fair value of an asset, a liability, or an instrument classified in a reporting entity’s shareholders’ equity in the financial statements. The amendments do not extend the use of fair value accounting, but provide guidance on how it should be applied where its use is already required or permitted by other standards within U.S. GAAP. The amendments changed the wording used to describe many requirements in U.S. GAAP for measuring fair value and for disclosing information about fair value measurements. Additionally, the ASU clarifies the FASB’s intent about the application of existing fair value measurements. The amendments in this ASU are to be applied prospectively. For public entities, the amendments were effective during interim and annual periods beginning after December 15, 2011. The Company adopted the new ASU in the first quarter of 2012. This new ASU did not have a material effect on the Company’s consolidated financial statements.

In December 2011, the FASB issued ASU No. 2011-11, “*Disclosures about Offsetting Assets and Liabilities.*” This ASU is intended to enhance the understanding of the effects of netting arrangements on an entity’s financial statements, including financial instruments and derivative instruments that are either offset or subject to a master netting arrangement. The scope of this ASU includes derivatives, sale and repurchase agreements, reverse sale and repurchase agreements, and securities borrowing and lending arrangements. In January 2013, the FASB issued ASU No. 2013-01 “*Clarifying the Scope of Disclosures about Offsetting Assets*”

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

and Liabilities.” This standard provided additional guidance on the scope of ASU 2011-11. The provisions of this ASU are effective for interim and annual periods beginning on or after January 1, 2013. This new ASU is not expected to have a material effect on the Company’s consolidated financial statements.

**5) Investments**

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

	Years Ended December 31,	
	2012	2011
<b>Available-for-sale investments:</b>		
Time deposits	\$ 52	\$ 37
Bankers acceptance drafts	242	962
U.S. treasury obligations	13,054	29,404
U.S. agency obligations	313,514	221,565
	<u>326,862</u>	<u>251,968</u>
<b>Trading investments:</b>		
Mutual funds(1)	791	635
	<u>\$327,653</u>	<u>\$252,603</u>

(1) The mutual funds are associated with the Company’s supplemental defined contribution retirement obligations.

The fair value of long-term available-for-sale investments with maturities or estimated lives of more than one year consists of the following:

	Years Ended December 31,	
	2012	2011
U.S. agency obligations	<u>\$12,158</u>	<u>\$7,873</u>

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

	Cost	Gross Unrealized Gains	Gross Unrealized (Losses)	Estimated Fair Value
<b>As of December 31, 2012:</b>				
<b>Short-term investments:</b>				
<b>Available-for-sale investments:</b>				
Time deposits	\$ 52	\$ —	\$ —	\$ 52
Bankers acceptance drafts	242	—	—	242
U.S. treasury obligations	13,045	9	—	13,054
U.S. agency obligations	313,262	258	(6)	313,514
	<u>\$326,601</u>	<u>\$ 267</u>	<u>\$ (6)</u>	<u>\$326,862</u>
<b>Long-term investments:</b>				
U.S. agency obligations	\$ 12,156	\$ 2	\$ —	\$ 12,158

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

	<u>Cost</u>	<u>Gross Unrealized Gains</u>	<u>Gross Unrealized (Losses)</u>	<u>Estimated Fair Value</u>
As of December 31, 2011:				
Short-term investments:				
Available-for-sale investments:				
Time deposits	\$ 37	\$ —	\$ —	\$ 37
Bankers acceptance drafts	962	—	—	962
U.S. treasury obligations	29,393	11	—	29,404
U.S. agency obligations	221,516	56	(7)	221,565
	<u>\$251,908</u>	<u>\$ 67</u>	<u>\$ (7)</u>	<u>\$251,968</u>
Long-term investments:				
U.S. agency obligations	\$ 7,876	\$ —	\$ (3)	\$ 7,873

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 and realized gains or losses are reflected in income and was not material in 2012, 2011 and 2010.

The unrealized gains and losses for trading investments were immaterial in 2012.

**6) 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 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.



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

In certain cases, the inputs used to measure fair value may fall into different levels of the fair value hierarchy. In such cases, we categorize such assets and liabilities based on the lowest level input that is significant to the fair value measurement in its entirety. Our 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.

Assets and liabilities of the Company measured at fair value on a recurring basis as of December 31, 2012, are summarized as follows:

Description	December 31, 2012	Fair Value Measurements at Reporting Date Using		
		Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
<b>Assets:</b>				
Cash equivalents:				
Money market funds	\$ 51,291	\$ 51,291	\$ —	\$ —
Bankers acceptance drafts	16	—	16	—
Trading securities:				
Mutual funds	791	791	—	—
Available-for-sale securities:				
Bankers acceptance drafts	242	—	242	—
U.S. treasury obligations	13,054	—	13,054	—
U.S. agency obligations	325,672	295,665	30,007	—
Derivatives — currency forward contracts	961	—	961	—
Total assets	<u>\$ 392,027</u>	<u>\$ 347,747</u>	<u>\$ 44,280</u>	<u>\$ —</u>
<b>Liabilities:</b>				
Derivatives — currency forward contracts	\$ 1,310	\$ —	\$ 1,310	\$ —
<b>Reported as follows:</b>				
<b>Assets:</b>				
Cash and cash equivalents(1)	\$ 51,307	\$ 51,291	\$ 16	\$ —
Short-term investments(2)	327,601	284,298	43,303	—
Other current assets	961	—	961	—
	<u>\$ 379,869</u>	<u>\$ 335,589</u>	<u>\$ 44,280</u>	<u>\$ —</u>
Long-term investments	<u>\$ 12,158</u>	<u>\$ 12,158</u>	<u>\$ —</u>	<u>\$ —</u>
<b>Liabilities:</b>				
Other current liabilities	\$ 1,310	\$ —	\$ 1,310	\$ —

(1) The cash and cash equivalent amounts presented in the table above do not include cash of \$185,143 and non-negotiable time deposits of \$51,138 as of December 31, 2012.

(2) The short-term investments presented in the table above do not include non-negotiable time deposits of \$52 as of December 31, 2012.

**MKS INSTRUMENTS, INC.**  
**NOTES TO 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, 2011, are summarized as follows:

Description	December 31, 2011	Fair Value Measurements at Reporting Date Using		
		Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
<b>Assets:</b>				
Cash equivalents:				
Money market funds	\$ 137,976	\$ 137,976	\$ —	\$ —
Trading securities:				
Mutual funds	635	635	—	—
Available-for-sale securities:				
Bankers acceptance drafts	962	—	962	—
U.S. treasury obligations	29,404	—	29,404	—
U.S. agency obligations	229,438	147,546	81,892	—
Derivatives — currency forward contracts	531	—	531	—
<b>Total assets</b>	<b>\$ 398,946</b>	<b>\$ 286,157</b>	<b>\$ 112,789</b>	<b>\$ —</b>
<b>Liabilities:</b>				
Derivatives — currency forward contracts	<b>\$ 1,054</b>	<b>\$ —</b>	<b>\$ 1,054</b>	<b>\$ —</b>
<b>Reported as follows:</b>				
<b>Assets:</b>				
Cash and cash equivalents(1)	\$ 137,976	\$ 137,976	\$ —	\$ —
Short-term investments(2)	252,566	140,308	112,258	—
Other current assets	531	—	531	—
	<b>\$ 391,073</b>	<b>\$ 278,284</b>	<b>\$ 112,789</b>	<b>\$ —</b>
Long-term investments	<b>\$ 7,873</b>	<b>\$ 7,873</b>	<b>\$ —</b>	<b>\$ —</b>
<b>Liabilities:</b>				
Other current liabilities	<b>\$ 1,054</b>	<b>\$ —</b>	<b>\$ 1,054</b>	<b>\$ —</b>

(1) The cash and cash equivalent amounts presented in the table above do not include cash of \$146,035 and non-negotiable time deposits of \$28,905 as of December 31, 2011.

(2) The short-term investments presented in the table above do not include non-negotiable time deposits of \$37 as of December 31, 2011.

**Money Market Funds**

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

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

**Trading Mutual Fund Investments**

As of December 31, 2012, trading investments consisted of certain U.S. and international equity mutual funds and government agency fixed income mutual funds. In 2011, management changed the classification of the investments from available-for-sale to trading investments. These investments were classified as available-for-sale at December 31, 2011. These investments are classified within Level 1 of the fair value hierarchy.

**Available-For-Sale Investments**

As of December 31, 2012 and 2011, available-for-sale investments consisted of time deposits and drafts denominated in the Euro currency, U.S. treasury obligations and U.S. agency obligations. As of December 31, 2011, U.S. agency obligations include certain corporate obligations issued under the government's Term Loan Guarantee Program which removes any credit risk associated with the corporate issuing entity, as they become obligations of the U.S. government should the corporate issuer be unable to honor its obligations. There were no corporate obligations that were issued under the government's Term Loan Guarantee Program as of December 31, 2012.

The Company measures its debt and equity investments at fair value. The Company's available-for-sale investments are classified within Level 1 and Level 2 of the fair value hierarchy.

**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.

**7) 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 and 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 and Euro 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

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

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.

As of December 31, 2012 and 2011, the Company had outstanding forward foreign exchange contracts with gross notional values of \$41,448 and \$36,119, respectively. The following tables provide a summary of the primary net hedging positions and corresponding fair values held as of December 31, 2012 and 2011:

<u>Currency Hedged (Buy/Sell)</u>	<u>December 31, 2012</u>	
	<u>Gross Notional Value</u>	<u>Fair Value(1)</u>
U.S. Dollar/Japanese Yen	\$ 13,992	\$ 961
U.S. Dollar/South Korean Won	19,374	(1,180)
U.S. Dollar/Euro	4,217	(57)
U.S. Dollar/U.K. Pound Sterling	3,865	(73)
Total	<u>\$ 41,448</u>	<u>\$ (349)</u>

<u>Currency Hedged (Buy/Sell)</u>	<u>December 31, 2011</u>	
	<u>Gross Notional Value</u>	<u>Fair Value(1)</u>
U.S. Dollar/Japanese Yen	\$ 18,676	\$ (961)
U.S. Dollar/South Korean Won	10,799	60
U.S. Dollar/Euro	3,869	288
U.S. Dollar/U.K. Pound Sterling	2,775	90
Total	<u>\$ 36,119</u>	<u>\$ (523)</u>

(1) Represents the net receivable (payable) amount included in the consolidated balance sheet.

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

<u>Derivatives Designated as Hedging Instruments</u>	<u>Years Ended</u>	
	<u>December 31,</u>	<u>2011</u>
	<u>2012</u>	<u>2011</u>
<u>Derivative assets:</u>		
Forward exchange contracts	\$ 961	\$ 531
<u>Derivative liabilities:</u>		
Forward exchange contracts	(1,310)	(1,054)
<u>Total net derivative (liability) designated as hedging instruments(1)</u>	<u>\$ (349)</u>	<u>\$ (523)</u>

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

- (1) The derivative asset of \$961 and derivative liability of \$1,310 are classified in other current assets and other current liabilities, respectively, in the consolidated balance sheet as of December 31, 2012. The derivative asset of \$531 and derivative liability of \$1,054 are classified in other current assets and other current liabilities, respectively, in the consolidated balance sheet as of December 31, 2011.

The net amount of existing losses as of December 31, 2012 that is expected to be reclassified from accumulated OCI into earnings within the next twelve months is not immaterial.

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

<u>Derivatives Designated as Cash Flow Hedging Relationships</u>	<u>Years Ended December 31,</u>		
	<u>2012</u>	<u>2011</u>	<u>2010</u>
<u>Forward exchange contracts:</u>			
Net gain (loss) recognized in OCI(1)	\$ 936	\$ 4,311	\$(3,346)
Net (loss) reclassified from accumulated OCI into income(2)	\$(930)	\$(4,021)	\$ (957)

- (1) Net change in the fair value of the effective portion classified in OCI.  
(2) Effective portion classified as selling, general and administrative in 2012 and 2011 and as cost of products in 2010.

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

<u>Derivatives Not Designated as Hedging Instruments</u>	<u>Years Ended December 31,</u>		
	<u>2012</u>	<u>2011</u>	<u>2010</u>
<u>Forward exchange contracts:</u>			
Net (loss) recognized in income(1)	\$ (1,606)	\$ —	\$ —

- (1) The Company has a forward foreign exchange contract that hedges an intercompany loan with its Korean subsidiary. This hedge does not qualify for hedge accounting and any gains (losses) are recorded immediately in selling, general and administrative expenses.

**8) Inventories**

Inventories consist of the following:

	<u>Years Ended</u> <u>December 31,</u>	
	<u>2012</u>	<u>2011</u>
Raw material	\$ 76,610	\$ 78,501
Work-in-process	19,708	21,298
Finished goods	38,321	53,833
	<u>\$ 134,639</u>	<u>\$ 153,632</u>

Inventory related excess and obsolete charges of \$15,028, \$14,857 and \$13,230 were recorded in cost of products in the years ended December 31, 2012, 2011 and 2010, respectively.

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

**9) Property, Plant and Equipment**

Property, plant and equipment consist of the following:

	Years Ended December 31,	
	2012	2011
Land	\$ 9,188	\$ 8,119
Buildings	68,831	64,962
Machinery and equipment	115,032	107,304
Furniture and fixtures, office equipment and software	51,669	48,516
Leasehold improvements	18,003	18,617
Construction in progress	9,227	7,075
	<u>271,950</u>	<u>254,593</u>
Less: accumulated depreciation and amortization	191,434	182,106
	<u>\$ 80,516</u>	<u>\$ 72,487</u>

Depreciation and amortization of property, plant and equipment totaled \$13,406, \$11,965 and \$12,298 for the years ended 2012, 2011 and 2010, respectively. In 2010, the Company reclassified \$85 of depreciation of property, plant and equipment to discontinued operations.

