

MKS INSTRUMENTS INC

Form 10-K

February 26, 2010

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**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, 2009
- 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:**

<b>Title of Class</b>	<b>Name of Exchange on Which Registered</b>
Common Stock, no par value	NASDAQ Global 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

## Edgar Filing: MKS INSTRUMENTS INC - Form 10-K

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, 2009 based on the closing price of the registrant's Common Stock on such date as reported by the Nasdaq Global Market: \$602,380,371

Number of shares outstanding of the issuer's Common Stock, no par value, as of February 17, 2010: 49,521,849

### **DOCUMENTS INCORPORATED BY REFERENCE**

Portions of the definitive Proxy Statement for MKS' Annual Meeting of Stockholders to be held on May 3, 2010 are incorporated by reference into Part III of this Form 10-K.

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

We are managed as one operating segment. We group our products into three product groups: Instruments and Control Systems, Power and Reactive Gas Products and Vacuum Products. Our products are derived from our core competencies in pressure measurement and control, materials delivery, gas composition analysis, electrostatic charge management, 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, light emitting diodes (LEDs), solar cells, data storage media and other advanced coatings. We also leverage our technology into other markets with advanced manufacturing applications including medical equipment, biopharm and environmental monitoring.

For over 45 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 displays, light emitting diodes, solar cells, data storage media and other coating applications; and other industrial, medical, biopharm, 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 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 [www.mksinstruments.com](http://www.mksinstruments.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, or the Exchange Act, as soon as reasonably practicable after we electronically file

such materials with the Securities and Exchange Commission.

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### **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 other market sectors. We estimate that approximately 52%, 57% and 68% of our net sales for the years 2009, 2008 and 2007, respectively, were to semiconductor capital equipment manufacturers and semiconductor device manufacturers. Approximately 48%, 43% and 32% of our net sales in the years 2009, 2008 and 2007, 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; energy generation and environmental monitoring processes; biopharm and other industrial manufacturing; and university, government and industrial research laboratories.

We estimate that approximately 46%, 43% and 39% of our net sales for the years 2009, 2008 and 2007, respectively, were to customers located in international markets. International sales include sales by our foreign subsidiaries, but exclude direct export sales.

#### ***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 and the United States.

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

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

##### ***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)***

LEDs, or light emitting diodes 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 experiencing rapid acceptance in solid state lighting and back side lighting of flat screen TV displays.

##### ***Solar Cells***

Our products are used in crystalline silicon and emerging thin film processes to manufacture photovoltaic (PV) 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.



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### *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 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 biopharm 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 three product groups: Instruments and Control Systems, Power and Reactive Gas Products and Vacuum Products.

### **Instruments and Control Systems**

This product group includes pressure measurement and control, materials delivery, gas composition analysis, electrostatic charge management and control and information technology 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, to measure process chamber pressures and to measure 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-

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electric and piston pump technologies. These products measure and automatically control the mass flow rate of gases and vapors into the process chamber.

***Gas Composition Analysis Products.*** Gas composition analysis instruments are sold to a variety of industries including the semiconductor industry.

***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 portable 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 gases to ensure environmental health and safety and monitoring combustion exhausts. These instruments are provided as portable laboratory systems and as process gas monitoring systems used in the diagnosis of manufacturing processes.

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.

***Leak Detection Products.*** Helium leak detection is used in a variety of industries including semiconductor, heating, ventilation and air-conditioning ( HVAC ), automotive and aerospace to ensure the leak integrity of both manufactured products and manufacturing equipment. We believe that our products are the smallest mass spectrometer-based helium leak detectors currently available.

***Electrostatic Charge Management Products.*** Semiconductor, flat panel display and data storage industries are vulnerable to electrostatic charge-related contamination and yield problems. We design and manufacture products to control electrostatic attraction, electrostatic discharge and electromagnetic interference. In high throughput industrial applications such as plastics manufacture and printing, ionization is used to improve process control and productivity.

***Control and Information Technology 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 and system controllers, connectivity products and data analysis/information 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 ( APC ), and diagnose equipment problems from a remote location ( e-diagnostics ).

*Information Technology Products.* We design on-line and off-line software products to analyze data to improve the quality and yield of semiconductor, thin film, biopharmaceutical, injection molding and other manufacturing processes.

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

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

*Power Delivery Products.* We design and manufacture microwave, DC and RF power delivery systems as well as RF 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.* Reactive gases are used to process and clean substrates and to clean process chambers to reduce particle contamination. A reactive gas is created when energy is added to a stable gas to break apart its molecules. When the resulting dissociated gas comes into contact with other matter it produces rapid chemical reactions which result in the processing of thin films (deposition of films, etching and cleaning of films and surface modifications) or equipment cleaning.

*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 new 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 product group consists of vacuum technology products, including vacuum containment components, vacuum gauges, vacuum valves, effluent management subsystems and custom stainless steel chambers, vessels, biopharmaceutical 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, atomic layer deposition ( ALD ), lithography and all semiconductor and solar processes. We design and build custom panels, weldments, ASME (American Society of Manufacturing Engineers) vessels and

housings, as well as a line of BPE certified components for biopharmaceutical processes.

**Customers**

Our largest customers include leading semiconductor capital equipment manufacturers. Sales to our top ten customers accounted for approximately 36%, 38% and 46% of net sales for the years 2009, 2008 and 2007, respectively. Sales to our largest customer, Applied Materials, accounted for approximately 12%, 19% and 20% of our net sales for the years 2009, 2008 and 2007, respectively.

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### **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 manufacturers and semiconductor device manufacturers. We sell our products primarily through our direct sales force. As of December 31, 2009, we had 174 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, which supplement this 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 a worldwide sales and support organization in 17 countries. Technical support is provided from offices in China, France, Germany, Japan, Korea, the Netherlands, Singapore, Taiwan, the United Kingdom and the United States. Repair and calibration services are provided at 25 service depots located worldwide. We typically provide warranties from one to three years, depending upon the type of product.

### **Research and Development**

Our products incorporate sophisticated technologies to power, measure, control and monitor increasingly complex gas-related semiconductor manufacturing processes, thereby enhancing uptime, yield and throughput for our semiconductor device manufacturing 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 32 nanometers and below. 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 have undertaken an initiative to involve our marketing, engineering, manufacturing and sales personnel in the concurrent 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, 2009, we had 337 research and development employees, primarily located in the United States. Our research and development expenses were \$53.5 million, \$78.5 million and \$74.6 million for the years 2009, 2008 and 2007, respectively. Our research and development efforts include numerous projects, none of which are individually material, and generally have a duration of 12 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 manufacturing facilities are located in China, Germany, Israel, Mexico, the United Kingdom and the United States. 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.

**Competition**

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

historical customer relationships;

product quality, performance and price;



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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.

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. Advanced Energy and Horiba offer materials delivery products that compete with our product line of mass flow controllers. Nor-Cal Products and VAT 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, 2009, we owned 370 U.S. patents, 239 foreign patents and had 123 pending U.S. patent applications that expire at various dates through 2029. 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, 2009, we employed 2,178 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.

## **Acquisitions**

We completed one acquisition in 2007. On November 7, 2007, we acquired Yield Dynamics, Inc. ( YDI ), a provider of yield management technology located in Sunnyvale, California. YDI's data and yield management software, along with MKS' portfolio of sensors that control critical processes, data collection and integration hardware, and real-time fault detection and classification software, provides a comprehensive offering for generating, collecting and analyzing process sensor data and correlating the data to wafers, chambers and tools across the semiconductor fab as well as other thin film manufacturing processes.

## **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.***

We estimate that approximately 52%, 57% and 68% of our net sales for the years 2009, 2008 and 2007, respectively, were to semiconductor capital equipment manufacturers and semiconductor device manufacturers, and we expect that sales to such customers will continue to account for a substantial portion of our sales. Our

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business depends upon the capital expenditures of semiconductor device manufacturers, which in turn depend 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. Reductions in demand for the products manufactured by semiconductor capital equipment manufacturers and semiconductor device manufacturers in 2008 and early 2009 adversely affected our business. The global economic uncertainty prolonged a steep downturn in semiconductor capital equipment spending and adversely affected our business, financial condition and results of operations. Our product revenues during 2009 for our semiconductor and capital equipment manufacturers and semiconductor device manufacturers decreased by 46%. We cannot be certain of the timing or magnitude of future semiconductor industry downturns. A decline in the level of orders as a result of any downturn or slowdown in the semiconductor capital equipment industry could have a material adverse effect on our business, financial condition and results of operations.

### ***MKS is exposed to risks associated with the weak global economy.***

The severe tightening of the credit markets, turmoil in the financial markets, and weak global economy, contributed to slowdowns in the industries in which MKS operates in 2008 and 2009. 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 MKS customers to push out, cancel, or refrain from placing equipment or service orders, which may affect MKS ability to convert backlog to sales and may reduce MKS 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 MKS. Customers with liquidity issues may lead to additional bad debt expense for MKS. These conditions may also similarly affect key suppliers, which could affect their ability to deliver parts and result in delays for MKS products. Further, these conditions and uncertainty about future economic conditions make it challenging for MKS to forecast its operating results, make business decisions, and identify the risks that may affect its business, financial condition and results of operations. If MKS is not able to timely and appropriately adapt to changes resulting from a difficult macroeconomic environment, MKS business, financial condition or results of operations may be materially and adversely affected.