**10) Acquisition**

On August 29, 2012, the Company acquired Plasmart, Inc. ("Plasmart"), located in Daejeon, Korea. Plasmart develops radio frequency (RF) plasma generation and monitoring systems for the semiconductor, flat panel display, active matrix organic light emitting diodes and solar photovoltaic industries. Plasmart's expertise in RF systems and access to the important Korean market were key drivers in the selection of Plasmart for acquisition. The aggregate purchase price, net of cash acquired, consisted of \$22,607, subject to final working capital adjustments in the fourth quarter of 2012 of \$1,778. Acquisition related costs of \$1,258 and step-up inventory of \$303 were expensed as incurred.

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

Current assets	\$ 5,536
Property, plant and equipment	3,565
Other assets	554
Intangible assets	10,745
Goodwill	9,989
Total assets acquired	\$30,389
Debt (Note 15)	4,561
Deferred taxes and other liabilities	3,128
Total liabilities assumed	\$ 7,689
Total purchase price	\$22,700
Cash acquired	(93)
Total purchase price, net of cash acquired	<u>\$22,607</u>

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

The goodwill and other intangible assets associated with the acquisition are not 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.

Current developed technology	\$ 5,029	7.5 – 9.5 years useful life
Tradenames	335	7 year useful life
Customer relationships	5,381	10 year useful life
	<u>\$10,745</u>	

This transaction resulted in an amount of purchase price that exceeded the estimated fair value of tangible and intangible assets, 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 and (2) potential to leverage the Company's sales force and intellectual property to attract new customers and revenue.

The results of this acquisition were included in the Company's consolidated operations beginning on August 29, 2012. The pro forma consolidated statements reflecting the operating results of Plasmart, had they been acquired as of January 1, 2012, would not differ materially from the operating results of the Company as reported for the year ended December 31, 2012. Plasmart is included in the Power and Reactive Gas Products group and the Advanced Manufacturing Capital Equipment reportable segment.

**11) Goodwill and Intangible Assets**

**Goodwill**

The changes in the carrying amount of goodwill and accumulated impairment losses were as follows:

	2012			2011		
	Gross Carrying Amount	Accumulated Impairment Loss	Net	Gross Carrying Amount	Accumulated Impairment Loss	Net
Beginning balance at January 1	\$ 279,498	\$ (139,414)	\$ 140,084	\$ 279,434	\$ (139,414)	\$ 140,020
Acquired goodwill(1)	9,989	—	9,989	64	—	64
Foreign currency translation	660	—	660	—	—	—
Ending balance at December 31	<u>\$ 290,147</u>	<u>\$ (139,414)</u>	<u>\$ 150,733</u>	<u>\$ 279,498</u>	<u>\$ (139,414)</u>	<u>\$ 140,084</u>

- (1) On August 29, 2012, the Company purchased Plasmart, Inc. for \$22,607, net of cash acquired. The Company recorded \$9,989 of goodwill in connection with the acquisition. In September 2011, the Company purchased a product line from GE Osmonics, Inc. for \$458. The Company recorded \$64 of goodwill in connection with the acquisition.

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

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

Reportable segment:	Years Ended December 31,	
	2012	2011
Advanced Manufacturing Capital Equipment	\$ 142,065	\$ 125,026
Analytical Solutions Group	8,668	15,058
Europe Region Sales & Service	—	—
Asia Region Sales & Service	—	—
Total goodwill	<u>\$ 150,733</u>	<u>\$ 140,084</u>

**Intangible Assets**

The Company is required to test certain long-lived assets when indicators of impairment are present. For the purposes of the impairment test, long-lived assets are grouped with other assets and liabilities at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities. There were no intangible asset impairment charges in 2012, 2011 or 2010.

Components of the Company's acquired intangible assets are comprised of the following:

<u>As of December 31, 2012</u>	Gross	Accumulated Amortization	Foreign Currency Translation	Net
Completed technology(1)(2)	\$ 82,084	\$ (77,243)	\$ 254	\$ 5,095
Customer relationships(2)	14,571	(8,886)	312	5,997
Patents, trademarks, trade names and other(2)	25,038	(24,587)	18	469
	<u>\$ 121,693</u>	<u>\$ (110,716)</u>	<u>\$ 584</u>	<u>\$ 11,561</u>

- (1) Intangible assets of \$226 were re-classified from other assets to intangible assets (completed technology) during the quarter ended March 31, 2012. This was related to in-process research and development which was completed during the first quarter of 2012, related to a previous acquisition.
- (2) On August 29, 2012, the Company purchased Plasmart for \$22,607, net of cash acquired. The Company recorded \$10,745 of separately identified intangible assets, of which \$5,029 was completed technology, \$5,381 was customer relationships and \$335 was trade names.

<u>As of December 31, 2011</u>	Gross	Accumulated Amortization	Foreign Currency Translation	Net
Completed technology	\$ 76,829	\$ (76,829)	\$ —	\$ —
Customer relationships(1)	9,190	(8,393)	—	797
Patents, trademarks, trade names and other(1)	24,703	(24,457)	—	246
	<u>\$ 110,722</u>	<u>\$ (109,679)</u>	<u>\$ —</u>	<u>\$ 1,043</u>

- (1) In September 2011, the Company purchased a product line from GE Osmonics, Inc. for \$458. The Company recorded \$315 of intangible assets in connection with the acquisition of which \$250 was customer relationships and \$65 was trade names.



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

Aggregate amortization expense related to acquired intangible assets for the years 2012, 2011 and 2010 was \$1,036, \$1,015 and \$1,283, respectively. In 2010, the Company re-classified \$242 of amortization expense to discontinued operations. Estimated amortization expense for each of the five remaining fiscal years and thereafter is as follows:

<u>Year</u>	<u>Amount</u>
2013	\$1,639
2014	1,261
2015	1,245
2016	1,244
2017	1,244
Thereafter	4,928

**12) Other Assets**

	<u>Years Ended</u> <u>December 31,</u>	
	<u>2012</u>	<u>2011</u>
<b>Other Current Assets:</b>		
Income tax receivable	\$12,768	\$12,005
Prepaid income taxes	4,344	8,540
Other	10,936	13,693
Total other current assets	<u>\$28,048</u>	<u>\$34,238</u>
<b>Other Assets:</b>		
Deferred tax assets, net	\$ 9,497	\$10,274
Other	2,195	1,992
Total other assets	<u>\$11,692</u>	<u>\$12,266</u>

**13) Other Liabilities**

	<u>Years Ended</u> <u>December 31,</u>	
	<u>2012</u>	<u>2011</u>
<b>Other Current Liabilities:</b>		
Product warranties	\$ 8,266	\$ 8,315
Deferred revenue	9,280	11,553
Non-income taxes	3,514	8,319
Other	16,345	12,137
Total other current liabilities	<u>\$37,405</u>	<u>\$40,324</u>
<b>Other Liabilities:</b>		
Long-term income tax payable	\$20,880	\$16,084
Accrued compensation	18,750	15,174
Other	3,745	953
Total other liabilities	<u>\$43,375</u>	<u>\$32,211</u>

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

**14) Product Warranties**

The Company provides for 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:

	Years Ended December 31,	
	2012	2011
Beginning balance	\$ 8,315	\$ 9,865
Provisions for product warranties	4,514	5,766
Direct charges to warranty liability	(4,985)	(6,857)
Foreign currency translation	422	(459)
Ending balance	<u>\$ 8,266</u>	<u>\$ 8,315</u>

**15) Debt****Credit Agreements and Short-Term Borrowings**

The Company's Japanese subsidiary has lines of credit and short-term borrowing arrangements with two financial institutions which, generally expire and are renewed at three month intervals. The lines of credit provide for aggregate borrowings as of December 31, 2012 of up to an equivalent of \$26,729 U.S. dollars, with interest rates ranging from 0.63% - 1.475%. There were no borrowings outstanding under these arrangements at December 31, 2012. There were \$1,932 total borrowings outstanding under these arrangements at December 31, 2011.

The Company has an available line of credit with a financial institution from the August 2012 Plasmart acquisition. The available line of credit, which expires in 2014, provides for aggregate borrowings as of December 31 2012 of up to an equivalent of \$1,401 U.S. dollars at an average interest rate of 5.19%. There were no borrowings outstanding under this arrangement at December 31, 2012.

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

**16) Income Taxes**

A reconciliation of the Company's effective tax rate to the U.S. federal statutory rate is as follows:

	<u>Years Ended December 31,</u>		
	<u>2012</u>	<u>2011</u>	<u>2010</u>
U.S. Federal income tax statutory rate	35.0%	35.0%	35.0%
Federal tax credits	—	(0.7)	(1.1)
State income taxes, net of federal benefit	1.3	1.1	1.0
Effect of foreign operations taxed at various rates	(2.6)	(4.1)	(2.4)
Qualified production activity tax benefit	(0.5)	(1.1)	(0.8)
Deferred tax asset valuation allowance	1.4	0.6	(0.1)
Other	1.5	(0.5)	0.7
	<u>36.1%</u>	<u>30.3%</u>	<u>32.3%</u>

The components of income from continuing operations before income taxes and the related provision for income taxes consist of the following:

	<u>Years Ended December 31,</u>		
	<u>2012</u>	<u>2011</u>	<u>2010</u>
Income from continuing operations before income taxes:			
United States	\$28,652	\$ 108,474	\$ 110,779
Foreign	46,484	77,578	85,645
	<u>\$75,136</u>	<u>\$ 186,052</u>	<u>\$ 196,424</u>
Current taxes:			
United States	\$10,431	\$ 25,824	\$ 27,789
State	783	2,602	3,323
Foreign	12,074	20,346	22,296
	<u>23,288</u>	<u>48,772</u>	<u>53,408</u>
Deferred taxes:			
United States	2,019	7,795	10,021
State and Foreign	1,800	(246)	76
	<u>3,819</u>	<u>7,549</u>	<u>10,097</u>
Provision for income taxes	<u>\$27,107</u>	<u>\$ 56,321</u>	<u>\$ 63,505</u>

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

The significant components of the deferred tax assets and deferred tax liabilities are as follows:

	Years Ended December 31,	
	2012	2011
<b>Deferred tax assets:</b>		
Loss carryforwards and credits	\$ 29,032	\$ 28,053
Inventory and warranty reserves	10,959	8,789
Accounts receivable and other accruals	2,647	6,875
Stock-based compensation	5,032	4,610
Executive supplemental retirement benefits	6,132	4,826
Other	—	1,245
<b>Total deferred tax assets</b>	<b>\$ 53,802</b>	<b>\$ 54,398</b>
<b>Deferred tax liabilities:</b>		
Acquired intangible assets	(5,857)	(3,330)
Depreciation and amortization	(4,461)	(3,679)
Other	(1,145)	(22)
<b>Total deferred tax liabilities</b>	<b>(11,463)</b>	<b>(7,031)</b>
Valuation allowance	(27,497)	(26,475)
<b>Net deferred tax assets</b>	<b>\$ 14,842</b>	<b>\$ 20,892</b>

At December 31, 2012, the Company had gross Massachusetts research and other tax credit carryforwards of \$8,229. These credit carryforwards will expire at various dates through 2027. In addition, at December 31, 2012, the Company had U.S. federal capital loss carryforwards of \$1,984, and \$59,275 that will expire in 2013 and 2015, respectively.

Although the Company believes that its tax positions are consistent with applicable U.S. federal, state and international laws, it maintains certain tax reserves at December 31, 2012 in the event its tax positions were to be challenged by the applicable tax authority and additional tax assessed on audit.

A reconciliation of the beginning and ending amount of gross unrecognized tax benefits is as follows:

	Years Ended December 31,		
	2012	2011	2010
Balance at beginning of year	\$36,540	\$22,028	\$ 9,085
Decreases for prior years	—	(3)	(6)
Increases for the current year	4,134	16,663	13,553
Reductions related to settlements with taxing authorities	—	(2,148)	—
Reductions related to expiration of statute of limitations	—	—	(604)
<b>Balance at end of year</b>	<b>\$40,674</b>	<b>\$36,540</b>	<b>\$22,028</b>

At December 31, 2012, the total amount of gross unrecognized tax benefits, which excludes interest and penalties, was approximately \$40,674. The net increase from December 31, 2011 was primarily attributable to a current year increase in reserves for existing uncertain tax positions. As of December 31, 2012, if these benefits were recognized in a future period, the timing of which is not estimable, the net unrecognized tax benefit of \$19,788, excluding interest and penalties, would impact the Company's effective tax rate.

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

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. At December 31, 2012, 2011 and 2010, the Company had accrued interest on unrecognized tax benefits of approximately \$1,571, \$973 and \$986, respectively.

Over the next 12 months it is reasonably possible that the Company may recognize \$2,545 to \$3,145 of previously unrecognized tax benefits related to various U.S. federal, state and foreign tax positions as a result of the conclusion of various audits and the expiration of the statute of limitations. The Company is subject to examination by federal, state and foreign tax authorities. The Internal Revenue Service commenced an examination of its U.S. federal tax filings for open tax years through 2009 during the quarter ended June 30, 2012. The statute of limitations in the Company's other tax jurisdictions remains open between fiscal year 2006 through present.

On a quarterly basis, the Company evaluates both positive and negative evidence that affects the realizability of net deferred tax assets and assesses the need for a valuation allowance. The future benefit to be derived from its deferred tax assets is dependent upon its ability to generate sufficient future taxable income to realize the assets. During 2012, the Company increased its valuation allowance by \$1,022 primarily related to an increase in state tax credit carryforwards because the Company has determined it is more likely than not that the deferred tax assets related to these attributes will not be realized. In 2011, the Company increased its valuation allowance by \$1,208 primarily related to capital losses incurred from our foreign affiliates because the Company has determined it is more likely than not that the deferred tax assets related to these attributes will not be realized. In 2011, the Company recorded a net benefit to income tax expense of \$2,148, excluding interest and penalties, due to discrete reserve releases primarily related to the effective settlement of a German tax audit for years 2001 through 2005.

Through December 31, 2012, the Company has not provided deferred income taxes on the undistributed earnings of its foreign subsidiaries because such earnings were intended to be permanently reinvested outside the U.S. Determination of the potential deferred income tax liability on these undistributed earnings is not practicable because such liability, if any, is dependent on circumstances existing if and when remittance occurs. At December 31, 2012, the Company had \$421,734 of undistributed earnings in its foreign subsidiaries.

During 2006, the Company received a notification letter from the Israeli Ministry of Industry Trade and Labor ("MITL") indicating that its Israeli operations were in compliance with requirements relating to the tax holiday granted to its manufacturing operations in Israel in 2001. This tax holiday expired at December 31, 2012 and was subject to meeting continued investment, employment and other requirements under the guidelines of the MITL. This tax holiday resulted in income tax savings of approximately \$1,000 and \$2,700 for the years 2011 and 2010, respectively. Upon expiration of its tax holiday, the Company elected to be treated under a new preferential Israeli tax regime under which a tax rate of 10% applies for 2012, and is reduced to 7% for 2013.

On January 2, 2013, the American Taxpayer Relief Act of 2012 reinstated certain tax incentives with retroactive application to January 1, 2012, the tax effect of which will be recognized as a discrete event in the first quarter of 2013. Had the extension been enacted prior to January 1, 2013, our effective tax rate would have been reduced by approximately 3%.

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

**17) Discontinued Operations**

During 2010, the Company executed a plan to divest two product lines, as their growth potential no longer met the Company's long-term strategic objectives. The Company completed the sale of Ion on May 17, 2010 for \$15,092 of net cash proceeds after expenses and recorded a pre-tax gain on the sale of \$4,208. The Company completed the sale of the assets of its YDI business on August 11, 2010 for \$490 of net cash proceeds after expenses and recorded a pre-tax gain on the sale of \$224.

The two product lines have been accounted for as discontinued operations. Accordingly, their results of operations have been reclassified to discontinued operations in the consolidated statements of operations and comprehensive income. The assets and liabilities of these discontinued businesses have not been reclassified or segregated in the consolidated statements of cash flows due to their immaterial amounts. Net revenues and income from discontinued operations are below:

	Years Ended December 31,		
	2012	2011	2010
Net revenues	\$—	\$—	\$ 11,974
Income from discontinued operations before income taxes	—	—	2,320
Gain from disposal of discontinued operations before income taxes	—	—	4,432
Income tax benefit	—	—	2,916
Income from discontinued operations	\$—	\$—	\$ 9,668

**18) Stockholders' Equity****Stock Repurchase**

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 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.

During 2012, the Company repurchased 434,600 shares of its Common Stock for \$11,501 at an average price of \$26.46 per share. During 2011, the Company repurchased 85,800 shares of its common stock for \$2,007 at an average price of \$23.40 per share.

**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 2012, the board of directors authorized four quarterly dividends, two quarterly dividends of \$0.15 per share and two quarterly dividends of \$0.16 per share, which totaled \$32,686. 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.

On February 11, 2013, the Company's board of directors declared a quarterly cash dividend of \$0.16 per share to be paid on March 15, 2013 to shareholders of record as of March 1, 2013.

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

**19) Stock-Based Compensation**

**Employee Stock Purchase Plans**

The Company's Third Amended and Restated 1999 Employee Stock Purchase Plan (the "Purchase Plan") authorizes the issuance of up to an aggregate of 1,950,000 shares of Common Stock to participating employees. Offerings under the Purchase Plan commence on June 1 and December 1 and terminate, respectively, on November 30 and May 31. Under the Purchase Plan, eligible employees may purchase shares of Common Stock through payroll deductions of up to 10% of their compensation or up to an annual maximum amount of \$21,250. The price at which an employee's purchase option is exercised is the lower of (1) 85% of the closing price of the Common Stock on the NASDAQ Global Select Market on the day that each offering commences, or (2) 85% of the closing price on the day that each offering terminates. During 2012 and 2011, the Company issued 141,975 and 137,410 shares, respectively, of Common Stock to employees who participated in the Purchase Plan at an exercise price of \$22.40 and \$22.01 per share in 2012 and \$18.26 and \$21.62 per share in 2011. As of December 31, 2012, there were 350,748 shares reserved for future issuance under the Purchase Plan.

The Company's Second Amended and Restated International Employee Stock Purchase Plan (the "Foreign Purchase Plan") authorizes the issuance of up to an aggregate of 400,000 shares of Common Stock to participating employees. Offerings under the Foreign Purchase Plan commence on June 1 and December 1 and terminate, respectively, on November 30 and May 31. Under the Foreign Purchase Plan, eligible employees may purchase shares of Common Stock through payroll deductions of up to 10% of their compensation or up to an annual maximum amount of \$21,250. The price at which an employee's purchase option is exercised is the lower of (1) 85% of the closing price of the Common Stock on the NASDAQ Global Select Market on the day that each offering commences, or (2) 85% of the closing price on the day that each offering terminates. During 2012 and 2011, the Company issued 29,954 and 29,969 shares, respectively, of Common Stock to employees who participated in the Foreign Purchase Plan at an exercise price of \$22.40 and \$22.01 per share in 2012 and \$18.26 and \$21.62 per share in 2011. As of December 31, 2012, there were 96,470 shares reserved for future issuance under the Foreign Purchase Plan.

**Equity Incentive Plans**

The Company has granted options to employees under the 2004 Stock Incentive Plan (the "2004 Plan") and under the Second Restated 1995 Stock Incentive Plan (the "1995 Plan"), and to directors under the 1997 Director Stock Plan (the "1997 Director Plan") (collectively, the "Plans"). The Company has also granted restricted stock units ("RSU"s) to employees and directors under the 2004 Plan. The Plans are administered by the Compensation Committee of the Company's board of directors.

The Company's equity incentive Plans are intended to attract and retain employees and to provide an incentive for them to assist the Company to achieve long-range performance goals and to enable them to participate in the long-term growth of the Company. Employees may be granted RSUs, options to purchase shares of the Company's stock and other equity incentives under the Plans.

The Company's 2004 Plan was adopted by the board of directors on March 4, 2004 and approved by the stockholders on May 13, 2004. As of December 31, 2012, there were 15,000,000 shares authorized for issuance under the 2004 Plan. The Company may grant options, RSUs, stock appreciation rights and other stock-based awards to employees, officers, directors, consultants and advisors under the 2004 Plan. As of December 31, 2012, there were 11,394,493 shares available for future grants under the 2004 Plan.

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

The Company's 1995 Plan expired in November 2005 and no further awards may be granted under the 1995 Plan, although there are still outstanding options which may be exercised under this plan.

The Company's 1997 Director Plan expired in February 2007 and no further awards may be granted under the 1997 Director Plan, although there are still outstanding options which may be exercised under this plan.

Stock options were granted at an exercise price equal to 100% of the fair value of the Company's Common Stock at the date of grant. Generally, stock options granted to employees under the Plans in 2001 and after, vested 25% after one year and 6.25% per quarter thereafter, and expire 10 years after the grant date. Generally, stock options granted under the Plans prior to 2001 vested 20% after one year and 5% per quarter thereafter, and expired 10 years after the grant date. Options granted to directors generally vested at the earliest of (1) one day prior to the next annual meeting, (2) 13 months from date of grant, or (3) the effective date of an acquisition. All stock options are fully vested as of December 31, 2012. RSUs granted in 2012 and 2011 generally vest 33.3% per year after the date of grant. RSUs granted in 2010 and prior, generally vest three years from the date of grant. RSUs granted to employees who are at least 60 years old and have a combined years of age plus years of service (as defined) equal to 70 years or more, are expensed immediately. RSUs granted to directors generally vest at the earliest of (1) one day prior to the next annual meeting, (2) 13 months from date of grant, or (3) the effective date of an acquisition. Certain equity incentive awards involve RSUs that are subject to performance conditions ("performance shares") under the Company's stock incentive plans. Such performance shares are available, subject to time-based vesting conditions if, and to the extent that, financial or operational performance criteria for the applicable period are achieved. Accordingly, the number of performance shares earned will vary based on the level of achievement of financial or operational performance objectives for the applicable period.

The following table presents the activity for RSUs under the Plans:

	Years Ended December 31,					
	2012		2011		2010	
	Non-vested RSUs	Weighted Average Grant Date Fair Value	Non-vested RSUs	Weighted Average Grant Date Fair Value	Non-vested RSUs	Weighted Average Grant Date Fair Value
Non-vested RSUs — beginning of period	1,115,005	\$ 21.50	1,327,306	\$ 18.34	1,581,883	\$ 19.77
Granted	426,583	\$ 29.14	397,492	\$ 30.27	555,995	\$ 19.63
Vested	(557,314)	\$ 19.01	(569,891)	\$ 20.42	(706,224)	\$ 20.65
Forfeited or expired	(42,071)	\$ 22.36	(39,902)	\$ 18.36	(104,348)	\$ 18.32
Non-vested RSUs — end of period	<u>942,203</u>	<u>\$ 26.58</u>	<u>1,115,005</u>	<u>\$ 21.50</u>	<u>1,327,306</u>	<u>\$ 18.34</u>



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

The following table presents the activity for options under the Plans:

	Years Ended December 31,					
	2012		2011		2010	
	Options	Weighted Average Exercise Price	Options	Weighted Average Exercise Price	Options	Weighted Average Exercise Price
Outstanding — beginning of period	420,712	\$ 21.97	1,793,214	\$ 22.38	2,514,822	\$ 21.67
Exercised	(123,650)	\$ 18.78	(1,351,684)	\$ 22.46	(568,464)	\$ 16.49
Forfeited or expired	(41,413)	\$ 32.32	(20,818)	\$ 22.66	(153,144)	\$ 32.51
Outstanding — end of period	<u>255,649</u>	\$ 21.74	<u>420,712</u>	\$ 21.97	<u>1,793,214</u>	\$ 22.38
Exercisable at end of period	<u>255,649</u>	\$ 21.74	<u>420,712</u>	\$ 21.97	<u>1,793,214</u>	\$ 22.38

The following table summarizes information with respect to options outstanding and exercisable under the Plans at December 31, 2012:

	Options Outstanding and Exercisable			
	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (In Years)	Aggregate Intrinsic Value (In Thousands)
\$13.54 – \$18.38	109,614	\$ 15.42	1.87	\$ 1,135
\$20.07 – \$29.93	146,035	\$ 26.48	1.37	128
	<u>255,649</u>			<u>\$ 1,263</u>

The weighted average remaining contractual life of options exercisable was 1.6 years at December 31, 2012.

The aggregate intrinsic value in the table above represents the total pre-tax intrinsic value, based on the Company's closing stock price of \$25.78 as of December 31, 2012, which would have been received by the option holders had all option holders exercised their options as of that date. The total number of in-the-money options exercisable as of December 31, 2012 was 151,239.

The total cash received from employees as a result of employee stock option exercises during the years 2012 and 2011 was approximately \$2,322 and \$30,362, respectively. In connection with these exercises, the tax benefit realized by the Company for the years 2012 and 2011 were approximately \$299 and \$2,972, respectively.

The Company settles employee stock option exercises and restricted stock vesting with newly issued common shares.

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

**Stock-based compensation expense**

The Company recognized the full impact of its share-based payment plans in the consolidated statements of operations and comprehensive income for the years 2012, 2011 and 2010. As of December 31, 2012 and 2011, the Company capitalized \$471 of such cost on its consolidated balance sheet. The following table reflects the effect of recording stock-based compensation for the years 2012, 2011 and 2010:

	<u>Years Ended December 31,</u>		
	<u>2012</u>	<u>2011</u>	<u>2010</u>
Stock-based compensation expense by type of award:			
Restricted stock	\$ 11,836	\$ 10,126	\$ 10,026
Employee stock purchase plan	1,195	1,099	578
Total stock-based compensation	13,031	11,225	10,604
Tax effect on stock-based compensation	(1,862)	(5,019)	(1,253)
Net effect on net income	<u>\$ 11,169</u>	<u>\$ 6,206</u>	<u>\$ 9,351</u>
Effect on net earnings per share:			
Basic	<u>\$ 0.21</u>	<u>\$ 0.12</u>	<u>\$ 0.19</u>
Diluted	<u>\$ 0.21</u>	<u>\$ 0.12</u>	<u>\$ 0.18</u>

The pre-tax effect within the consolidated statements of operations and comprehensive income of recording stock-based compensation for the years 2012, 2011 and 2010 was as follows:

	<u>Years Ended December 31,</u>		
	<u>2012</u>	<u>2011</u>	<u>2010</u>
Cost of sales	\$ 1,867	\$ 1,511	\$ 1,452
Research and development expense	2,278	2,197	2,391
Selling, general and administrative expense	8,886	7,517	6,761
Total pre-tax stock-based compensation expense	<u>\$ 13,031</u>	<u>\$ 11,225</u>	<u>\$ 10,604</u>

**Valuation Assumptions**

The Company determines the fair value of restricted stock based on the number of shares granted and the closing market price of the Company's Common Stock on the date of the award, and estimates the fair value of stock options and employee stock purchase rights using the Black-Scholes valuation model. Such values are recognized as expense on a straight-line basis over the requisite service periods, net of estimated forfeitures except for retirement eligible employees in which the Company expenses the fair value of the grant in the period the grant is issued. The estimation of stock-based awards that will ultimately vest requires significant judgment. The Company considers many factors when estimating expected forfeitures, including types of awards and historical experience. Actual results, and future changes in estimates, may differ substantially from the Company's current estimates.

There were no options granted during 2012, 2011 and 2010. The total intrinsic value of options exercised during 2012, 2011 and 2010 was approximately \$1,228, \$9,458 and \$3,518, respectively.