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, such as the ongoing global economic crisis, and other risks associated with international sales. International sales include sales by our foreign subsidiaries, but exclude direct export sales. International sales accounted for approximately 46%, 43% and 39%, of net sales for the years 2009, 2008 and 2007, respectively, a significant portion of which were sales to 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;

shipment delays;

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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 36%, 38% and 46% of our net sales for the years 2009, 2008 and 2007, respectively. 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. During the years 2009, 2008 and 2007, one customer, Applied Materials, accounted for approximately 12%, 19% and 20%, respectively, of our net sales. 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;

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 made several acquisitions in the years 2000 through 2002 and, more recently in 2006 and 2007. 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 will not generate benefits for us.

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.

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As a result of our previous acquisitions, we have added several different decentralized operating and accounting systems, resulting in a complex reporting environment. We will need to continue to modify our accounting policies, internal controls, procedures and compliance programs to provide consistency across all 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 semiconductor 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 for the semiconductor industry. We must 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 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.

***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, 2009, our goodwill and intangible assets, net, represented approximately \$149.5 million, or 19% 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



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customer technologies, relationships and patents and trademarks 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. During 2009, we recorded non-cash impairment charges of \$205.0 million related to goodwill and intangible assets. 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 will 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.

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 to Mexico. We may expand the level of manufacturing and certain other operations that we do 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 anticipate from this program. 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, 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;

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expropriation of private enterprises; and

unexpected changes in foreign regulations.

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

***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 and may enter into local currency purchased options 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 liabilities could affect results of operations.***

As a global company, MKS is subject to taxation in the United States and various other countries. Significant judgment is required to determine and estimate worldwide tax liabilities. MKS' 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 MKS' deferred tax assets and liabilities. In addition, MKS is subject to regular examination by the Internal Revenue Service and other tax authorities. MKS regularly assesses the likelihood of favorable or unfavorable outcomes resulting from these examinations to determine the adequacy of its provision for income taxes. Although MKS believes its tax estimates are reasonable, there can be no assurance that any final determination will not be materially different from the treatment reflected in MKS' historical income tax provisions and accruals, which could materially and adversely affect MKS' 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 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, 2009, we owned 370 U.S. patents, 239 foreign patents and had 123 pending U.S. patent applications that expire at various dates through 2029. 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.

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***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 intellectual property rights and may be involved in such litigation in the future. Such litigation could result in substantial costs and diversion of resources and could have a material adverse effect on our business, financial condition and results of operations.

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 or 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. The market price of shares of our common stock has fluctuated greatly since our initial public offering 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 subject of securities class action litigation, it could result in substantial costs and a diversion of our management's attention and resources.

***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 that in time we could obtain and qualify alternative sources for most sole, limited source and international supplier parts. 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 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. In addition, China has adopted, and certain other Asian countries have indicated an intention to adopt similar regulations. 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,

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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 of us.***

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.

**Item 2. *Properties***

The following table provides information concerning MKS' principal and certain other owned and leased facilities as of December 31, 2009:

<b>Location</b>	<b>Sq. Ft.</b>	<b>Activity</b>	<b>Products Manufactured</b>	<b>Lease Expires</b>
Alameda, California		Manufacturing and Research & Development	Electrostatic Management Programs and Systems	March 31, 2011
Akishima, Japan	26,300	Customer Support and Service	Materials and Power Delivery Products	September 11, 2018

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Andover, Massachusetts		Manufacturing, Research & Development and Corporate	Pressure Measurement and Control Products	(1)
	118,000	Headquarters		
Austin, Texas		Manufacturing, Sales, Customer Support, Service and Research	Control & Information Management Products	May 31, 2012
	20,880	& Development		
Berlin, Germany		Manufacturing, Customer Support, Service and Research	Reactive Gas Generation Products	December 13, 2010
	20,750	& Development		
Boulder, Colorado		Manufacturing, Customer Support, Service and Research		
	124,000	& Development	Vacuum Products	(2)
Carmiel, Israel		Manufacturing and Research & Development	Control & Information Management Products	December 31, 2009
	11,800			



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<b>Location</b>	<b>Sq. Ft.</b>	<b>Activity</b>	<b>Products Manufactured</b>	<b>Lease Expires</b>
Cheshire, United Kingdom		Manufacturing, Sales, Customer Support and Service	Materials Delivery Products	November 6, 2018
Colorado Springs, Colorado	16,000	Research & Development	Not applicable	(3)
Filderstadt, Germany	24,000	Sales and Service	Not applicable	July 31, 2014
Fukuoka, Japan	9,300	Customer Support and Service	Not applicable	October 19, 2010
Lawrence, Massachusetts			Pressure Measurement and Control Products	(3)
Lod, Israel	40,000	Manufacturing Customer Support and Research & Development	Not applicable	May 31, 2010
Methuen, Massachusetts	10,500		Pressure Measurement and Control Products and Materials Delivery Products	(3)
Munich, Germany	85,000	Manufacturing, Customer Support, Service and Research & Development	Pressure Measurement and Control Products and Materials Delivery Products	(3)
Nogales, Mexico	14,000	Manufacturing, Sales, Customer Support, Service and Research & Development	Pressure Measurement and Control Products and Reactive Gas Generation Products	(3)
Richardson, Texas	67,700	Manufacturing Sales, Customer Support and Service	Not applicable	March 31, 2014
Rochester, New York	8,800	Manufacturing, Sales, Customer Support, Service and Research & Development	Power Delivery Products	November 30, 2012
San Jose, California	156,000	Sales, Customer Support and Service	Not applicable	(3)
Seoul, Korea	32,000	Sales, Customer Support and Service	Not applicable	April 30, 2011
Shenzhen, China	18,000	Support and Service	Not applicable	May 29, 2010
Shropshire, United Kingdom	242,000	Manufacturing	Power Delivery Products Control & Information Management	May 31, 2017
	25,000	Manufacturing	Products	October 18, 2010

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Singapore		Sales, Customer		
	6,100	Support and Service	Not applicable	July 7, 2010
Sunnyvale, California	10,000	Vacant	Not applicable	July 7, 2010
Taiwan		Sales, Customer		
	21,400	Support and Service	Not applicable	August 25, 2010
Tianjin, China		Research &		
	12,917	Development	Not applicable	August 1, 2011
Tokyo, Japan		Sales and Customer		
	12,600	Support	Not applicable	(4)
Umea, Sweden		Sales, Customer		
	7,000	Support and Research		
		& Development	Not applicable	August 31, 2010
Wilmington, Massachusetts		Manufacturing, Sales,	Reactive Gas	
		Customer Support,	Generation Products	
		Service and Research	and Power Delivery	
	118,000	& Development	Products	(3)

- (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 which expires January 1, 2018.
- (2) MKS leases two facilities, 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 facility is owned by MKS.
- (4) MKS leases one facility which has 6,000 square feet of space with a lease term that expires January 31, 2011. MKS owns a second facility of 6,600 square feet.

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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 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. *Submission of Matters to a Vote of Security Holders***

No matters were submitted to a vote of security holders during the fourth quarter of 2009 through the solicitation of proxies or otherwise.

**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 Market under the symbol MKSI. On February 17, 2010, the closing price of our common stock, as reported on the NASDAQ Global Market, was \$19.00 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 Market.

<b>Price Range of Common Stock</b>	<b>2009</b>		<b>2008</b>	
	<b>High</b>	<b>Low</b>	<b>High</b>	<b>Low</b>
First Quarter	\$ 16.29	\$ 11.38	\$ 22.24	\$ 15.90
Second Quarter	17.50	12.75	25.88	20.91
Third Quarter	20.60	13.28	25.00	19.00
Fourth Quarter	20.24	14.80	19.79	11.76

On February 17, 2010, we had approximately 184 stockholders of record.

**Dividend Policy**

We have never declared or paid any cash dividends on our common stock. We currently intend to retain earnings, if any, to support our growth strategy and do not anticipate paying cash dividends in the foreseeable future. Payment of future dividends, if any, will be at the discretion of our board of directors after taking into account various factors, including our financial condition, operating results and current and anticipated cash needs.

**Table of Contents****Comparative Stock Performance**

The following graph compares the cumulative total shareholder return (assuming reinvestment of dividends) from investing \$100.00 on December 31, 2004, and plotted at the last trading day of each of the fiscal years ended December 31, 2005, 2006, 2007, 2008 and 2009, in each of MKS Common Stock; an industry group index of semiconductor equipment/material manufacturers (the Hemscott Group Index), compiled by Hemscott Data (Hemscott), a business owned 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 Market under the ticker symbol MKSI.

**Performance Graph**

**COMPARISON OF 5-YEAR CUMULATIVE TOTAL RETURN  
AMONG MKS INSTRUMENTS, INC., NASDAQ MARKET INDEX AND  
SEMICONDUCTOR EQUIPMENT & MATERIALS MANUFACTURERS**

**Assumes \$100.00 invested on December 31, 2004**

**Assumes dividend reinvested**

	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
MKS Instruments, Inc.	\$ 100.00	\$ 96.44	\$ 121.73	\$ 103.18	\$ 79.73	\$ 93.80
Hemscott Group Index	\$ 100.00	\$ 105.15	\$ 118.39	\$ 112.59	\$ 59.90	\$ 86.97
NASDAQ Market Index	\$ 100.00	\$ 102.20	\$ 112.68	\$ 124.57	\$ 74.71	\$ 108.56

The information included under the heading Comparative Stock Performance in Item 5 of this Annual Report on Form 10-K is furnished and not filed and shall not be deemed to be soliciting material or subject to Regulation 14A, shall not be deemed filed for purposes of Section 18 of the Exchange Act, or otherwise subject to the liabilities of that section, nor shall it be deemed incorporated by reference in any filing under the Securities Act of 1933, as amended, or the Exchange Act.