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

The weighted average fair value per share of employee stock purchase rights granted in 2012, 2011 and 2010 was \$7.24, \$5.87 and \$5.48, respectively. The fair value of the employees' purchase rights was estimated using the Black-Scholes option-pricing model with the following weighted average assumptions:

	Years Ended December 31,		
	2012	2011	2010
Employee stock purchase rights:			
Expected life (years)	0.5	0.5	0.5
Risk-free interest rate	0.1%	0.2%	0.2%
Expected volatility	32.2%	31.9%	48.7%
Expected annual dividends per share	\$0.62	\$0.60	\$ —

Expected volatilities for 2012, 2011 and 2010 are based on a combination of implied and historical volatilities of the Company's Common Stock; the expected life represents the weighted average period of time that options granted are expected to be outstanding giving consideration to vesting schedules and the Company's historical exercise patterns; and the risk-free interest rate is based on the U.S. Treasury yield curve in effect at the time of grant for periods corresponding with the expected life of the option.

The total intrinsic value of options exercised and the total fair value of shares vested during 2012, 2011 and 2010 was approximately \$16,498, \$27,199 and \$16,846, respectively. As of December 31, 2012, the unrecognized compensation cost related to restricted stock was approximately \$11,238, and will be recognized over an estimated weighted average amortization period of 1.6 years.

## 20) Employee Benefit Plans

The Company has a 401(k) profit-sharing plan for U.S. employees meeting certain requirements in which eligible employees may contribute between 1% and 50% of their annual compensation to this plan, and, with respect to employees who are age 50 and older, certain specified additional amounts, limited by an annual maximum amount determined by the Internal Revenue Service. The Company, at its discretion, may provide a matching contribution of 50% of each participant's contributions up to 6% of eligible salary. At the discretion of the board of directors, the Company may also make additional contributions for the benefit of all eligible employees. The Company's contributions were \$2,245, \$2,276 and \$1,472 for 2012, 2011 and 2010, respectively.

The Company has one foreign defined benefit plan which is frozen for Company contributions. The total accrual and projected benefit obligation is not material for this plan.

The Company maintains a bonus plan which provides cash awards to key employees, at the discretion of the compensation committee of the board of directors, based upon operating results and employee performance. The bonus expense was \$6,248, \$7,559, and \$18,972 in 2012, 2011 and 2010, respectively.

The Company provides supplemental retirement benefits for certain of its officers and executive officers. The total cost of these benefits was \$3,454, \$3,931 and \$3,428 for 2012, 2011 and 2010, respectively. The accumulated benefit obligation was \$16,353 and \$12,870 at December 31, 2012 and 2011, respectively and was included in other long-term liabilities.

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

**21) Net Income Per Share**

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.

The following is a reconciliation of basic to diluted net income per share:

	Years Ended December 31,		
	2012	2011	2010
<b>Numerator:</b>			
Income from continuing operations	\$ 48,029	\$ 129,731	\$ 132,919
Income from discontinued operations, net of tax	—	—	9,668
Net income	<u>\$ 48,029</u>	<u>\$ 129,731</u>	<u>\$ 142,587</u>
<b>Denominator:</b>			
Shares used in net income per common share — basic	52,686,000	52,169,000	50,077,000
<b>Effect of dilutive securities:</b>			
Stock options, restricted stock and employee stock purchase plan	548,000	678,000	850,000
Shares used in net income per common share — diluted	<u>53,234,000</u>	<u>52,847,000</u>	<u>50,927,000</u>
<b>Basic income per common share:</b>			
Continuing operations	\$ 0.91	\$ 2.49	\$ 2.66
Discontinued operations	—	—	0.19
Net income	<u>\$ 0.91</u>	<u>\$ 2.49</u>	<u>\$ 2.85</u>
<b>Diluted income per common share:</b>			
Continuing operations	\$ 0.90	\$ 2.45	\$ 2.61
Discontinued operations	—	—	0.19
Net income	<u>\$ 0.90</u>	<u>\$ 2.45</u>	<u>\$ 2.80</u>

As of December 31, 2012, 2011 and 2010, stock options and restricted stock units relating to an aggregate of approximately 1,198,000, 1,536,000 and 3,121,000 shares, respectively, were outstanding. In 2012, 2011 and 2010, the potential dilutive effect of 204,000, 259,000 and 1,256,000 weighted average shares, respectively, of stock options were excluded from the computation of diluted weighted-average shares outstanding as the shares would have an anti-dilutive effect on EPS.

**22) Business Segment, Geographic Area, Product and Significant Customer Information**

Effective in the second quarter of fiscal year 2012, the Company changed its financial reporting structure to include four reportable segments based upon the manner in which information is produced internally and provided to the Company’s chief operating decision-maker (“CODM”). The Company had previously reported as a single operating and reporting segment.

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

The Company develops, manufactures, sells and services products that measure, control, power and monitor critical parameters of advanced manufacturing processes. The Company's 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. Based upon the information provided to the CODM, the Company has determined it has eight operating segments and four reportable segments.

The eight operating segments are PFMC Products, Controls Products, ASTeX Products, ENI Products, HPS Products (Vacuum Products), Analytical Solutions Group, Europe Region Sales & Service and Asia Region Sales & Service.

PFMC Products, Controls Products, ASTeX Products, ENI Products and HPS Products comprise a single reportable segment due to the similarities of the segments. This reportable segment, Advanced Manufacturing Capital Equipment, includes the development, manufacturing, sales and 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. Sales in this segment include both external sales and intercompany sales (which are stated at agreed upon transfer prices). External sales of these products made in Europe or Asia are reported as sales in the Europe Region Sales & Service or Asia Region Sales & Service segments.

Analytical Solutions Group, Europe Region Sales & Service and Asia Region Sales & Service are each separate reportable segments. The Company has reported corporate expenses and certain intercompany pricing transactions in a Corporate, Eliminations and Other reconciling column. The Analytical Solutions Group includes gas composition analysis and information technology products and custom fabrication services. The Europe and Asia sales and service segments mainly resell and service the Advanced Manufacturing Capital Equipment and Analytical Solutions Group products sold in their respective regions.

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 Analytical Solutions Group 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, Eliminations and Other. The CODM reviews several metrics of each operating segment, including net revenues and gross profit (loss).

The following is net revenues by reportable segment:

	<u>Years Ended December 31,</u>		
	<u>2012</u>	<u>2011</u>	<u>2010</u>
Advanced Manufacturing Capital Equipment	\$ 479,751	\$ 647,908	\$ 712,737
Analytical Solutions Group	62,765	61,303	52,888
Europe Region Sales & Service(1)	51,440	75,253	70,153
Asia Region Sales & Service(1)	229,731	305,448	274,912
Corporate, Eliminations and Other	<u>(180,179)</u>	<u>(267,395)</u>	<u>(257,576)</u>
	<u>\$ 643,508</u>	<u>\$ 822,517</u>	<u>\$ 853,114</u>

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

- (1) The Europe and Asia foreign sales and service operations do not represent total geographical Europe and Asia financial information. These sales and service operations only represent the sales from the resale and service of Advanced Manufacturing Capital Equipment and Analytical Solutions Group products in their respective regions. The Advanced Manufacturing Capital Equipment and Analytical Solutions Group segments both have sales in each region. Accordingly, total geographical sales include sales from multiple reportable segments.

The following is gross profit by reportable segment:

	Years Ended December 31,		
	2012	2011	2010
Advanced Manufacturing Capital Equipment	\$171,308	\$263,863	\$294,502
Analytical Solutions Group	32,741	31,800	25,830
Europe Region Sales & Service(1)	15,156	21,323	19,587
Asia Region Sales & Service(1)	36,962	45,267	48,952
Corporate, Eliminations and Other	13,312	12,735	(10,233)
	<u>\$269,479</u>	<u>\$374,988</u>	<u>\$378,638</u>

- (1) The Europe and Asia foreign sales and service operations do not represent total geographical Europe and Asia financial information. These sales and service operations only represent the sales from the resale and service of Advanced Manufacturing Capital Equipment and Analytical Solutions Group products in their respective regions. The Advanced Manufacturing Capital Equipment and Analytical Solutions Group segments both have sales in each region. Accordingly, total geographical sales include sales from multiple reportable segments.

The following is capital expenditures by reportable segment for the years ended December 31, 2012, 2011 and 2010:

	Product Groups		Foreign Sales & Service Operations		Corporate, Eliminations and Other	Total
	Advanced Manufacturing Capital Equipment	Analytical Solutions Group	Europe	Asia		
December 31, 2012:						
Capital expenditures	\$ 11,817	\$ 1,228	\$ 132	\$ 886	\$ 3,642	\$17,705
December 30, 2011:						
Capital expenditures	\$ 11,947	\$ 868	\$ 362	\$ 1,552	\$ 838	\$15,567
December 30, 2010:						
Capital expenditures	\$ 11,148	\$ 1,287	\$ 374	\$ 1,189	\$ 1,821	\$15,819

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

The following is depreciation and amortization expense by reportable segment for the years ended December 31, 2012, 2011 and 2010:

	Product Groups		Foreign Sales & Service Operations		Corporate, Eliminations and Other	Total
	Advanced Manufacturing Capital Equipment	Analytical Solutions Group	Europe	Asia		
<b>December 31, 2012:</b>						
Depreciation and amortization	\$ 9,594	\$ 1,176	\$ 326	\$ 1,711	\$ 1,635	\$14,442
<b>December 30, 2011:</b>						
Depreciation and amortization	\$ 8,143	\$ 1,470	\$ 366	\$ 1,539	\$ 1,462	\$12,980
<b>December 30, 2010:</b>						
Depreciation and amortization	\$ 7,872	\$ 1,432	\$ 279	\$ 1,473	\$ 2,767	\$13,823

Total income tax expense is impracticable to present by reportable segment because the necessary information is not available.

The following is segment assets by reportable segment:

	Product Groups		Foreign Sales & Service Operations		Corporate, Eliminations and Other	Total
	Advanced Manufacturing Capital Equipment	Analytical Solutions Group	Europe	Asia		
<b>December 31, 2012:</b>						
Segment assets:						
Accounts receivable	\$ 9,644	\$ 5,889	\$ 5,813	\$32,088	\$ 28,626	\$ 82,060
Inventory	108,397	3,841	3,691	29,534	(10,824)	134,639
<b>Total segment assets</b>	<b>\$ 118,041</b>	<b>\$ 9,730</b>	<b>\$ 9,504</b>	<b>\$61,622</b>	<b>\$ 17,802</b>	<b>\$216,699</b>

	Product Groups		Foreign Sales & Service Operations		Corporate, Eliminations and Other	Total
	Advanced Manufacturing Capital Equipment	Analytical Solutions Group	Europe	Asia		
<b>December 31, 2011:</b>						
Segment assets:						
Accounts receivable	\$ 24,224	\$ 5,099	\$ 6,079	\$ 60,242	\$ 25,250	\$120,894
Inventory	119,314	4,442	3,828	45,828	(19,780)	153,632
<b>Total segment assets</b>	<b>\$ 143,538</b>	<b>\$ 9,541</b>	<b>\$ 9,907</b>	<b>\$106,070</b>	<b>\$ 5,470</b>	<b>\$274,526</b>

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

A reconciliation of segment assets to consolidated total assets is as follows:

	<u>Years Ended December 31,</u>	
	<u>2012</u>	<u>2011</u>
Total segment assets	\$ 216,699	\$ 274,526
Cash and cash equivalents and investments	627,399	573,392
Other current assets	36,242	44,856
Property, plant and equipment, net	80,516	72,487
Goodwill and intangible assets, net	162,294	141,127
Other assets	11,692	12,266
Consolidated total assets	<u>\$ 1,134,842</u>	<u>\$ 1,118,654</u>

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.

	<u>Years Ended December 31,</u>		
	<u>2012</u>	<u>2011</u>	<u>2010</u>
Net revenues:			
United States	\$326,894	\$391,122	\$484,139
Japan	81,883	106,003	118,537
Europe	85,362	115,362	96,545
Asia (excluding Japan)	149,369	210,030	153,893
	<u>\$643,508</u>	<u>\$822,517</u>	<u>\$853,114</u>

	<u>Years Ended December 31,</u>	
	<u>2012</u>	<u>2011</u>
Long-lived assets:(1)		
United States	\$ 62,203	\$ 56,760
Japan	2,562	3,908
Europe	5,844	5,437
Asia (excluding Japan)	12,102	8,374
	<u>\$ 82,711</u>	<u>\$ 74,479</u>

(1) Long-lived assets include property, plant and equipment, net and certain other assets.



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

**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 four groups of similar products based upon the similarity of product function. Worldwide net revenue for each group of products is as follows:

	Years Ended December 31,		
	2012	2011	2010
Instruments and Control Products	\$258,521	\$348,735	\$373,909
Power and Reactive Gas Products	251,669	327,151	343,827
Vacuum Products	66,418	81,782	78,819
Analytical Solutions Group Products	66,900	64,849	56,559
	<u>\$643,508</u>	<u>\$822,517</u>	<u>\$853,114</u>

Sales of Instruments and Control Products, Power and Reactive Gas Products and Vacuum Products are included in the Company's Advanced Manufacturing Capital Equipment Products segment as well as in the foreign sales and service operations because the products are sold through the foreign sales and service operations in their respective regions. Sales of the Analytical Solutions Group Products are included in the Analytical Solutions Group Products segment as well as in the foreign sales and service operations because the products are sold through the foreign sales and service operations in their respective regions.

**Major Customers**

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

	Years Ended December 31,		
	2012	2011	2010
Customer A	14.50%	13.56%	15.76%
Customer B	10.12%	6.52%	9.00%

**23) Commitments and Contingencies**

During the third quarter of 2012, the Company settled litigation with shareholders of its former subsidiary for \$5,316. The complaint alleged certain claims against the Company including breach of contract and implied covenants, and statutory violations. The claims sought unspecified damages and equitable relief. The Company believed that it had meritorious factual and legal defenses to the allegations raised, but reached a settlement primarily to eliminate future legal expenses related to the suit.

The Company is subject to various other 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.

The Company leases certain of its facilities and machinery and equipment under operating leases expiring in various years through 2022. Generally, the facility leases require the Company to pay maintenance, insurance and real estate taxes. Rental expense under operating leases totaled \$8,219, \$7,747 and \$8,304 for 2012, 2011 and 2010, respectively.

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

Minimum lease payments under operating leases are as follows:

	<u>Operating Leases</u>
Year ending December 31,	
2013	\$ 7,561
2014	5,749
2015	3,973
2016	2,974
2017	2,952
Thereafter	3,252
Total minimum lease payments	<u>\$ 26,461</u>

As of December 31, 2012, the Company has entered into purchase commitments for certain inventory components and other equipment and services used in its normal operations. The majority of these purchase commitments covered by these arrangements are for periods of less than one year and aggregate to approximately \$125,378.

To the extent permitted by Massachusetts law, the Company's Restated Articles of Organization, as amended, require the Company to indemnify any of its current or former officers or directors or any person who has served or is serving in any capacity with respect to any of the Company's employee benefit plans. The Company believes that the estimated exposure for these indemnification obligations is currently not material. Accordingly, the Company has no material liabilities recorded for these requirements as of December 31, 2012.

The Company also enters into agreements in the ordinary course of business which include indemnification provisions. Pursuant to these agreements, the Company indemnifies, holds harmless and agrees to reimburse the indemnified party, generally its customers, for losses suffered or incurred by the indemnified party in connection with certain patent or other intellectual property infringement claims, and, in some instances, other claims, by any third party with respect to the Company's products. The term of these indemnification obligations is generally perpetual after execution of the agreement. The maximum potential amount of future payments the Company could be required to make under these indemnification agreements is, in some instances, not contractually limited. The Company has never incurred costs to defend lawsuits or settle claims related to these indemnification obligations. As a result, the Company believes the estimated fair value of these obligations is minimal. Accordingly, the Company has no liabilities recorded for these obligations as of December 31, 2012.

As part of past acquisitions and divestitures of businesses or assets, the Company has provided a variety of indemnifications to the sellers and purchasers for certain events or occurrences that took place prior to the date of the acquisition or divestiture. Typically, certain of the indemnifications expire after a defined period of time following the transaction, but certain indemnifications may survive indefinitely. The maximum potential amount of future payments the Company could be required to make for such obligations is undeterminable at this time. Other than obligations recorded as liabilities at the time of the acquisitions, historically the Company has not made significant payments for these indemnifications. Accordingly, no material liabilities have been recorded for these obligations.

In conjunction with certain asset sales, the Company may provide routine indemnifications whose terms range in duration and often are not explicitly defined. Where appropriate, an obligation for such indemnification is recorded as a liability. Because the amounts of liability under these types of indemnifications are not explicitly stated, the overall maximum amount of the obligation under such indemnifications cannot be reasonably estimated. Other than obligations recorded as liabilities at the time of the asset sale, historically the Company has not made significant payments for these indemnifications.

**MKS Instruments, Inc.**  
**Supplemental Financial Data**

	Quarter Ended			
	March 31	June 30	Sept. 30	Dec. 31
(Table in thousands, except per share data) (Unaudited)				
<b>2012</b>				
<b>Statement of Operations Data</b>				
Net sales	\$ 190,868	\$ 177,397	\$ 141,447	\$ 133,796
Gross profit	83,791	76,516	56,571	52,601
Income from operations	33,369	27,847	6,392	6,615
Net income	\$ 22,768	\$ 18,572	\$ 2,580	\$ 4,109
Net income per share:				
Basic	\$ 0.43	\$ 0.35	\$ 0.05	\$ 0.08
Diluted	\$ 0.43	\$ 0.35	\$ 0.05	\$ 0.08
Cash dividends paid per common share	\$ 0.15	\$ 0.15	\$ 0.16	\$ 0.16
<b>2011</b>				
<b>Statement of Operations Data</b>				
Net sales	\$ 231,851	\$ 224,487	\$ 194,508	\$ 171,671
Gross profit	106,361	104,988	87,678	75,961
Income from operations	56,508	57,305	41,112	30,000
Net income	\$ 38,043	\$ 38,601	\$ 30,373	\$ 22,714
Net income per share:				
Basic	\$ 0.74	\$ 0.74	\$ 0.58	\$ 0.43
Diluted	\$ 0.73	\$ 0.73	\$ 0.57	\$ 0.43
Cash dividends paid per common share	\$ 0.15	\$ 0.15	\$ 0.15	\$ 0.15

## [Table of Contents](#)

### **Item 9. *Changes in and Disagreements with Accountants on Accounting and Financial Disclosure***

None.

### **Item 9A. *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 December 31, 2012. 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 December 31, 2012, 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.

#### **Management’s Report on Internal Control over Financial Reporting**

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is defined in Rules 13a-15(f) and 15d-15(f) promulgated under the Exchange Act as a process designed by, or under the supervision of, the Company’s Chief Executive Officer and Chief Financial Officer or persons performing similar functions and effected by the Company’s board of directors, management and other personnel, 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 and includes those policies and procedures that:

- Pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the Company;
- Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the Company are being made only in accordance with authorizations of management and directors of the Company; and
- Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the Company’s assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

## [Table of Contents](#)

Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2012. In making this assessment, our management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission in *Internal Control — Integrated Framework*.

Based on our assessment, management concluded that, as of December 31, 2012, our internal control over financial reporting was effective based on those criteria.

Management has excluded the operations of Plasmart, Inc. (“Plasmart”) from its assessment of internal control over financial reporting as of December 31, 2012 because this entity was acquired by the Company in a purchase business combination during the second half of fiscal year 2012. The total assets and total revenues of the acquired businesses of Plasmart represent approximately 2.5% and less than 1%, respectively, of the related consolidated financial statement amounts of the Company as of and for the year ended December 31, 2012.

Our internal controls over financial reporting as of December 31, 2012 have been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their attestation report which appears in Item 8.

### **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 our fourth fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

### **Item 9B. Other Information**

None.

**PART III**

**Item 10. *Directors, Executive Officers and Corporate Governance***

The information required by this item will be set forth under the captions “Election of Directors,” “Executive Officers,” “Code of Ethics,” “Directors — Audit Committee Financial Expert” and “Corporate Governance” in our definitive proxy statement for the 2013 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission no later than 120 days after the end of our fiscal year, and is incorporated herein by reference.

We are also required under Item 405 of Regulation S-K to provide information concerning delinquent filers of reports under Section 16 of the Securities and Exchange Act of 1934, as amended. This information will be set forth under the caption “Section 16(a) Beneficial Ownership Reporting Compliance” in our definitive proxy statement for the 2013 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission no later than 120 days after the end of our fiscal year, and is incorporated herein by reference.

**Item 11. *Executive Compensation***

The information required by this item will be set forth under the captions “Executive Officers — Executive Compensation” and “Executive Officers — Compensation Discussion and Analysis” in our definitive proxy statement for the 2013 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission no later than 120 days after the end of our fiscal year, and is incorporated herein by reference.

**Item 12. *Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters***

The information required by Item 403 of Regulation S-K will be set forth under the caption “Security Ownership of Certain Beneficial Owners and Management” in our definitive proxy statement for the 2013 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission no later than 120 days after the end of our fiscal year, and is incorporated herein by reference.

The information required by Item 201(d) of Regulation S-K will be set forth under the caption “Executive Officers — Equity Compensation Plan Information” in our definitive proxy statement for the 2013 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission no later than 120 days after the end of our fiscal year, and is incorporated herein by reference.

**Item 13. *Certain Relationships and Related Transactions and Director Independence***

The information required by this item will be set forth under the caption “Executive Officers — Certain Relationships and Related Transactions” and “Corporate Governance” in our definitive proxy statement for the 2013 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission no later than 120 days after the end of our fiscal year, and is incorporated herein by reference.

**Item 14. *Principal Accountant Fees and Services***

The information required by this item will be set forth under the caption “Independent Registered Public Accounting Firm” in our definitive proxy statement for the 2013 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission no later than 120 days after the end of our fiscal year, and is incorporated herein by reference.

**PART IV**

**Item 15. Exhibits and Financial Statement Schedules**

(a) The following documents are filed as a part of this Report:

1. *Financial Statements*. The following Consolidated Financial Statements are included under Item 8 of this Annual Report on Form 10-K.

**INDEX TO CONSOLIDATED FINANCIAL STATEMENTS**

**Financial Statements:**

Report of Independent Registered Public Accounting Firm	43
Consolidated Balance Sheets at December 31, 2012 and 2011	44
Consolidated Statements of Operations and Comprehensive Income for the years ended December 31, 2012, 2011 and 2010	45
Consolidated Statements of Stockholders' Equity for the years ended December 31, 2012, 2011 and 2010	46
Consolidated Statements of Cash Flows for the years ended December 31, 2012, 2011 and 2010	47
Notes to Consolidated Financial Statements	48

2. *Financial Statement Schedules*

The following consolidated financial statement schedule is included in this Annual Report on Form 10-K:

Schedule II — Valuation and Qualifying Accounts

Schedules other than those listed above have been omitted since they are either not required or information is otherwise included.

3. *Exhibits*. The following exhibits are filed as part of this Annual Report on Form 10-K.

<u>Exhibit No.</u>	<u>Title</u>
+3.1(1)	Restated Articles of Organization
+3.2(2)	Articles of Amendment, as filed with the Secretary of State of Massachusetts on May 18, 2001
+3.3(3)	Articles of Amendment, as filed with the Secretary of State of Massachusetts on May 16, 2002
+3.4(4)	Amended and Restated By-Laws
+4.1(4)	Specimen certificate representing the Common Stock
+10.1(5)*	Second Amended and Restated 1997 Director Stock Option Plan, and forms of option agreements thereto
+10.2(6)*	2004 Stock Incentive Plan, as amended (the "2004 Plan")
+10.3(7)*	Form of Nonstatutory Stock Option Agreement to be granted under the 2004 Plan
+10.4(8)*	Form of Restricted Stock Unit Agreement for Initial Grant to Non-Employee Directors under the 2004 Plan
+10.5(8)*	Form of Restricted Stock Unit Agreement for Annual Grant to Non-Employee Directors under the 2004 Plan

## Table of Contents

<u>Exhibit No.</u>	<u>Title</u>
+10.6(8)*	Form of Performance-Based Restricted Stock Unit Agreement under the 2004 Plan
+10.7(8)*	Form of Time-Based Restricted Stock Unit Agreement under the 2004 Plan
+10.8(6)*	Form of Time-Based Restricted Stock Unit Agreement and Form of Performance-Based Restricted Stock Unit Agreement under the 2004 Plan (grants beginning in 2011)
10.9*	Form of Restricted Stock Unit Agreement under the 2004 Plan (grants beginning in 2013)
+10.10(9)*	Second Restated 1995 Stock Incentive Plan (the “1995 Plan”)
+10.11(10)*	Form of Nonstatutory Stock Option Agreement under the 1995 Plan
+10.12(10)*	Employment Agreement dated as of July 30, 2004 between John Smith and the Registrant (the “Smith Employment Agreement”)
+10.13(11)	Global Supply Agreement dated April 12, 2005 by and between the Registrant and Applied Materials, Inc.
+10.14(11)*	Employment Agreement dated as of April 25, 2005 between Gerald Colella and the Registrant (the “Colella Employment Agreement”)
+10.15(12)*	Employment Agreement dated as of July 1, 2005 between John Bertucci and the Registrant
+10.16(12)*	Employment Agreement dated as of July 1, 2005 between William D. Stewart and the Registrant
+10.17(13)*	Employment Agreement dated July 1, 2005 between Leo Berlinghieri and the Registrant, as amended on November 13, 2007 (the “Berlinghieri Employment Agreement”)
+10.18(6)*	Employment Agreement dated as of January 6, 2006 between Seth Bagshaw and the Registrant
+10.19(14)*	Amendment, dated November 10, 2008, to the Berlinghieri Employment Agreement
+10.20(14)*	Amendment, dated November 10, 2008, to the Smith Employment Agreement
+10.21(14)*	Amendment, dated November 10, 2008, to the Colella Employment Agreement
+10.22(15)*	Amendment, dated October 19, 2009, to the Berlinghieri Employment Agreement, as amended
+10.23(15)*	Amendment, dated October 19, 2009, to the Colella Employment Agreement, as amended
10.24*	Amendment, dated December 21, 2012, to the Berlinghieri Employment Agreement, as amended
10.25*	Amendment, dated December 21, 2012, to the Colella Employment Agreement, as amended
10.26*	Amendment, dated December 21, 2012, to the Smith Employment Agreement, as amended
10.27*	2012 Management Incentive Bonus Plan for Named Executive Officers
10.28*	Form of 2013 Management Incentive Bonus Plan for Named Executive Officers
10.29	Amendment, dated October 25, 2012, to Applied Global Supply Agreement
21.1	Subsidiaries of the Registrant
23.1	Consent of PricewaterhouseCoopers LLP
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



## Table of Contents

<u>Exhibit No.</u>	<u>Title</u>
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. **
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 filed as an Exhibit to this Form 10-K pursuant to Item 15(b) of this report.

\*\* Submitted electronically herewith.

The following materials from MKS Instrument, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2011, formatted in XBRL (Extensible Business Reporting Language): (i) the Consolidated Balance Sheets, (ii) the Consolidated Statements of Operations and Comprehensive Income, (iii) the Consolidated Statements of Stockholders' Equity, (iv) the Consolidated Statements of Cash Flows, (v) Notes to the Consolidated Financial Statements.

Pursuant to Rule 406T of Regulation S-T, the Interactive Data Files on Exhibit 101 hereto are deemed not filed or part of a registration statement or prospectus for purposes of Sections 11 or 12 of the Securities Act of 1933, as amended, are deemed not filed for purposes of Section 18 of the Securities and Exchange Act of 1934, as amended, and otherwise are not subject to liability under those sections.

- (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 Registration Statement on Form S-1 filed with the Securities and Exchange Commission on March 2, 1999.
- (5) Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2004.
- (6) Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2010.
- (7) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2004.
- (8) Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2006.
- (9) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2002.
- (10) Incorporated by reference to the Registrant's Current Report on Form 10-Q filed with the Securities and Exchange Commission on June 30, 2004.