**Table of Contents****Item 6. Selected Financial Data****Selected Consolidated Financial Data**

	2009	Years Ended December 31,			2005
		2008	2007	2006	
(In thousands, except per share data)					
<b>Statement of Operations Data</b>					
Net sales	\$ 411,406	\$ 646,994	\$ 780,487	\$ 782,801	\$ 509,294
Gross profit	138,090	259,943	331,487	338,122	200,434
Income (loss) from operations(1)	(240,499)	35,533	106,985	122,541	40,548
Net income (loss)(2)	\$ (212,659)	\$ 30,117	\$ 86,360	\$ 94,235	\$ 34,565
Net income (loss) per share:					
Basic	\$ (4.31)	\$ 0.61	\$ 1.53	\$ 1.70	\$ 0.64
Diluted	\$ (4.31)	\$ 0.59	\$ 1.51	\$ 1.68	\$ 0.63
<b>Balance Sheet Data</b>					
Cash and cash equivalents	\$ 111,009	\$ 119,261	\$ 223,968	\$ 215,208	\$ 220,573
Short-term investments	160,786	159,608	99,797	74,749	72,046
Working capital	461,581	452,793	514,235	461,541	410,060
Long-term marketable securities	4,853			2,816	857
Total assets	774,069	984,939	1,076,260	1,043,720	863,740
Short-term obligations	12,885	18,678	20,203	23,021	18,886
Long-term obligations, less current portion		396	5,871	6,113	6,152
Stockholders equity	\$ 684,933	\$ 886,698	\$ 954,009	\$ 901,219	\$ 762,843

(1) Income (loss) from operations for the years 2009, 2008, 2007 and 2006 includes stock-based compensation of \$8.8 million, \$15.3 million, \$12.9 million and \$13.1 million, respectively. Loss from operations for 2009 includes an impairment charge of \$208.5 million related to the write-down of goodwill, intangible and long-lived assets and \$5.8 million of restructuring charges. Income from operations for 2008 includes an impairment charge of \$6.1 million related to the write-down of intangible assets.

(2) Net income (loss) for the years 2009, 2008, 2007 and 2006 includes stock-based compensation of \$5.7 million, \$9.9 million, \$8.4 million and \$8.7 million, net of tax, respectively. Loss from operations 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. Income from operations for 2008 includes an impairment charge of \$3.8 million, net of tax, related to the write-down of intangible assets.

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

**Overview**

We are a leading worldwide provider of instruments, subsystems and process control solutions that measure, control, power, monitor and analyze critical parameters to improve process performance and productivity of advanced manufacturing processes.

We are managed as one operating segment. We group our products into three product groups: Instruments and Control Systems, Power and Reactive Gas Products and Vacuum Products. Our products are derived from our core competencies in pressure measurement and control, materials delivery, gas composition analysis, electrostatic charge management, 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 thin film applications including flat panel displays, LEDs, solar cells, data storage media and other advanced coatings. We also leverage our technology in other markets with advanced manufacturing applications including medical equipment, biopharm 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 2009, 2008 and 2007, we estimate that approximately 52%, 57% and 68% 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.

Reductions in demand for the products manufactured by semiconductor capital equipment manufacturers and semiconductor device manufacturers adversely affected our business in 2008 and in early 2009. The global economic uncertainty prolonged a steep downturn in semiconductor capital equipment spending and adversely affected our business, financial condition and results of operations. Our product revenues decreased 46% for 2009 compared to the prior year for these customers. However, in the second half of 2009 we saw an increase in orders and shipments compared to the first half of 2009, primarily as a result of increased demand by semiconductor capital equipment manufacturers and semiconductor device manufacturers. 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 further increased demand or any future weakness in the semiconductor capital equipment industry.

Our product revenues sold to other markets, which exclude semiconductor capital equipment and semiconductor device product applications, decreased 30% for 2009 compared to the prior year. Although the decrease in 2009 reflects the overall weakness in the global economy and the impact from tightened credit markets on our customers ability to invest in capital spending, our product revenues in these other markets showed an increase in orders and shipments in the second half of 2009 compared to the first six months of 2009.

A significant portion of our net sales is to operations in international markets. International net sales include sales by our foreign subsidiaries, but exclude direct export sales. International net sales accounted for approximately 46%, 43% and 39% of net sales for the years 2009, 2008 and 2007, respectively, a significant portion of which were sales in Japan. We expect that international net sales will continue to represent a significant percentage of our total net sales.

**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

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recognition and 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 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, we have no obligations to our customers after the date products are shipped other than pursuant to warranty obligations. In some instances, we provide installation, training, support and services to customers after the product has been shipped. 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 accounts receivable 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. 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. Due to a sharp decrease in demand during the fourth quarter of 2008, we took a charge for excess and obsolete inventory of \$6.5 million. For the twelve months ended December 31, 2008, our total charges for excess and obsolete inventory totaled \$11.4 million. Due to the continued weakness in the markets we serve, we recorded a charge for excess and obsolete inventory of \$14.4 million during the first quarter of 2009. For the twelve months ended December 31, 2009,



our total charges for excess and obsolete inventory totaled \$20.3 million.

*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.

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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.* For the past three years, we have been issuing restricted stock awards as stock-based compensation. Prior to that, we issued share-based options. Accounting for share-based compensation 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 awards, the fair value is the stock price on the date of grant. For share-based options, 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 assumptions regarding a number of complex and subjective variables. These variables include our expected stock price volatility over the term of the awards, actual and projected employee option exercise behaviors, risk free interest rate and expected dividends. 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. 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.

Certain restricted stock awards 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 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 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. Intangible assets are valued based on estimates of future cash flows and amortized over their estimated useful life. Goodwill is 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 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. To measure impairment for goodwill, we compare the fair value of our reporting units by measuring discounted cash flows to the book value of the reporting units. Goodwill would be impaired if the resulting implied fair value of goodwill was less than the recorded book value of the goodwill.

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 testing on October 31 of each fiscal year, or more often if events or circumstances indicate that there may be impairment. Reporting units are defined as operating

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segments or one level below an operating segment, referred to as a component. We have determined that our reporting units are components of our one operating segment. We allocate goodwill to reporting units at the time of acquisition and base that allocation on which reporting units will benefit from the acquired assets and liabilities. The estimated fair values of our reporting units were based on discounted cash flow models derived from internal earnings and external market forecasts. 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. Goodwill impairment is determined using a two-step process. The first step involves a comparison of the estimated fair value of a reporting unit to its carrying amount, including goodwill. In performing the first step, we determine the fair value of a reporting unit using a discounted cash flow ( DCF ) analysis. Determining fair value requires the exercise of significant judgment, including judgments about appropriate discount rates, perpetual growth rates, and the amount and timing of expected future cash flows. 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 is derived from a group of comparable companies. The cash flows employed in the DCF analysis are derived from internal earnings and forecasts and external market forecasts. If the estimated fair value of a reporting unit exceeds its carrying amount, goodwill of the reporting unit is not impaired and the second step of the impairment test is not necessary. If the carrying amount of a reporting unit exceeds its estimated fair value, then the second step of the goodwill impairment test must be performed. The second step of the goodwill impairment test compares the implied fair value of the reporting unit's goodwill with its carrying amount of goodwill to measure the amount of impairment loss, if any. The implied fair value of goodwill is determined in the same manner as the amount of goodwill recognized in a business combination, whereby the estimated fair value of the reporting unit is allocated to all of the assets and liabilities of that unit (including any unrecognized intangible assets) as if the reporting unit had been acquired in a business combination and the fair value of the reporting unit was the purchase price paid. If the carrying amount of the reporting unit's goodwill exceeds the implied fair value of that goodwill, an impairment loss is recognized in an amount equal to that excess.

Due to various factors, including market and economic conditions that contributed to a decline in our forecasted business levels, and the excess of our consolidated net assets over market capitalization for a sustained period of time, we concluded an interim assessment for impairment should be conducted for our goodwill and intangible assets as of April 30, 2009, the date of the triggering event. In the interim assessment, we determined that for certain reporting units, the carrying amount of their net assets exceeded their respective fair values, indicating that a potential impairment existed. After completing the second step of the goodwill impairment test, we recorded a goodwill impairment charge in the second quarter of 2009 of \$193.3 million. We tested the long-lived assets in question for recoverability by comparing the sum of the undiscounted cash flows attributable to each respective asset group to their carrying amounts, and determined that the carrying amounts were not recoverable. We then evaluated the fair values of each long-lived asset of the potentially impaired long-lived asset group to determine the amount of the impairment, if any. The fair value of each intangible asset was based primarily on an income approach, which is a present value technique used to measure the fair value of future cash flows produced by the asset. We estimated future cash flows over the remaining useful life of each intangible asset. As a result of this analysis, we determined that certain of our intangible assets related to completed technology, customer relationships, and patents and trademarks, had carrying values that exceeded their estimated fair values. As a result, an impairment charge of \$11.7 million was recorded in the second quarter of 2009.