[Table of Contents](#)

- (11) Incorporated by reference to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on April 27, 2005.
- (12) Incorporated by reference to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on July 5, 2005.
- (13) Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2007.
- (14) Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2008.
- (15) Incorporated by reference to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on October 23, 2009.
- (b) Exhibits  
MKS hereby files as exhibits to our Annual Report on Form 10-K those exhibits listed in Item 15(a) above.
- (c) Financial Statement Schedules

**MKS INSTRUMENTS, INC.**  
**SCHEDULE II—VALUATION AND QUALIFYING ACCOUNTS**

<u>Description</u>	<u>Balance at Beginning of Year</u>	<u>Additions</u>		<u>Deductions &amp; Write-offs</u>	<u>Balance at End of Year</u>
		<u>Charged to Costs and Expenses</u>	<u>Charged to Other Accounts</u> (Dollars in thousands)		
Accounts receivable allowance:					
Years ended December 31,					
2012	\$ 2,516	\$ 3,452	\$ —	\$ 3,089	\$ 2,879
2011	\$ 2,557	\$ 3,390	\$ —	\$ 3,431	\$ 2,516
2010	\$ 2,415	\$ 3,637	\$ —	\$ 3,495	\$ 2,557

<u>Description</u>	<u>Balance at Beginning of Year</u>	<u>Additions</u>		<u>Deductions</u>	<u>Balance at End of Year</u>
		<u>Charged to Costs and Expenses</u>	<u>Charged to Other Accounts</u> (Dollars in thousands)		
Valuation allowance on deferred tax asset:					
Years ended December 31,					
2012	\$ 26,475	\$ (44)	\$ 1,066	—	\$ 27,497
2011	\$ 25,267	\$ —	\$ 1,208	\$ —	\$ 26,475
2010	\$ 5,201	\$ —	\$ 20,833	\$ 767	\$ 25,267

**SIGNATURES**

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

MKS INSTRUMENTS, INC.

By: /s/ LEO BERLINGHIERI

LEO BERLINGHIERI  
*Chief Executive Officer and Director*  
*(Principal Executive Officer)*

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the date indicated.

<u>SIGNATURES</u>	<u>TITLE</u>	<u>DATE</u>
<u>/s/ JOHN R. BERTUCCI</u> John R. Bertucci	Chairman of the Board of Directors	February 18, 2013
<u>/s/ LEO BERLINGHIERI</u> Leo Berlinghieri	Chief Executive Officer and Director (Principal Executive Officer)	February 26, 2013
<u>/s/ SETH H. BAGSHAW</u> Seth H. Bagshaw	Vice President, Chief Financial Officer and Treasurer (Principal Financial and Accounting Officer)	February 26, 2013
<u>/s/ CRISTINA H. AMON</u> Cristina H. Amon	Director	February 21, 2013
<u>/s/ ROBERT R. ANDERSON</u> Robert R. Anderson	Director	February 21, 2013
<u>/s/ GREGORY R. BEECHER</u> Gregory R. Beecher	Director	February 19, 2013
<u>/s/ RICHARD S. CHUTE</u> Richard S. Chute	Director	February 19, 2013
<u>/s/ PETER R. HANLEY</u> Peter R. Hanley	Director	February 21, 2013
<u>/s/ ELIZABETH A. MORA</u> Elizabeth A. Mora	Director	February 20, 2013

## MKS INSTRUMENTS, INC.

## Restricted Stock Unit Agreement

Granted Under the 2004 Stock Incentive Plan

AGREEMENT made this day (the "Grant Date"), between MKS Instruments, Inc., a Massachusetts corporation (the "Company"), and «First\_Name» «Last\_Name» (the "Participant").

For valuable consideration, receipt of which is acknowledged, the parties hereto agree as follows:

1. General. The Company has granted to the Participant restricted stock units ("RSUs") with respect to the number of shares set forth in Exhibit A hereto (the "Shares") of common stock, no par value, of the Company ("Common Stock"), subject to the terms and conditions set forth in this Agreement and in the Company's 2004 Stock Incentive Plan (the "Plan"). The RSUs represent a promise by the Company to deliver Shares upon vesting.

(a) Definitions. "Forfeiture" shall mean any forfeiture of RSUs pursuant to Section 2. "Vesting Date" is defined on Exhibit A hereto. "Determination Date" (if applicable) is defined on Exhibit A hereto. For purposes of this Agreement, "employ" or "employment" with the Company shall include employment with a parent or subsidiary of the Company as defined in Sections 424(e) or (f) of the Internal Revenue Code.

(b) Vesting Period. Subject to the terms and conditions of this Agreement (including the Forfeiture provisions described in Section 2 below), the RSUs shall vest according to the terms set forth in Exhibit A. As soon as practicable after each applicable Vesting Date, but in any event, within the period ending on the later to occur of the date that is 2 1/2 months from the end of (i) the Participant's tax year that includes the Vesting Date or (ii) the Company's tax year that includes the Vesting Date, the Company shall instruct its transfer agent to deposit the Shares subject to the RSUs into the Participant's existing equity account at Fidelity Stock Plan Services, LLC, or such other broker with which the Company has established a relationship ("Broker"), subject to payment in accordance with Section 6 of all applicable withholding taxes.

2. Forfeiture.

(a) Cessation of Employment. In the event that the Participant ceases to be employed by the Company for any reason or no reason (except for death, Disability or Retirement), with or without cause, prior to a Vesting Date, all of the Participant's unvested RSUs shall automatically be forfeited as of such cessation. In the event that the Participant ceases to be employed by the Company by reason of death, Disability or Retirement prior to a Vesting Date, then all of the Participant's unforfeited RSUs shall become immediately and fully vested (subject to any performance criteria in Exhibit A) and shall no longer be subject to the Forfeiture provisions under this Agreement, provided that, if such death, Disability or Retirement occurs prior to the

Determination Date, if any, then the number of RSUs to be so vested shall be determined, and become vested, on the Determination Date.

For the purpose of this Section 2, “disability” shall mean disability as defined in Section 216(i)(1) of the U.S. Social Security Act.

“Retirement” means a voluntary termination of employment by the Participant after he or she is at least age sixty (60) and has a combination of years of age plus Years of Service with the Company equal to seventy (70) or more. “Years of Service” means the total number of days of employment since Participant’s original hire with the Company (or subsidiary of the Company, provided that service with a subsidiary shall only be counted towards Years of Service during the time in which such subsidiary is owned (directly or indirectly) by the Company) and provided that in the event the employee left or was terminated and then rehired by the Company, the Company shall include previous employment period in the calculation of the Years of Service provided that the absence from the Company or subsidiary has been five (5) years or less and only if the total number of days employed by the Company (or its subsidiary, as provided above) exceeds the total number of days that the employee was not employed by the Company (or its subsidiary, as provided above).

(b) Change in Control. Notwithstanding the foregoing, if, prior to any Vesting Date, and within two years after the effectiveness of a Change in Control (as defined below), the Participant is (i) terminated by the Company without Cause (as defined below) or (ii) terminates his employment for Good Reason (as defined below), then, all (or, in the case of a performance-based RSU that is still subject to performance criteria per Exhibit A, the Target Number of RSUs (as defined on Exhibit A, if applicable) of the Participant’s unforfeited RSUs shall become immediately and fully vested and shall no longer be subject to the Forfeiture provisions under this Agreement. For purposes of this section “Change in Control” means the first to occur of any of the following events: (I) any “person” (as that term is used in Section 13 and 14(d)(2) of the Securities Exchange Act of 1934 (“Exchange Act”)) becomes the beneficial owner (as that term is used in Section 13(d) of the Exchange Act), directly or indirectly, of fifty percent (50%) or more of the Company’s capital stock entitled to vote in the election of directors; (II) the shareholders of the Company approve any consolidation or merger of the Company, other than a consolidation or merger of the Company in which the holders of the common stock of the Company immediately prior to the consolidation or merger hold more than fifty percent (50%) of the common stock of the surviving corporation immediately after the consolidation or merger; or (III) the shareholders of the Company approve the sale or transfer of all or substantially all of the assets of the Company to parties that are not within a “controlled group of corporations” (as defined in Code Section 1563) in which the Company is a member. For purposes of this Agreement, “Cause” shall mean conviction for the commission of a felony, willful failure by the Participant to perform his responsibilities to the Company, or willful misconduct by the Participant. For purposes of this section, “Good Reason” shall mean termination of the Participant’s employment by the Participant within 90 days following (I) a material diminution in the Participant’s positions, duties and responsibilities from those described in the Participant’s Employment Agreement, (II) a material reduction in the Participant’s base salary (other than a reduction which is part of a general salary reduction program affecting senior executives of the Company), (III) a material reduction in the aggregate value of the pension and welfare benefits provided to the Participant from those in effect prior to the Change in Control (other than a reduction which is proportionate to the reductions applicable to other senior executives

pursuant to a cost-saving plan that includes all senior executives), (IV) a material breach of any provision of the Participant's Employment Agreement by the Company or (V) the Company's requiring the Participant to be based at a location that creates for the Participant a one way commute in excess of 60 miles from his primary residence, except for required travel on the Company's business to an extent substantially consistent with the business travel obligations of the Participant under the Participant's Employment Agreement. Notwithstanding the foregoing, a termination shall not be treated as a termination for Good Reason (I) if the Participant shall have consented in writing to the occurrence of the event giving rise to the claim of termination for Good Reason or (II) unless the Participant shall have delivered a written notice to the Company within 30 days of his having actual knowledge of the occurrence of one of such events stating that he intends to terminate his employment for Good Reason and specifying the factual basis for such termination, and such event, if capable of being cured, shall not have been cured within 30 days of the receipt of such notice.

(c) Clawback. In the event that (i) the Participant is, on the Grant Date an "executive officer" of the Company (as defined in Rule 3b-7 under the Securities Exchange Act of 1934, as amended) and (ii) the RSUs are (or were at any time) subject to performance criteria per Exhibit A, then the RSUs (and any Shares issued under the RSUs) shall be subject to potential cancellation, recoupment, rescission, payback or other action in accordance with the terms of any applicable Company clawback policy (the "Clawback Policy") or any applicable law, as may be in effect from time to time. The Participant hereby acknowledges and consents to the Company's application, implementation and enforcement of (i) any applicable Clawback Policy in effect as of the date of this Agreement and (ii) any provision of applicable law relating to cancellation, recoupment, rescission or payment of compensation and agrees that the Company may take such actions as may be necessary to effectuate the Clawback Policy without further consideration or action.

### 3. Restrictions on Transfer.

The Participant shall not sell, assign, transfer, pledge, hypothecate or otherwise dispose of, by operation of law or otherwise (collectively "transfer") any RSUs, or any interest therein, except that the Participant may transfer such RSUs (i) to or for the benefit of any spouse, children, parents, uncles, aunts, siblings, grandchildren and any other relatives approved by the Board of Directors (collectively, "Approved Relatives") or to a trust established solely for the benefit of the Participant and/or Approved Relatives, provided that such RSUs shall remain subject to this Agreement (including without limitation the terms of Forfeiture and the restrictions on transfer set forth in this Section 3) and such permitted transferee shall, as a condition to such transfer, deliver to the Company a written instrument confirming that such transferee shall be bound by all of the terms and conditions of this Agreement.

### 4. Provisions of the Plan.

This Agreement is subject to the provisions of the Plan, a copy of which is furnished to the Participant with this Agreement.

5. No Compensation Deferral. Neither the Plan nor this Agreement is intended to provide for an elective deferral of compensation that would be subject to Section 409A ("Section 409A") of the U.S. Internal Revenue Code of 1986, as amended. The Company reserves the right, to the extent the Company deems necessary or advisable in its sole discretion, to unilaterally amend

or modify the Plan and/or this Agreement to ensure that no awards (including without limitation, the RSUs) become subject to the requirements of Section 409A.

6. Withholding Taxes.

(a) The Company's obligation to deliver Shares to the Participant upon the vesting of RSUs shall be subject to the satisfaction of all income tax (including federal, state and local taxes), social insurance, payroll tax, payment on account or other tax related withholding requirements ("Withholding Taxes"). In order to satisfy all Withholding Taxes due upon vesting of the Participant's RSUs, the Participant agrees to the following:

(b) As a condition to receiving any Shares upon vesting of the RSUs, on the date of this Agreement, the Participant hereby irrevocably instructs the Company to take the actions described in this subsection 6(b). On each Vesting Date, the Participant hereby elects to satisfy all Withholding Taxes obligation then due through the retention by the Company of Shares. Accordingly, the Participant hereby instructs the Company, with no further action by the Participant, on each Vesting Date to deduct and retain from the number of Shares to which the Participant is entitled from the RSUs then scheduled to vest such number of Shares as is equal to the value of the Withholding Taxes. The Participant understands that the fair market value of the surrendered Shares will be based on the closing price of the Company's Common Stock on the trading day preceding the Vesting Date.

(c) Participant has reviewed with the Participant's own tax advisors the federal, state, local and foreign tax consequences of this grant and the transactions contemplated by this Agreement. The Participant is relying solely on such advisors and not on any statements or representations of the Company or any of its agents. The Participant understands that the Participant (and not the Company) shall be responsible for the Participant's own tax liability that may arise as a result of this grant or the transactions contemplated by this Agreement.

(d) The Participant represents to the Company that, as of the date hereof, he/she is not aware of any material nonpublic information about the Company or the Common Stock. The Participant and the Company have structured this Agreement to constitute a "binding contract" relating to the retention by the Company of Common Stock pursuant to this Section 6, consistent with the affirmative defense to liability under Section 10(b) of the Securities Exchange Act of 1934 under Rule 10b5-1(c) promulgated under such Act.