As of October 31, 2009, we performed our annual impairment assessment of goodwill and determined that no additional impairment charges were required. 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.

As a result of a facility consolidation in Asia, we recorded an asset impairment charge of \$3.5 million in the second quarter of 2009 resulting from the write-down of the value of a building to its estimated fair value.

During the fourth quarter of 2008, we incurred an intangible asset impairment charge of \$6.1 million related to the acquired YDI customer technologies, relationships, and patents and trademarks. The impairment charge was primarily related to lower than previously estimated revenues from our YDI management software due to the macroeconomic environment and industry downturn.

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*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. 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 reevaluate 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.

**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 data:

	<b>Years Ended December 31,</b>		
	<b>2009</b>	<b>2008</b>	<b>2007</b>
Net sales	100.0%	100.0%	100.0%
Cost of sales	66.4	59.8	57.5
Gross profit	33.6	40.2	42.5
Research and development	13.0	12.2	9.6
Selling, general and administrative	25.9	20.2	17.0
Amortization of acquired intangible assets	1.1	1.4	2.1
Goodwill and asset impairment	50.7	0.9	
Restructuring	1.4		
Purchase of in-process technology			0.1
Income (loss) from operations	(58.5)	5.5	13.7
Interest income, net	0.4	1.0	1.9
Impairment of investments		(0.1)	(0.2)
Income (loss) before income taxes	(58.1)	6.4	15.4
Provision (benefit) for income taxes	(6.4)	1.7	4.3
Net income (loss)	(51.7)%	4.7%	11.1%

**Year Ended 2009 Compared to 2008 and 2007**

*Net Revenue*

	<b>Years Ended December 31,</b>			<b>%</b>	<b>%</b>
	<b>2009</b>	<b>2008</b>	<b>2007</b>	<b>Change</b>	<b>Change</b>
	<b>(Dollars in millions)</b>			<b>in 2009</b>	<b>in 2008</b>
Product	\$ 342.1	\$ 560.9	\$ 708.5	(39.0)	(20.8)
Service	69.3	86.1	72.0	(19.6)	19.5
Total net revenues	\$ 411.4	\$ 647.0	\$ 780.5	(36.4)	(17.1)

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Product revenues decreased \$218.7 million or 39.0% during 2009 compared to 2008 mainly due to a decrease in worldwide demand from our semiconductor capital equipment manufacturer and semiconductor device manufacturer customers. Product revenues related to these customers decreased \$144.9 million or 45.8% compared to the same period for the prior year. Revenues related to other markets decreased \$73.8 million or 30.2% compared to the same period for the prior year. Our domestic product revenues decreased by \$135.4 million or 40.7% mainly due to a high concentration of sales to the semiconductor capital equipment and device manufacturer customers. Our international product revenues decreased \$83.4 million or 36.6% during 2009. This decrease consists of a \$40.8 million decrease in product revenues from our semiconductor customers and a decrease in product revenues of \$42.6 million related to other markets.

Product revenues decreased \$147.6 million or 20.8% during 2008 compared to 2007 mainly due to a decrease in worldwide demand from our semiconductor capital equipment manufacturer and semiconductor device manufacturer customers. Product revenues related to these customers decreased \$166.3 million or 34.5% compared to the same period for the prior year. This decrease was partially offset by an \$18.7 million or 8.3% increase in revenues related to other markets, mainly solar. Our domestic product revenues decreased by \$114.8 million or 25.6% mainly due to a high concentration of sales to the semiconductor capital equipment and device manufacturer customers. Our international product revenues decreased \$32.8 million or 12.6% during 2008. This decrease consists of a \$59.0 million decrease in product revenues from our semiconductor customers offset by an increase of \$26.2 million related to other markets, mainly solar.

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 decreased \$16.8 million or 19.6% during 2009 compared to 2008 due to lower spending by our customers on these services as a result of the global economic conditions. Service revenues increased \$14.1 million or 19.5% during 2008 compared to 2007 mainly due to a higher installed base of products and increased software maintenance fees.

Total international net revenues, including product and service, were \$188.5 million for 2009 or 45.8% of net sales compared to \$281.3 million for 2008 or 43.5% of net sales and \$302.7 million or 38.8% of net sales for 2007.

*Gross Profit*

	Years Ended December 31,			% Points Change in	% Points Change in
	2009	2008	2007	2009	2008
Product	32.9%	40.7%	43.4%	(7.8)	(2.7)
Service	37.0%	36.5%	33.5%	0.5	3.0
Total gross profit percentage	33.6%	40.2%	42.5%	(6.6)	(2.3)

Gross profit on product revenues decreased by 7.8 percentage points during 2009 compared to the prior year. The decrease is mainly due to a reduction in product revenue volumes partially offset by lower overhead spending, which total 6.4 percentage points of the overall decrease. A decrease of 2.6 percentage points is a result of excess and obsolete inventory related charges. These decreases were offset by 1.0 percentage point due to a favorable product mix. The excess and obsolete inventory related charges were primarily a result of a lower inventory consumption plan in the first quarter of 2009 that we implemented in response to the weakness in the markets we serve during that



period. The decrease in overhead costs was primarily related to lower compensation expense resulting from workforce reductions associated with our restructuring plan.

Gross profit on product revenues decreased by 2.7 percentage points for 2008 compared to the prior year. The decrease consists of approximately 3.2 lower percentage points from decreased revenue volumes, 0.4 percentage points from unfavorable foreign currency fluctuations and 0.8 percentage points from additional excess and obsolete inventory charges. These decreases were offset by 1.7 percentage points from lower overhead spending due to lower sales volumes and favorable product mix.

Cost of service revenues consists primarily of costs of providing services for repair and training which includes salaries and related expenses and other fixed costs. Service gross profit for 2009 increased modestly compared to the same period for the prior year. Service gross profit increased by 3.0 percentage points for 2008 compared to 2007.

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The increase was a result of increased revenue volumes partly related to our YDI acquisition in the fourth quarter of 2007.

*Research and Development*

	Years Ended December 31,			% Change	%
	2009	2008	2007	in 2009	Change
	(Dollars in millions)				in 2008
Research and development expenses	\$ 53.5	\$ 78.5	\$ 74.6	(31.8)	5.2

Research and development expenses decreased \$25.0 million or 31.8% during 2009 compared to the prior year. The decrease includes a \$14.1 million decrease in compensation expense, a \$4.7 million reduction in spending on project materials, a \$1.7 million decrease in consulting costs and a \$4.5 million decrease in other discretionary spending. The decrease in compensation expense is mainly due to workforce reductions that took place from the third quarter of 2008 through the first quarter of 2009, as well as other temporary cost reductions.

Research and development expenses increased \$3.9 million or 5.2% during 2008 compared to the prior year, mainly due to \$3.7 million in expenses related to the YDI acquisition and \$1.0 million in other research and development costs, primarily patent legal fees. These increases were offset by \$0.8 million in lower compensation expenses as a result of decreased staffing levels.

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 hundreds of products and our research and development efforts primarily consist of a large number of projects related to these products, none of which is individually material to us. Current projects typically have a duration of 12 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 larger wafer sizes and smaller integrated circuit geometries, 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*

	<b>Years Ended December 31,</b>			<b>% Change</b>	<b>%</b>
	<b>2009</b>	<b>2008</b>	<b>2007</b>	<b>in 2009</b>	<b>Change</b>
	<b>(Dollars in millions)</b>				
Selling, general and administrative expenses	\$ 106.3	\$ 130.8	\$ 132.8	(18.7)	(1.5)

Selling, general and administrative expenses decreased \$24.5 million or 18.7% during 2009 compared to 2008. The decrease includes a \$17.1 million decrease in compensation expense, a \$3.1 million decrease in depreciation and facility related costs and a decrease of \$3.2 million in consulting, professional and other fees. The decrease in compensation expense is mainly due to workforce reductions that took place from the third quarter of 2008 through the first quarter of 2009, as well as other temporary cost reductions.

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Selling, general and administrative expenses decreased \$2.0 million or 1.5% during 2008 compared to 2007. The decrease includes a \$5.6 million decrease in consulting and professional fees and a \$2.3 million decrease in foreign exchange costs. These decreases were partially offset by a \$5.3 million increase related to the YDI acquisition and a \$1.0 million increase in facilities costs related to the relocated corporate headquarters. The decrease in consulting and professional fees was due primarily to lower IT infrastructure spending. The foreign exchange gains during 2008 were primarily attributable to the settlement of cash and intercompany loans at different foreign exchange rates in connection with a legal entity consolidation in the first quarter of 2008 between some of our foreign subsidiaries.

*Amortization of Acquired Intangible Assets*

	<b>Years Ended December 31,</b>			<b>% Change</b>	<b>% Change</b>
	<b>2009</b>	<b>2008</b>	<b>2007</b>	<b>in 2009</b>	<b>in 2008</b>
	<b>(Dollars in millions)</b>				
Amortization of acquired intangible assets	\$ 4.4	\$ 9.0	\$ 16.2	(51.0)	(44.4)

Amortization expense for 2009 decreased \$4.6 million or 51.0% as certain acquired intangible assets became fully amortized during 2008, and as a result of the write-downs of certain intangibles of \$6.1 million recorded in the fourth quarter of 2008 and \$11.7 million in the second quarter of 2009.