7. Nature of the Grant. In signing this Agreement, the Participant acknowledges that:

(a) the Plan is established voluntarily by the Company, it is discretionary in nature and may be modified, amended, suspended or terminated by the Company at any time, unless otherwise provided in the Plan and this Agreement;

(b) the grant of RSUs is voluntary and occasional and does not create any contractual or other right to receive future awards of RSUs, or benefits in lieu of RSUs even if RSUs have been awarded repeatedly in the past;

- (c) all decisions with respect to future grants of RSUs, if any, will be at the sole discretion of the Company;
- (d) the Participant's participation in the Plan is voluntary;
- (e) RSUs are an extraordinary item that do not constitute compensation of any kind for services of any kind rendered to the Company or to the Participant's employer, and RSUs are outside the scope of the Participant's employment contract, if any;
- (f) RSUs are not part of normal or expected compensation or salary for any purpose, including, but not limited to, calculation of any severance, resignation, termination, redundancy, end of service payments, bonuses, long-service awards, pension or retirement benefits or similar payments and in no event should be considered as compensation for, or relating in any way to, past services for the Company or the Participant's employer;
- (g) the future value of the underlying Shares is unknown and cannot be predicted with certainty;
- (h) if the Participant receives Shares upon vesting, the value of such Shares acquired on vesting of RSUs may increase or decrease in value;
- (i) in consideration of the grant of RSUs, no claim or entitlement to compensation or damages arises from termination of the RSUs or diminution in value of the RSUs or Shares received upon vesting of RSUs resulting from termination of the Participant's employment by the Company or the Participant's employer (for any reason whatsoever and whether or not in breach of local labor laws) and the Participant irrevocably releases the Company and his or her employer from any such claim that may arise; if, notwithstanding the foregoing, any such claim is found by a court of competent jurisdiction to have arisen, then, by signing this Agreement, the Participant shall be deemed irrevocably to have waived his or her entitlement to pursue such claim; and
- (j) further, if the Participant ceases to be an employee (whether or not in breach of local labor laws), the Participant's right to receive RSUs and vest under the Plan, if any, will terminate effective as of the date that the Participant is no longer actively employed by the Company and will not be extended by any notice period mandated under local law (*e.g.*, active employment would not include a period of "garden leave" or similar period pursuant to local law); the Committee shall have the exclusive discretion to determine when the Participant is no longer actively employed for purposes of the Plan.

8. Data Privacy Notice and Consent. The Participant hereby explicitly and unambiguously consents to the collection, use and transfer, in electronic or other form, of his or her personal data as described in this paragraph, by and among, as applicable, the Participant's employer and the Company and its subsidiaries and affiliates for, among other purposes, implementing, administering and managing the Participant's participation in the Plan. The Participant understands that the Company and its subsidiaries hold certain personal information about the Participant, including the Participant's name, home address and telephone number, date of



birth, social security number or identification number, salary, nationality, job title, any Shares or directorships held in the Company, details of all options or any other entitlement to Shares awarded, canceled, exercised, vested, unvested or outstanding in the Participant's favor, for the purpose of managing and administering the Plan ("Data"). The Participant further understands that the Company and/or its subsidiaries will transfer Data amongst themselves as necessary for employment purposes, including implementation, administration and management of the Participant's participation in the Plan, and that the Company and/or any of its subsidiaries may each further transfer Data to Broker or such other stock plan service provider or other third parties assisting the Company with processing of Data. The Participant understands that these recipients may be located in the United States, and that the recipient's country may have different data privacy laws and protections than in the Participant's country. The Participant authorizes them to receive, possess, use, retain and transfer the Data, in electronic or other form, for the purposes described in this section, including any requisite transfer to Broker or such other stock plan service provider or other third party as may be required for the administration of the Plan and/or the subsequent holding of Shares of stock on the Participant's behalf. The Participant understands that he or she may, at any time, request access to the Data, request any necessary amendments to it or refuse or withdraw the consents herein, in any case without cost, by contacting in writing his or her local human resources representative. The Participant understands, however, that withdrawal of consent may affect the Participant's ability participate in or realize benefits from the Plan. For more information on the consequences of refusal to consent or withdrawal of consent, the Participant understands that he or she may contact his or her local human resources representative.

#### 9. Miscellaneous.

(a) No Rights to Employment. The Participant acknowledges and agrees that the vesting of the RSUs pursuant to Section 1 and Exhibit A hereof is earned only in accordance with the terms of such sections. The Participant further acknowledges and agrees that the transactions contemplated hereunder and the vesting schedule set forth herein do not constitute an express or implied promise of continued engagement as an employee for the vesting period, for any period, or at all.

(b) Severability. The invalidity or unenforceability of any provision of this Agreement shall not affect the validity or enforceability of any other provision of this Agreement, and each other provision of this Agreement shall be severable and enforceable to the extent permitted by law.

(c) Waiver. Any provision for the benefit of the Company contained in this Agreement may be waived, either generally or in any particular instance, by the Board of Directors of the Company.

(d) Binding Effect. This Agreement shall be binding upon and inure to the benefit of the Company and the Participant and their respective heirs, executors, administrators, legal representatives, successors and assigns, subject to the restrictions on transfer set forth in Section 3 of this Agreement.

(e) Notice. All notices required or permitted hereunder shall be in writing and deemed effectively given upon personal delivery or five days after deposit in the United States Post

Office, by registered or certified mail, postage prepaid, addressed to the other party hereto at the address shown beneath his or its respective signature to this Agreement, or at such other address or addresses as either party shall designate to the other in accordance with this Section 9(e).

(f) Pronouns. Whenever the context may require, any pronouns used in this Agreement shall include the corresponding masculine, feminine or neuter forms, and the singular form of nouns and pronouns shall include the plural, and vice versa.

(g) Language. If the Participant has received this Agreement or any other document related to the Plan translated into a language other than English and if the translated version is different than the English version, the English version will control.

(h) Electronic Delivery. The Company may, in its sole discretion, decide to deliver any documents related to participation in the Plan, RSUs granted under the Plan or future RSUs that may be granted under the Plan by electronic means or to request the Participant's consent to participate in the Plan by electronic means. The Participant hereby consents to receive such documents by electronic delivery and, if requested, to agree to participate in the Plan through an on-line or electronic system established and maintained by the Company or another third party designated by the Company.

(i) Entire Agreement. This Agreement and the Plan constitute the entire agreement between the parties, and supersedes all prior agreements and understandings, relating to the subject matter of this Agreement.

(j) Amendment. This Agreement may be amended or modified only by a written instrument executed by both the Company and the Participant.

(k) Governing Law. This Agreement shall be construed, interpreted and enforced in accordance with the internal laws of the Commonwealth of Massachusetts without regard to any applicable conflicts of laws.

(l) The Participant's Acknowledgments. The Participant acknowledges that he or she: (i) has read this Agreement; (ii) has been represented in the preparation, negotiation, and execution of this Agreement by legal counsel of the Participant's own choice or has voluntarily declined to seek such counsel; and (iii) understands the terms and consequences of this Agreement; and (iv) is fully aware of the legal and binding effect of this Agreement.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

MKS INSTRUMENTS, INC.

By:  
Title: Chief Executive Officer  
2 Technology Drive  
Andover, MA 01810

---

«First\_Name» «Last\_Name»  
Participants Signature

Exhibit A

Participant: «**First\_Name**» «**Last\_Name**»

Grant Date:

Restricted Stock Units Granted: <<**NumShares**>> (“Target Number of RSUs”)

Subject to the terms and conditions of this Agreement (including the Forfeiture provisions described in Section 2 above and the performance criteria listed below), the RSUs shall vest in three (3) equal installments as follows: (a) the first third will vest upon the later of (i) the Determination Date (defined below) or (ii) the first anniversary of the Grant Date; (b) an additional one third will vest on the second anniversary of the Grant Date, and (c) the final one third will vest on the third anniversary of the Grant Date. The date upon which each such installment vests shall be considered a “Vesting Date” for the portion of the RSUs vesting on that date.

The table below will determine the number of RSUs the Participant will be entitled to receive, subject to the vesting period described above and Forfeiture and other restrictions contained in this Agreement. The “Determination Date” shall be the date that the Company publicly announces its financial results for the relevant period referenced in the table below. If the Participant ceases to be employed by the Company by reason of death, Disability or Retirement, the performance portion of the shares shall be determined per the “Determination Date” mentioned above.

In the event that the minimal performance goal set forth below is not achieved, all RSUs shall automatically be forfeited. In the event the performance criteria set forth below is achieved, then, applying the applicable Revenue Range for the period, the percentage of the Target Number of RSUs earned shall be determined in accordance with the chart below, up to, but not exceeding the maximum percentage listed below.

*[PERFORMANCE CHART INTENTIONALLY EXCLUDED]*

**AMENDMENT TO APPENDIX A****Supplemental Retirement Benefits**

This Amendment to Appendix A of the Amended Employment Agreement (this "Amendment") is entered into as of December 21, 2012, by and between MKS Instruments, Inc. (the "Corporation"), and Leo Berlinghieri (the "Employee").

**WHEREAS**, the Corporation and the Employee previously entered into an Appendix A to Employee's Amended Employment Agreement, dated November 10, 2008 (the "Agreement"), which Agreement may be amended by a written instrument executed by both parties; and

**WHEREAS**, the Corporation and the Employee desire to amend the Agreement to comply with Internal Revenue Service Notice 2010-80, as set forth below.

**NOW, THEREFORE**, in consideration of the promises and mutual covenants contained herein, and intending to be legally bound hereby, the parties agree to amend Section 4.5 of the Agreement to provide as follows:

"4.5 **Release.** Benefits payable under this Appendix A (other than death benefits payable under Section 6) are specifically conditioned upon and provided in exchange for Employee signing a separation agreement that releases the Corporation from any liabilities that may have arisen as a result of Employee's employment and/or termination of employment with the Corporation. The time period for returning such separation agreement shall be designated by the Corporation and shall not be less than 21 days nor more than 45 days following Employee's Separation from Service. If such time period (including any period for revocation) begins in one taxable year and ends in a subsequent taxable year, any payments conditioned upon such separation agreement shall be made in the later taxable year. Payments of benefits hereunder shall not be made unless and until the separation agreement has been signed and timely returned by Employee and the specified period for revocation of the separation agreement has expired without revocation. In the event Employee terminates employment with the Corporation for any reason other than death (including Retirement) without satisfying the requirements of this Section 4.5 all benefits shall be forfeited, and no amount shall be payable under this Appendix A."

**IN WITNESS WHEREOF**, the parties have executed this Amendment as of the date and year first above written.

**MKS INSTRUMENTS, INC.**

/s/ Seth H. Bagshaw

---

**EMPLOYEE**

/s/ Leo Berlinghieri

---

**AMENDMENT TO APPENDIX A****Supplemental Retirement Benefits**

This Amendment to Appendix A of the Amended Employment Agreement (this "Amendment") is entered into as of December 21, 2012, by and between MKS Instruments, Inc. (the "Corporation"), and Gerald Colella (the "Employee").

**WHEREAS**, the Corporation and the Employee previously entered into an Appendix A to Employee's Amended Employment Agreement, dated November 10, 2008 (the "Agreement"), which Agreement may be amended by a written instrument executed by both parties; and

**WHEREAS**, the Corporation and the Employee desire to amend the Agreement to comply with Internal Revenue Service Notice 2010-80, as set forth below.

**NOW, THEREFORE**, in consideration of the promises and mutual covenants contained herein, and intending to be legally bound hereby, the parties agree to amend Section 4.5 of the Agreement to provide as follows:

"4.5 **Release.** Benefits payable under this Appendix A (other than death benefits payable under Section 6) are specifically conditioned upon and provided in exchange for Employee signing a separation agreement that releases the Corporation from any liabilities that may have arisen as a result of Employee's employment and/or termination of employment with the Corporation. The time period for returning such separation agreement shall be designated by the Corporation and shall not be less than 21 days nor more than 45 days following Employee's Separation from Service. If such time period (including any period for revocation) begins in one taxable year and ends in a subsequent taxable year, any payments conditioned upon such separation agreement shall be made in the later taxable year. Payments of benefits hereunder shall not be made unless and until the separation agreement has been signed and timely returned by Employee and the specified period for revocation of the separation agreement has expired without revocation. In the event Employee terminates employment with the Corporation for any reason other than death (including Retirement) without satisfying the requirements of this Section 4.5 all benefits shall be forfeited, and no amount shall be payable under this Appendix A."

**IN WITNESS WHEREOF**, the parties have executed this Amendment as of the date and year first above written.

**MKS INSTRUMENTS, INC.**

/s/ Leo Berlinghieri

---

**EMPLOYEE**

/s/ Gerald Colella

---

**AMENDMENT TO APPENDIX A****Supplemental Retirement Benefits**

This Amendment to Appendix A of the Amended Employment Agreement (this "Amendment") is entered into as of December 21, 2012, by and between MKS Instruments, Inc. (the "Corporation"), and John A. Smith (the "Employee").

**WHEREAS**, the Corporation and the Employee previously entered into an Appendix A to Employee's Amended Employment Agreement, dated November 10, 2008 (the "Agreement"), which Agreement may be amended by a written instrument executed by both parties; and

**WHEREAS**, the Corporation and the Employee desire to amend the Agreement to comply with Internal Revenue Service Notice 2010-80, as set forth below.

**NOW, THEREFORE**, in consideration of the promises and mutual covenants contained herein, and intending to be legally bound hereby, the parties agree to amend Section 4.7 of the Agreement to provide as follows:

"4.7 **Release.** Benefits payable under Section 6.1 of this Appendix A attributable to Employee's Company Contribution Subaccount are specifically conditioned upon and provided in exchange for Employee signing a separation agreement that releases the Company from any liabilities that may have arisen as a result of Employee's employment and/or termination of employment with the Corporation. The time period for returning such separation agreement shall be designated by the Corporation and shall not be less than 21 days nor more than 45 days following Employee's Separation from Service. If such time period (including any period for revocation) begins in one taxable year and ends in a subsequent taxable year, any payments conditioned upon such separation agreement shall be made in the later taxable year. Payments of benefits hereunder shall not be made unless and until the separation agreement has been signed and timely returned by Employee and the specified period for revocation of the separation agreement has expired without revocation. In the event Employee terminates employment with the Corporation for any reason other than death (including Retirement) without satisfying the requirements of this Section 4.7 Employee's Company Contribution Subaccount shall be forfeited, and no amount attributable to such Subaccount shall be payable under this Appendix A."