Amortization expense for 2008 decreased \$7.2 million or 44.4% primarily related to intangible assets from earlier acquisitions that became fully amortized during 2007.

*Goodwill and Asset Impairment Charges*

	<b>Years Ended December 31,</b>		
	<b>2009</b>	<b>2008</b>	<b>2007</b>
	<b>(Dollars in millions)</b>		
Goodwill and asset impairment charges	\$ 208.5	\$ 6.1	\$

During the second quarter of 2009, we reviewed our goodwill, intangible assets, and other long-lived assets for potential impairment as a result of market and economic conditions that contributed to a decline in our forecasted business levels, and the excess of our consolidated net assets over our market capitalization for a sustained period of time. As a result of this impairment assessment, we recorded non-cash goodwill and intangible asset impairment charges of \$193.3 million and \$11.7 million, respectively. In addition, as a result of a facility consolidation in Asia in the second quarter of 2009, we recorded a non-cash impairment charge of \$3.5 million resulting from the write-down of the value of a building to its estimated fair value.

During the fourth quarter of 2008, we incurred an intangible asset impairment charge of \$6.1 million related to customer technologies, relationships, and patents and trademarks. The impairment charge was primarily as a result of lower than previously estimated revenues from our YDI management software due to the macroeconomic environment and industry downturn. The lower estimated future cash flows were based on the amount by which the carrying value of the intangible assets exceeded the estimated fair value. Fair value was determined based on a discounted estimate of future cash flows expected to be derived from the intangible assets.

*Restructuring*

	<b>Years Ended December 31,</b>		
	<b>2009</b>	<b>2008</b>	<b>2007</b>
	<b>(Dollars in millions)</b>		
Restructuring	\$ 5.8	\$	\$

In light of the global financial crisis and its impact on our semiconductor equipment OEM customers and the other markets we serve, we initiated a restructuring plan in the first quarter of 2009. The plan included a reduction in our worldwide headcount of approximately 630 people, which represented approximately 24% of our global workforce. This resulted in restructuring charges of \$5.8 million primarily for severance and other charges associated with the reductions in workforce. As of December 31, 2009, approximately \$0.2 million of accrued

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employee related benefit costs are remaining and will be paid by June 31, 2010. The costs related to workforce reductions that took place during 2008 were immaterial.

*Interest Income, Net*

	<b>Years Ended December 31,</b>			<b>% Change</b>	<b>% Change</b>
	<b>2009</b>	<b>2008</b>	<b>2007</b>	<b>in 2009</b>	<b>in 2008</b>
	<b>(Dollars in millions)</b>				
Interest income, net	\$ 1.6	\$ 6.4	\$ 14.5	(74.5)	(55.7)

Net interest income decreased \$4.8 million during 2009 compared to the prior year mainly related to lower average rates on our investment portfolio.

Net interest income decreased \$8.1 million during 2008 compared to the prior year mainly related to lower average outstanding cash and investment balances in 2008 and lower average rates. The lower cash and investment balances were mainly a result of our stock repurchase program.

*Impairment of Investments*

	<b>Years Ended</b>		
	<b>December 31,</b>		
	<b>2009</b>	<b>2008</b>	<b>2007</b>
	<b>(Dollars in millions)</b>		
Impairment of investments	\$	\$ (0.9)	\$ (1.5)

We review our investment portfolio on a monthly basis to identify and evaluate individual investments that have indications of potential 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 our ability to hold the investment for a period of time sufficient to allow for any anticipated recovery in fair value. At December 31, 2007, we determined that declines in the fair value of two of our investments in certain commercial paper were other-than-temporary, and as a result, we recorded a \$1.5 million impairment charge to earnings.

For 2008, we recorded additional net impairment charges of \$0.9 million related to these two investments. We liquidated our position in these two impaired investments during the third quarter of 2008, one by sale and the other by a structured payment. We received a combined total of \$3.4 million from the settlement of these investments during 2008.

*Provision (Benefit) for Income Taxes*

	<b>Years Ended December 31,</b>		
	<b>2009</b>	<b>2008</b>	<b>2007</b>
	<b>(Dollars in millions)</b>		

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Provision (benefit) for income taxes	\$ (26.2)	\$ 10.9	\$ 33.7
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The provision (benefit) for income taxes in 2009, 2008 and 2007 are comprised of U.S. federal, state and foreign income taxes.

Our effective tax rate for the years 2009, 2008 and 2007 was (11.0)%, 26.6% and 28.0%, respectively. The effective tax rate in 2009 is less than the statutory rate primarily due to the benefit from the U.S. federal research and development credits, the profits of our international subsidiaries being taxed at rates lower than the U.S. statutory tax rate, discrete reserve releases and a non-deductible goodwill impairment charge of \$190.7 during the second quarter.

The effective tax rate in 2008 was less than the statutory tax rate primarily due to the benefit from the U.S. federal research and development credits, the profits of our international subsidiaries being taxed at rates lower than the U.S. statutory tax rate and discrete reserve releases.

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The effective tax rate in 2007 was less than the statutory tax rate primarily due to the benefit from the U.S. federal research and development credits and the profits of our international subsidiaries being taxed at rates lower than the U.S. statutory tax rate.

At December 31, 2009, the total amount of gross unrecognized tax benefits, which excludes interest and penalties, was approximately \$9.1 million. The decrease from December 31, 2008 was primarily attributable to the close of the 2005 and 2006 U.S. federal tax audits. At December 31, 2009, if these benefits were recognized in a future period, the timing of which is not estimable, the net unrecognized tax benefit of \$6.5 million, excluding interest and penalties, would impact our effective tax rate.

At December 31, 2008, the total amount of gross unrecognized tax benefits, which excludes interest and penalties, was approximately \$14.7 million. If these benefits were recognized in a future period, the timing of which is not estimable, the net unrecognized tax benefit of \$10.9 million, excluding interest and penalties, would impact our effective tax rate.

We accrue interest and penalties, if applicable, for any uncertain tax positions. This interest and penalty expense is a component of income tax expense. At December 31, 2009 and 2008, we had \$0.7 million and \$1.7 million, respectively, accrued for interest on net unrecognized tax benefits.

Over the next 12 months it is reasonably possible that we may recognize \$1.9 million to \$2.4 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. The following tax years, in the major tax jurisdictions noted, are open for assessment or refund: U.S. Federal: 2006 to 2008, Germany: 2001 to 2008, Korea: 2004 to 2008, Japan: 2004 to 2008, and the United Kingdom: 2007 and 2008. As of December 31, 2009 and currently, there are ongoing audits in various tax jurisdictions for various tax years.

On a quarterly basis, we evaluate both positive and negative evidence that bears on 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 2009, we increased our valuation allowance by \$0.5 million for state tax credit carryforwards as we determined it is more likely than not that the deferred tax assets related to these attributes will not be realized. In addition, in 2009, we recorded a net benefit to income tax expense of \$5.7 million, excluding interest and penalties, due to discrete reserve releases primarily related to the close of the 2005 and 2006 U.S. federal tax audits.

During 2007, we amended prior U.S. federal tax returns to reflect revised estimates for qualifying U.S. federal research and development costs that allowed us to claim additional research tax credits. As a result of this claim, we recorded a benefit to income tax expense of \$1.8 million.

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 is anticipated to expire in 2011 and is subject to meeting continued investment, employment and other requirements under the guidelines of the MITL. This tax holiday resulted in income tax savings of \$0.3 million, \$0.2 million and \$3.4 million for 2009, 2008 and 2007, respectively.

## **Liquidity and Capital Resources**

Cash, cash equivalents and short-term marketable securities totaled \$271.8 million at December 31, 2009 compared to \$278.9 million at December 31, 2008. This decrease was mainly due to \$4.2 million of cash used to purchase plant and equipment, a decrease of \$4.5 million of cash for net repayments of short-term borrowings and a \$5.9 million decrease in net purchases of available for sale investments. These decreases were offset by an increase of \$7.4 million



of cash provided by operations. 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 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.

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Net cash provided by operating activities was \$7.4 million for 2009 and resulted mainly from a net loss of \$212.7 million, a \$28.0 million increase in operating assets and a \$4.7 million decrease in operating liabilities, offset by a \$20.3 million provision for excess or obsolete inventory, non-cash charges of \$208.5 million for impairment of goodwill, intangibles and other long-lived assets, \$18.8 million for depreciation and amortization and \$11.3 million for stock-based compensation and related taxes. The increase in operating assets consisted of a \$9.9 million increase in accounts receivable as a result of higher sales in the last two months of 2009 compared to 2008 and a \$15.9 million increase in income taxes receivable as we expect to receive an income tax refund due to current operating losses. The decrease in operating liabilities is mainly caused by a decrease of \$5.0 million in non-current income taxes payable, a decrease of \$2.3 million in accrued compensation and a decrease of \$1.7 million in the product warranty reserve. The decrease in accrued compensation is primarily as a result of the workforce reduction and mandatory time-off. The decrease in the product warranty reserve is primarily as a result of lower product revenues.

Net cash provided by operating activities was \$89.8 million for 2008 and resulted mainly from net income of \$30.1 million, a \$23.9 million decrease in operating assets, non-cash charges of \$30.5 million for depreciation, amortization and impairments, a \$12.0 million charge for stock-based compensation and related taxes, a decrease in net operating liabilities of \$13.6 million, an \$11.4 million provision for excess or obsolete inventory and a deferred tax benefit of \$5.0 million. The decrease in operating assets consisted of a \$23.6 million decrease in accounts receivable as a result of lower sales in the last two months of 2008 compared to 2007 and a \$7.1 million decrease in inventories due to lower ordering levels partially offset by a \$3.0 million increase in income taxes receivable. The decrease in operating liabilities was mainly caused by a decrease of \$9.2 million in accounts payable primarily as a result of lower inventory procurement activities and a decrease of \$4.4 million in accrued expenses and other current liabilities primarily as a result of lower accrued compensation.

Net cash used in investing activities was \$9.6 million for 2009 and resulted primarily from the net purchases of \$5.9 million of available-for-sale investments and purchases of plant and equipment of \$4.2 million. The \$4.2 million increase in plant and equipment was primarily for the purchase of calibration and test equipment. Net cash used in investing activities was \$74.1 million for 2008 and resulted primarily from the net purchases of \$60.7 million of available-for-sale investments and purchases of plant and equipment of \$13.5 million. The purchases of plant and equipment related to leasehold improvements in Japan to facilitate a consolidation of facilities, IT hardware to reduce system operating costs in the future and test equipment.

Net cash used in financing activities was \$8.0 million for 2009 and consisted primarily of \$4.5 million in net repayment of short-term borrowings and \$2.5 million related to excess tax benefits from stock-based compensation. Net cash used in financing activities of \$114.8 million for 2008, resulted from \$115.7 million used to repurchase common stock, \$4.8 million in net repayment of short-term borrowings and \$6.3 million in principal payments on capital lease obligations and long-term debt, primarily to retire a \$5.0 million industrial development revenue bond, offset by \$8.9 million in proceeds from the exercise of stock options and purchases under our employee stock purchase plan.

On March 18, 2009, we entered into an amendment to the Optional Advance Demand Grid Note dated August 3, 2004 (the Grid Note ). The unsecured short-term LIBOR-based loan agreement with HSBC Bank USA is utilized primarily by our Japanese subsidiary for short-term liquidity purposes. The credit line, as amended: (a) decreased the maximum amount of the note from \$35.0 million to \$5.0 million, (b) decreased the limit for standby letters of credit under the note from \$0.8 million to \$0.7 million, and (c) established an annual facility fee of 0.0375% of the maximum amount of the note. We believe the reduced amount of the note more accurately reflects our anticipated utilization of this line, and minimizes the cost of the new facility fee. At December 31, 2008, total outstanding borrowings under this credit line were \$1.1 million at an interest rate of 1.65%. There were no outstanding borrowings under this line of credit at December 31, 2009.

On January 31, 2010, we entered into an amendment to the Grid Note, as amended, to extend its maturity date to July 31, 2010.

Additionally, our Japanese subsidiary has lines of credit and short-term borrowing arrangements with two financial institutions which provide for aggregate borrowings as of December 31, 2009 of up to an equivalent of \$26.9 million U.S. dollars, which generally expire and are renewed at three month intervals. At December 31, 2009

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and 2008, total borrowings outstanding under these arrangements were \$12.9 million and \$16.7 million, respectively, at interest rates ranging from 0.76% to 1.48% at December 31, 2009 and at interest rates ranging from 1.20% to 1.68% at December 31, 2008.

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, 2009, our maximum exposure as a result of these standby letters of credit and performance bonds was approximately \$1.0 million.

Future payments due under debt, lease and purchase commitment obligations as of December 31, 2009 are as follows:

Contractual Obligations (In thousands)	Total	Payment Due By Period				Other
		Less than 1 Year	1-3 years	3-5 years	After 5 years	
Operating lease obligations	\$ 30,120	\$ 7,794	\$ 11,160	\$ 5,928	\$ 5,238	\$
Purchase obligations(1)	137,840	111,834	11,731	10,457	3,818	
Other long-term liabilities reflected on the Balance Sheet under GAAP(2)	17,836	98	18		10,947	6,773
Contingent purchase consideration in connection with acquisitions(3)	5,000	5,000				
<b>Total</b>	<b>\$ 190,796</b>	<b>\$ 124,726</b>	<b>\$ 22,909</b>	<b>\$ 16,385</b>	<b>\$ 20,003</b>	<b>\$ 6,773</b>

- (1) The majority of the outstanding inventory purchase commitments of approximately \$98.4 million at December 31, 2009 are to be purchased within the next 12 months. Additionally, approximately \$32.7 million represents a commitment, as of December 31, 2009, to multiple parties engaged to provide certain computer equipment, IT network services and IT support. These contracts are for periods ranging from two to six years and the actual timing of payments and amounts may vary based on equipment deployment dates. However, the amount noted represents our expected obligation based on anticipated deployment.
- (2) The majority of this balance relates to income taxes payable and accrued compensation for certain executives related to supplemental retirement benefits.
- (3) In connection with the YDI acquisition, additional purchase consideration may be payable upon the achievement of specific annual and cumulative revenue targets for 2010.

We believe that our working capital, together with the cash anticipated to be generated from operations, will be sufficient to satisfy our estimated working capital and planned capital expenditure requirements through at least the next 12 months.

On February 12, 2007, our Board of Directors approved a share repurchase program (the Program) for the repurchase of up to \$300.0 million of our outstanding stock over the next two years. The repurchases were made from time to time on the open market or through privately negotiated transactions. The timing and amount of any shares repurchased under the Program were dependent upon a variety of factors, including price, corporate and regulatory requirements, capital availability, and other market conditions. During 2007, we repurchased 4,779,000 shares of common stock for \$101.2 million for an average price of \$21.17 per share. During 2008, we repurchased

5,667,000 shares of common stock for \$115.7 million for an average price of \$20.42 per share. The Program expired on February 11, 2009 with no additional share repurchases in 2009. In total, we repurchased 10,446,000 shares of common stock for \$216.9 million for an average price of \$20.76 per share.

### **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.

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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 European 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 a component of product cost, 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 immediately 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 \$48.7 million outstanding at December 31, 2009 of which \$29.0 million were outstanding to exchange Japanese yen for U.S. dollars. We had forward exchange contracts with notional amounts totaling \$30.6 million outstanding at December 31, 2008 of which \$17.3 million were outstanding to exchange Japanese yen for U.S. dollars.

As of December 31, 2009, the unrealized gain that will be reclassified from accumulated other comprehensive income to cost of products over the next twelve months is \$0.8 million. The ineffective portions of the derivatives are recorded in selling, general and administrative costs and were immaterial in 2009, 2008 and 2007, respectively.

We also 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 immaterial in 2009, a gain of \$2.7 million in 2008 and immaterial in 2007.

Realized and unrealized gains and losses on forward exchange contracts that do not qualify for hedge accounting are recognized immediately 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 cost of products, which totaled a gain of \$1.1 million, losses of \$1.2 million and gains of \$1.3 million for the years 2009, 2008 and 2007, 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 October 2009, the Financial Accounting Standards Board ( FASB ) issued guidance that establishes the accounting and reporting provisions for arrangements including multiple revenue-generating activities. This

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guidance provides amendments to the criteria for separating deliverables, measuring and allocating arrangement consideration to one or more units of accounting. The amendments in this guidance also establish a selling price hierarchy for determining the selling price of a deliverable. Significantly enhanced disclosures are also required to provide information about a vendor's multiple-deliverable revenue arrangements, including information about the nature and terms, significant deliverables, and its performance within arrangements. The amendments also require providing information about the significant judgments made and changes to those judgments and about how the application of the relative selling-price method affects the timing or amount of revenue recognition. The amendments in this guidance are effective prospectively for revenue arrangements entered into or materially modified in the fiscal years beginning on or after June 15, 2010. Early application is permitted. We are currently evaluating the potential impact of this new guidance on our consolidated financial statements.

In October 2009, the FASB issued guidance that changes the accounting model for revenue arrangements that include both tangible products and software elements that are essential to the functionality, and scopes these products out of current software revenue guidance. The new guidance will include factors to help companies determine what software elements are considered essential to the functionality. The amendments will now subject software-enabled products to other revenue guidance and disclosure requirements, such as guidance surrounding revenue arrangements with multiple-deliverables. The amendments in this guidance are effective prospectively for revenue arrangements entered into or materially modified in the fiscal years beginning on or after June 15, 2010. Early application is permitted. We are currently evaluating the potential impact of this new guidance 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 and long-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.

There were forward exchange contracts with notional amounts totaling \$48.7 million and \$30.6 million outstanding at December 31, 2009 and 2008, respectively. Of such forward exchange contracts, \$29.0 million and \$17.3 million, respectively, were outstanding to exchange Japanese yen for U.S. dollars with the remaining amounts relating to contracts to exchange the British pound, South Korean won and Euro 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 December 31, 2009 and 2008 would be \$4.9 million and \$3.1 million, respectively. The potential losses in 2009 and 2008 were estimated by calculating the fair value of the forward exchange contracts at December 31, 2009 and 2008 and comparing that with those calculated using the hypothetical forward currency exchange rates.

At December 31, 2009 and 2008 we had \$1.3 million and \$0.6 million, respectively, in loans outstanding between subsidiaries that were subject to foreign exchange exposure. At December 31, 2009 and 2008 a hypothetical 10% adverse change in foreign exchange rates would result in a net transaction loss of \$0.1 million and \$0.1 million, respectively, which would be recorded in current earnings.