**IN WITNESS WHEREOF**, the parties have executed this Amendment as of the date and year first above written.

**MKS INSTRUMENTS, INC.**

/s/ Leo Berlinghieri

---

**EMPLOYEE**

/s/ John A. Smith

---

[FORM OF 2012 MANAGEMENT INCENTIVE BONUS PLAN  
FOR NAMED EXECUTIVE OFFICERS]



**PERSONAL & CONFIDENTIAL  
MKS MEMORANDUM**

To:  
DATE: APRIL 18, 2012  
FROM:  
SUBJECT: 2012 MKS KEY EMPLOYEE/ MANAGEMENT BONUS PLAN

Attached is a copy of your 2012 MKS Bonus Plan (The Plan). This plan exists to provide key managers and employees the opportunity to benefit financially while improving MKS' overall business performance. You have been included in the plan because you are working in a position that allows you to exert influence over how well MKS performs.

The 2012 Bonus Plan is intended to encourage us to make prudent choices about how operations are conducted. The growth of MKS is dependent upon our making decisions that constantly focus on achieving customer satisfaction while maintaining sound fiscal control. While one person alone cannot change the direction of any company, the combined decisions made by the participants in this plan play an important part in influencing MKS' overall business performance. The measure of our business performance for The Plan will be MKS' financial results. This year the financial metric used to calculate performance for bonus achievement will be corporate Adjusted Operating Income. Adjusted Operating Income for The Plan is defined as GAAP Net Operating Income excluding any unanticipated charges or income not related to the operating performance of MKS.

The attached chart shows the payout of your target bonus as a function of Adjusted Operating Income. Based on our business model and current expectations, we have set a payout goal equal to 100% of your target bonus when our Adjusted Operating Income reaches \$121.8 million. As you can see from the attached chart, you will start earning a payout under this bonus plan when Adjusted Operating Income reaches \$85.3 million. Your bonus payout will be 70% of target at Adjusted Operating Income of \$85.3 million, and you will receive the maximum bonus payout of 200% of target at Adjusted Operating Income of \$173 million.

As you well know it is difficult for us to look long-term into our industry so your efforts to carefully weigh any expenses are very much appreciated.

**NOTE:** Your target bonus amount is XX%<sup>1</sup> of your 2012 eligible earnings.

***This plan is confidential. Only a select group of individuals are eligible.  
Neither this plan, nor the financial performance targets associated with it,  
should be shared with anyone inside or outside the company.***

<sup>1</sup> Target bonus amounts in 2012 for Named Executive Officers were as follows: Leo Berlinghieri – 100%, Gerald Colella – 75%, Seth Bagshaw – 60%, John Lee – 60%, and John Smith – 50%.





**PERSONAL & CONFIDENTIAL  
MKS MEMORANDUM**

**2012 Annual Management/Key Employee Bonus Plan  
Based on Adjusted Operating Income  
(January 1 – December 31)**

The payout of your bonus will be achieved according to the schedule shown in the chart below. For example, you will receive 80% of your target bonus if our Adjusted Operating Income reaches \$97.4 million and 100% of your target bonus if Adjusted Operating Income reaches \$121.8 million. At an Adjusted Operating Income of \$173 million or more, you will receive 200% of your target corporate bonus.

**ANNUAL BONUS**

<b>Adjusted Operating Income</b>	<b>Bonus Payout (percentage of target)</b>
<\$85,300,000	0%
\$85,300,000	70%
\$97,400,000	80%
\$109,600,000	90%
\$121,800,000	100%
\$132,000,000	120%
\$142,300,000	140%
\$152,500,000	160%
\$162,700,000	180%
>=173,000,000	200%

This information is extremely confidential and should be treated as such. Please do not share this information with anyone inside or outside of MKS Instruments, Inc.



## 2012 MKS Management/Key Employee Bonus Plans

The MKS Annual Bonus Plan (The Plan) is based on fiscal year performance (January through December). Performance measurements are set at the beginning of the fiscal year.

Plan participants have 100% of their bonus tied to achievement of corporate goals.

### **Participation/Approval:**

Participation in the Plan requires the approval of the most senior individual in each organization as well as Human Resources and the Chief Executive Officer and President. Participation in the plan is reviewed on an annual basis. Past participation in this program, as well as the percentage target, is not guaranteed for subsequent plan years.

### **Target:**

Bonus target guidelines are established for positions as a percentage of pay.

### **Payout:**

The bonus payout amount is a percentage of eligible W-2 earnings received during the plan period, i.e. "base salary" including regular, holiday, vacation, sick, and retro pay. Bonus payments attributable to the prior year are excluded from this calculation.

### **Administration:**

Bonus payout is made as soon as possible after the end of the fiscal year and the performance assessment has been completed, but in no event later than March 15 of the subsequent year.

**Note: In order to receive the bonus payment the plan participant must be actively employed as of the payout date of The Plan.**

MKS reserves the right to change the plan at any time, subject to senior management discretion. In no way does this plan create a contract of employment.

**Confidential materials omitted and filed  
separately with the Securities and Exchange  
Commission. Asterisks denote omissions.**

[MKS Logo]

**PERSONAL & CONFIDENTIAL  
MKS MEMORANDUM**

TO:  
DATE: FEBRUARY 26, 2013  
From: Leo Berlinghieri  
SUBJECT: 2013 MKS CORPORATE MANAGEMENT/KEY EMPLOYEE BONUS PLAN

Attached is a copy of your 2013 MKS Corporate Management/Key Employee Bonus Plan ("The Plan"). The Plan exists to provide key managers and employees the opportunity to benefit financially while improving MKS' overall business performance. You have been included in the plan because you are working in a position that allows you to exert influence over how well MKS performs.

The Plan is intended to encourage us to make prudent choices about how operations are conducted. The growth of MKS is dependent upon our making decisions that constantly focus on achieving customer satisfaction while maintaining sound fiscal control. While one person alone cannot change the direction of any company, the combined decisions made by the participants in The Plan play an important part in influencing MKS' overall business performance. The measure of our business performance for The Plan will be MKS' financial results. This year the financial metric used to calculate performance for bonus achievement will be corporate Adjusted Operating Income. Adjusted Operating Income for The Plan is defined as GAAP Net Operating Income excluding any unanticipated charges or income not related to the operating performance of MKS.

The attached chart shows the payout of your target bonus as a function of Adjusted Operating Income. Based on our business model and current expectations, we have set a payout goal equal to 100% of your target bonus when our Adjusted Operating Income reaches \$\*\* million. As you can see from the attached chart, you will start earning a payout under this bonus plan when Adjusted Operating Income reaches \$\*\* million (subject to the terms set forth below). Your bonus payout will be 70% of target at Adjusted Operating Income of \$\*\* million, and you will receive the maximum bonus payout of 200% of target at Adjusted Operating Income of \$\*\* million.

As you well know it is difficult for us to look long-term into our industry so your efforts to carefully weigh any expenses are very much appreciated.

**NOTE:** Your target bonus amount is XX%<sup>1</sup> of your 2013 eligible earnings.

***This plan is confidential. Only a select group of individuals are eligible. Neither The Plan, nor the financial performance targets associated with it, should be shared with anyone inside or outside the company.***

<sup>1</sup> Target bonus amounts in 2013 are as follows: Leo Berlinghieri – 100%, Gerald Colella – 75%, Seth Bagshaw – 70%, John Lee – 60%, John Smith – 50%

**PERSONAL & CONFIDENTIAL  
MKS MEMORANDUM**

**2013 Annual Corporate Management/Key Employee Bonus Plan (“The Plan”)  
Based on Adjusted Operating Income  
(January 1 – December 31)**

The payout of your bonus will be achieved according to the schedule shown in the chart below. For example, you will receive 70% of your target bonus if our Adjusted Operating Income reaches \$\*\* million and 100% of your target bonus if Adjusted Operating Income reaches \$\*\* million. At an Adjusted Operating Income of \$\*\* million or more, you will receive 200% of your target corporate bonus.

**ANNUAL BONUS**

Adjusted Operating Income	Bonus Payout (percentage of target)
<\$**	0%*
\$**	70%
\$**	75%
\$**	80%
\$**	90%
\$**	100%
\$**	125%
\$**	150%
\$**	175%
>=\$**	200%

\* In the event that the minimum Adjusted Operating Income target set forth above would have been met *but for* the payment of all the bonuses in The Plan, then in such case, a pro rata portion of the bonus (based on each Participant’s individual bonus target) shall be paid to each participant in The Plan, but only to the extent that the Adjusted Operating Income after such payment is no less than the minimum target Adjusted Operating Income above. For example, if (1) the Adjusted Operating Income *prior to* the payment of bonuses were \$\*\* million, and (2) the payment of bonuses under The Plan to all participants at 70% would cause the Adjusted Operating Income to be less than \$\*\* million, then MKS would instead make pro rata payments such that the aggregate of the Bonuses paid by MKS would be \$\*\* million, resulting in a post-bonus payment Adjusted Operating Income of \$\*\* million (the minimum target set forth above).

**This information is extremely confidential and should be treated as such. Please do not share this information with anyone inside or outside of MKS Instruments, Inc.**

**2013 MKS Corporate Management/  
Key Employee Bonus Plan**

The Plan is based on fiscal year performance (January through December). Performance measurements are set at the beginning of the fiscal year.

Plan participants have all of their bonus tied to achievement of corporate goals.

**Participation/Approval:**

Participation in The Plan requires the approval of the most senior individual in each organization as well as Human Resources and the Chief Executive Officer and President. Participation in The Plan is reviewed on an annual basis. Past participation in this program, as well as the percentage target, is not guaranteed for subsequent plan years.

**Payout:**

The bonus payout amount is a percentage of eligible W-2 earnings received during the plan period, i.e. “base salary” including regular, holiday, vacation, sick, and retro pay. All bonus payments are excluded from this calculation.

**Clawback:**

In the event that you are, on the date the Plan is provided to you, an “executive officer” of the Company (as defined in Rule 3b-7 under the Securities Exchange Act of 1934, as amended) then any bonus payment made hereunder shall be subject to potential cancellation, recoupment, rescission, payback or other action in accordance with the terms of any applicable Company clawback policy (the “Clawback Policy”) or any applicable law, as may be in effect from time to time. The Participant hereby acknowledges and consents to the Company’s application, implementation and enforcement of (i) any applicable Clawback Policy in effect as of the date of The Plan and (ii) any provision of applicable law relating to cancellation, recoupment, rescission or payment of compensation and agrees that the Company may take such actions as may be necessary to effectuate the Clawback Policy without further consideration or action.

**Administration:**

Bonus payout is made as soon as possible after the end of the fiscal year and the performance assessment has been completed, but in no event later than March 15 of the subsequent year.

**Note: In order to receive the bonus payment the plan participant must be actively employed as of the payout date of The Plan.**

MKS reserves the right to change The Plan at any time, subject to senior management discretion. In no way does The Plan create a contract of employment.



## SUBSIDIARIES OF THE REGISTRANT

SUBSIDIARY	JURISDICTION OF INCORPORATION
ASTeX GmbH	Germany
MKS (Bermuda) Ltd.	Bermuda
MKS Denmark APS	Denmark
MKS Germany Holding GmbH	Germany
MKS Instruments (Asia) Ltd.	Bermuda
MKS Instruments (China) Company Ltd.	China
MKS Instruments Deutschland GmbH	Germany
MKS Instruments France S.A.S.	France
MKS Instruments (Hong Kong) Ltd.	Hong Kong
MKS Instruments (Shanghai) Ltd.	Shanghai
MKS Instruments (Singapore) Pte. Ltd.	Singapore
MKS Instruments U.K. Limited	United Kingdom
MKS Japan, Inc.	Japan
MKS Korea Co., Ltd.	Korea
MKS Luxembourg S.A.R.L.	Luxembourg
MKS MSC, Inc.	Massachusetts
MKS Taiwan Technology Ltd.	Taiwan
MKS Technology Limited	United Kingdom
MKS Tega Ltd.	Israel
MKS Tenta Products Ltd.	Israel
MKS Umetrics AB	Sweden
Orion Metrology, Inc.	California
Plasmart, Inc.	Korea
Spectra Sensortech, Ltd.	United Kingdom
Telvac Engineering Limited	United Kingdom
Tianjin Yield Co, Ltd.	China
Umetrics, Inc.	New Jersey
Umetrics (UK) Ltd.	UK
Yield Dynamics, LLC	California

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-8 (No. 333-78069, 333-78071, 333-78073, 333-31224, 333-54486, 333-54488, 333-54490, 333-90498, 333-90500, 333-90502, 333-116385, 333-116387, 333-116389, 333-127221, and 333-161211) and Form S-3 (No. 333-34450 and 333-109753) of MKS Instruments, Inc. of our report dated February 26, 2013 relating to the financial statements, financial statement schedule and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP  
Boston, Massachusetts  
February 26, 2013



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, Leo Berlinghieri, certify that:

1. I have reviewed this annual report on Form 10-K 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 15(d)-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 annual 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 changes 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 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.

Dated: February 26, 2013

/s/ Leo Berlinghieri

---

Leo Berlinghieri

Chief Executive Officer

(Principal Executive Officer)

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 annual report on Form 10-K 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 15(d)-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 annual 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 changes 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 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.

Dated: February 26, 2013

/s/ Seth H. Bagshaw

---

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

## 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 Annual Report on Form 10-K of MKS Instruments, Inc. (the "Company") for the period ended December 31, 2012 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, Leo Berlinghieri, Chief Executive Officer 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: February 26, 2013

/s/ Leo BerlinghieriLeo Berlinghieri  
Chief Executive Officer

Dated: February 26, 2013

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