At December 31, 2009 and 2008, we had \$12.9 million and \$17.8 million, respectively, related to short-term borrowings denominated in Japanese yen. The carrying value of these short-term borrowings approximates fair value



due to their short period to maturity. Assuming a hypothetical 10% adverse change in the Japanese yen to U.S. dollar year-end exchange rate, the fair value of these short-term borrowings would increase by \$1.4 million and \$2.0 million, respectively. The potential increase in fair value was estimated by calculating the fair value of the short-term borrowings at December 31, 2009 and 2008, respectively, and comparing that with the fair value using the hypothetical year-end exchange rate.

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***Interest Rate Risk***

Due to its short-term duration, the fair value of our cash and investment portfolio at December 31, 2009 and 2008 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 short-term borrowings with variable interest rates, primarily denominated in Japanese yen. At December 31, 2009 and 2008, we had \$12.9 million and \$17.8 million, respectively, outstanding related to these short-term borrowings at interest rates ranging from 0.76% to 1.48% and 1.2% to 1.68%, respectively. Due to the short-term nature and amount of this short-term debt, a hypothetical change of 10% in interest rates would not have a material effect on our near-term financial condition or results of operations.

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**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 accompanying 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, 2009 and 2008, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2009 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, 2009, 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 the accompanying 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.

/s/ PricewaterhouseCoopers LLP

Boston, Massachusetts

February 26, 2010

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**MKS INSTRUMENTS, INC.**  
**CONSOLIDATED BALANCE SHEETS**

	December 31,	
	2009	2008
	(In thousands, except share data)	
<b>ASSETS</b>		
Current assets:		
Cash and cash equivalents	\$ 111,009	\$ 119,261
Short-term investments	160,786	159,608
Trade accounts receivable, net of allowances of \$2,415 and \$2,148 at December 31, 2009 and 2008, respectively	94,215	85,350
Inventories	118,004	131,519
Income taxes receivable	14,476	4,057
Deferred income taxes	21,505	19,058
Other current assets	12,886	9,875
<b>Total current assets</b>	<b>532,881</b>	<b>528,728</b>
Property, plant and equipment, net	67,196	82,017
Goodwill	144,511	337,765
Acquired intangible assets, net	4,963	21,069
Other assets	24,518	15,360
<b>Total assets</b>	<b>\$ 774,069</b>	<b>\$ 984,939</b>
<b>LIABILITIES AND STOCKHOLDERS EQUITY</b>		
Current liabilities:		
Short-term borrowings	\$ 12,885	\$ 17,808
Current portion of capital lease obligations		870
Accounts payable	26,292	19,320
Accrued compensation	10,658	13,768
Other current liabilities	21,465	24,169
<b>Total current liabilities</b>	<b>71,300</b>	<b>75,935</b>
Long-term portion of capital lease obligations		396
Other liabilities	17,836	21,910
Commitments and contingencies (Note 20)		
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; 49,514,941 and 49,275,975 shares issued and outstanding at December 31, 2009 and 2008,	113	113

respectively		
Additional paid-in capital	645,411	637,938
Retained earnings	28,769	241,428
Accumulated other comprehensive income	10,640	7,219
Total stockholders' equity	684,933	886,698
Total liabilities and stockholders' equity	\$ 774,069	\$ 984,939

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

**Table of Contents****MKS INSTRUMENTS, INC.****CONSOLIDATED STATEMENTS OF OPERATIONS**

	<b>Years Ended December 31,</b>		
	<b>2009</b>	<b>2008</b>	<b>2007</b>
	<b>(In thousands, except per share data)</b>		
Net Revenues:			
Products	\$ 342,145	\$ 560,888	\$ 708,456
Services	69,261	86,106	72,031
Total net revenues	411,406	646,994	780,487
Cost of revenues:			
Cost of products	229,686	332,366	401,119
Cost of services	43,630	54,685	47,881
Total cost of revenues	273,316	387,051	449,000
Gross profit	138,090	259,943	331,487
Research and development	53,543	78,540	74,628
Selling, general and administrative	106,330	130,800	132,791
Amortization of acquired intangible assets	4,407	9,001	16,183
Purchase of in-process technology			900
Goodwill and asset impairment charges	208,497	6,069	
Restructuring	5,812		
Income (loss) from operations	(240,499)	35,533	106,985
Interest income, net	1,641	6,425	14,488
Impairment of investments		(906)	(1,457)
Income (loss) before income taxes	(238,858)	41,052	120,016
Provision (benefit) for income taxes	(26,199)	10,935	33,656
Net income (loss)	\$ (212,659)	\$ 30,117	\$ 86,360
Net income (loss) per share:			
Basic	\$ (4.31)	\$ 0.61	\$ 1.53
Diluted	\$ (4.31)	\$ 0.59	\$ 1.51
Weighted average common shares outstanding:			
Basic	49,318	49,717	56,349
Diluted	49,318	50,754	57,173

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



Table of Contents**MKS INSTRUMENTS, INC.****CONSOLIDATED STATEMENTS OF STOCKHOLDERS EQUITY****For The Years Ended December 31, 2009, 2008 and 2007**

	Common Stock		Additional Paid-In Capital	Retained Earnings	Accumulated	Comprehensive Income (loss)	Comprehensive Income (loss)	Total Stockholders Equity
	Shares	Amount			Other			
	(In thousands, except share data)							
Balance at December 31, 2006	56,671,625	\$ 113	\$ 680,164	\$ 210,877	\$ 10,065			\$ 901,219
Net issuance under stock-based plans	2,368,954		45,266					45,266
Stock-based compensation			12,918					12,918
Tax benefit from stock-based plans			5,712					5,712
Stock repurchases	(4,778,632)		(59,165)	(41,993)				(101,158)
Other			570					570
Comprehensive income (net of tax):								
Net income				86,360			86,360	86,360
Other comprehensive income:								
Changes in value of financial instruments designated as cash flow hedges and unrealized loss on investments						(622)	(622)	(622)
Foreign currency translation adjustment						3,744	3,744	3,744
Comprehensive income							\$ 89,482	
Balance at December 31, 2007	54,261,947	\$ 113	\$ 685,465	\$ 255,244	\$ 13,187			\$ 954,009
Net issuance under stock-based plans	681,493		8,861					8,861
Stock-based compensation			15,176					15,176
Tax benefit from stock-based plans			226					226
Stock repurchases	(5,667,465)		(71,790)	(43,933)				(115,723)
Comprehensive income (net of tax):								

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Net income				30,117			30,117	30,117
Other comprehensive income:								
Changes in value of financial instruments designated as cash flow hedges and unrealized gain on investments						203	203	203
Foreign currency translation adjustment						(6,171)	(6,171)	(6,171)
Comprehensive income							\$ 24,149	
Balance at December 31, 2008	49,275,975	\$ 113	\$ 637,938	\$ 241,428	\$ 7,219			\$ 886,698
Net issuance under stock-based plans	238,966		(114)					(114)
Stock-based compensation			8,845					8,845
Tax expense from stock-based plans			(1,258)					(1,258)
Comprehensive income (loss) (net of tax):								
Net loss						(212,659)	(212,659)	(212,659)
Other comprehensive income (loss):								
Changes in value of financial instruments designated as cash flow hedges and unrealized gain on investments						359	359	359
Foreign currency translation adjustment						3,062	3,062	3,062
Comprehensive loss							\$ (209,238)	
Balance at December 31, 2009	49,514,941	\$ 113	\$ 645,411	\$ 28,769	\$ 10,640			\$ 684,933

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

**Table of Contents****MKS INSTRUMENTS, INC.****CONSOLIDATED STATEMENTS OF CASH FLOWS**

	<b>Years Ended December 31,</b>		
	<b>2009</b>	<b>2008</b>	<b>2007</b>
	<b>(In thousands)</b>		
Cash flows from operating activities:			
Net income (loss)	\$ (212,659)	\$ 30,117	\$ 86,360
Adjustments to reconcile net income (loss) to net cash provided by operating activities:			
Depreciation and amortization	18,759	23,524	30,644
Stock-based compensation	8,845	15,274	12,918
Excess tax benefit (expense) from stock-based compensation	2,460	(3,250)	(2,688)
Deferred income taxes	(7,202)	(4,975)	(10,283)
Provision for excess and obsolete inventory	20,335	11,401	6,401
Impairment of goodwill	193,255		
Impairment of intangibles and other long-lived assets	15,242	6,069	
Impairment of investments		906	1,457
Other	1,003	394	888
Changes in operating assets and liabilities, net of effects of businesses acquired:			
Trade accounts receivable	(9,935)	23,565	18,263
Inventories	(4,677)	7,088	(5,195)
Income taxes receivable	(15,880)	(3,047)	5,116
Other current assets	2,511	(3,730)	708
Accrued expenses and other current liabilities	(10,792)	(4,384)	(6,615)
Accounts payable	6,103	(9,175)	(18,855)
Net cash provided by operating activities	7,368	89,777	119,119
Cash flows from investing activities:			
Acquisitions of businesses, net of cash acquired			(24,021)
Purchases of short-term and long-term available-for-sale investments	(254,057)	(324,375)	(183,927)
Maturities and sales of short-term and long-term available-for-sale investments	248,147	263,715	160,269
Purchases of property, plant and equipment	(4,179)	(13,457)	(15,090)
Proceeds from sale of assets	128	336	370
Other	333	(273)	1,451
Net cash used in investing activities	(9,628)	(74,054)	(60,948)
Cash flows from financing activities:			
Proceeds from short-term borrowings	162,361	155,922	137,656
Payments on short-term borrowings	(166,847)	(160,771)	(141,749)

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Repurchases of common stock		(115,723)	(101,158)
Payments on long-term debt		(5,000)	
Principal payments on capital lease obligations	(961)	(1,330)	(1,426)
Proceeds (payments) from exercise of stock options and employee stock purchase plan	(114)	8,861	45,266
Excess tax benefit (expense) from stock-based compensation	(2,460)	3,250	2,688
Net cash used in financing activities	(8,021)	(114,791)	(58,723)
Effect of exchange rate changes on cash and cash equivalents	2,029	(5,639)	9,312
Increase (decrease) in cash and cash equivalents	(8,252)	(104,707)	8,760
Cash and cash equivalents at beginning of year	119,261	223,968	215,208
Cash and cash equivalents at end of year	\$ 111,009	\$ 119,261	\$ 223,968
Supplemental disclosure of cash flow information:			
Cash paid during the year:			
Interest	\$ 187	\$ 649	\$ 830
Income taxes	\$ 10,038	\$ 11,625	\$ 27,116
Non-cash financing activities:			
Equipment capital leases	\$ 194	\$ 489	\$ 1,244

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

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**MKS INSTRUMENTS, INC.**

**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS**  
**(Tables in thousands, except share and per share data)**

**1) Description of Business**

MKS Instruments, Inc. ( MKS or the Company ) was founded in 1961 and is a leading worldwide provider of instruments, subsystems and process control solutions that measure, control, power, monitor and analyze critical parameters to improve process performance and productivity of advanced manufacturing processes. MKS is managed as one operating segment which is organized around three product groups: Instruments and Control Systems, Power and Reactive Gas Products and Vacuum Products. MKS products are derived from its core competencies in pressure measurement and control, materials delivery, gas composition analysis, electrostatic charge management, control and information technology, power and reactive gas generation and vacuum technology.

**2) Summary of Significant Accounting Policies**

**Basis of Presentation**

The consolidated financial statements include the accounts of MKS Instruments, Inc. and its wholly owned subsidiaries (collectively, the Company ). 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. 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, stock-based compensation, inventory, intangible assets, goodwill, and other long-lived assets, acquisition expenses, income taxes and investments. Management bases its estimates and judgments on historical experience and on various other factors that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

**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 defers the fair value related to any undelivered elements until the undelivered element is delivered. Fair value is the price charged when the element is sold separately. 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.

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**MKS INSTRUMENTS, INC.**

**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)**  
**(Tables in thousands, except share and per share data)**

**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 12 to 30 months.

**Advertising Costs**

Advertising costs are expensed as incurred and were immaterial in 2009, 2008 and 2007.

**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 awards, the fair value is the fair value on the date of grant. The Company has estimated the fair value of share-based options 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, actual and projected employee option exercise behaviors, 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. 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.

**Net Income Per Share**

Basic earnings per share is based on the weighted average number of common shares outstanding, and diluted earnings per share is based on the weighted average number of common shares outstanding and all dilutive potential common equivalent shares outstanding. The dilutive effect of options and restricted stock 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. Unrealized gains and losses on securities classified as available-for-sale are included in accumulated other comprehensive income in consolidated stockholders' equity.

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.



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**MKS INSTRUMENTS, INC.**

**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)**  
**(Tables in thousands, except share and per share data)**

**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 has borrowings. The Company maintains investments primarily in U.S. Treasury and government agency securities and corporate debt securities, with minimum rating of A1-P1 or AAA. 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.

**Inventories**

The Company values its inventory at the lower of cost (first-in, first-out method) or market. 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 ( ERP ) 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 entities accounted for using the purchase method of accounting are estimated by management based on the fair value of assets acquired. These include acquired customer lists, technology, patents, trade name and covenants not to compete. Intangible assets are amortized from two to eight years on a straight-line basis which represents the estimated periods of benefit. During 2009 and 2008, the Company recorded impairments of indefinite-lived intangible assets of \$11,699,000 and \$6,069,000, respectively.

**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 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 has determined that its reporting units are components of its one operating segment. The Company assesses goodwill for impairment on an annual basis on October 31 or more frequently when events and circumstances occur indicating that the recorded goodwill may be impaired. If the book value of a reporting unit exceeds its fair value,

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**MKS INSTRUMENTS, INC.**

**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)**  
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the implied fair value of goodwill is compared with the carrying amount of goodwill. If the carrying amount of goodwill exceeds the implied fair value, an impairment loss is recorded equal to that excess. During 2009, the Company recorded a goodwill impairment charge of \$193,254,000.

**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 book value, impairment exists. The impairment is measured as the difference between the book 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. During 2009, the Company recorded an impairment charge of \$3,544,000 resulting from the write-down of the value of a building to its estimated fair value.

**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 consolidated statements of operations.

**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, operating loss and tax credit carryforwards. On a quarterly basis, the Company evaluates both the positive and negative evidence that bears on 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 valuation allowance, an expense will be recorded within the provision for income taxes line on the consolidated statements of operations. As of December 31, 2007, the Company had a valuation allowance of \$534,000 primarily related to state tax credit carryforwards. During 2008, the Company increased the valuation allowance by \$3,303,000 for state tax credit carryforwards and \$816,000 for U.S. federal capital loss carryforwards, as the Company has determined it is more likely than not that both of these tax attributes will not be realized. As a result, the valuation allowance was \$4,653,000 at December 31, 2008. During 2009, the Company increased the valuation allowance by \$548,000 primarily for state tax credit carryforwards, as the Company has determined it is more likely than not that this tax attribute will not be realized. As a result, the valuation

allowance is \$5,201,000 at December 31, 2009.

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

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**MKS INSTRUMENTS, INC.**

**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)**  
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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.

**New Accounting Pronouncements**

In October 2009, the Financial Accounting Standards Board ( FASB ) issued guidance that establishes new accounting and reporting provisions for arrangements including multiple revenue-generating activities. This guidance provides amendments to the criteria for separating deliverables, measuring and allocating arrangement consideration to one or more units of accounting. The amendments in this guidance also establish a selling price hierarchy for determining the selling price of a deliverable. Significantly enhanced disclosures are also required to provide information about a vendor's multiple-deliverable revenue arrangements, including information about the nature and terms, significant deliverables, and its performance within arrangements. The amendments also require providing information about the significant judgments made and changes to those judgments and about how the application of the relative selling-price method effects the timing or amount of revenue recognition. The amendments in this guidance are effective prospectively for revenue arrangements entered into or materially modified in the fiscal years beginning on or after June 15, 2010. Early application is permitted. The Company is currently evaluating the potential impact of this new guidance on its consolidated financial statements.

In October 2009, the FASB issued guidance that changes the accounting model for revenue arrangements that include both tangible products and software elements that are essential to the functionality, and scopes these products out of current software revenue guidance. The new guidance will include factors to help companies determine what software elements are considered essential to the functionality. The amendments will now subject software-enabled products to other revenue guidance and disclosure requirements, such as guidance surrounding revenue arrangements with multiple-deliverables. The amendments in this guidance are effective prospectively for revenue arrangements entered into or materially modified in the fiscal years beginning on or after June 15, 2010. Early application is permitted. The Company is currently evaluating the potential impact of this new guidance on its consolidated financial statements.

In June 2009, the FASB issued guidance which changed the referencing of financial standards and the Hierarchy of Generally Accepted Accounting Principles and is effective for interim or annual financial periods ending after September 15, 2009. The Company adopted the provisions of the new guidance in the third quarter of 2009 and updated its disclosures.

In May 2009, the FASB issued guidance that modified the definition of what qualifies as a subsequent event—those events or transactions that occur following the balance sheet date, but before the financial statements are issued, or are available to be issued—and required companies to disclose the date through which it has evaluated subsequent events and the basis for determining that date. The Company adopted the provisions of the new guidance in the second quarter of 2009.

In April 2009, the FASB issued additional guidance for estimating fair value when the volume and level of activity for the asset or liability being measured have significantly decreased and identifying circumstances that indicate a transaction is not orderly. The Company adopted the new guidance in the second quarter of 2009 and the adoption did not have an impact on the Company's financial position, results of operations, or cash flows.

In April 2009, the FASB amended the existing guidance on the initial recognition and measurement, subsequent measurement and accounting, and disclosures for assets and liabilities arising from contingencies in business combinations. The new guidance eliminates the distinction between contractual and non-contractual contingencies, including the initial recognition and measurement criteria and instead carries forward most of the previous provisions for acquired contingencies. The Company adopted the new guidance effective as of January 1,

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

2009 and the adoption did not have an impact on the Company's financial position, results of operations, or cash flows.

**3) Cash and Cash Equivalents and Investments**

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. During this review, as of December 31, 2007, the Company determined that declines in the fair value of two of its investments in certain commercial paper were other-than-temporary. This commercial paper was issued by two structured investment vehicles (SIVs) that entered into receivership during the fourth quarter of 2007 and failed to make payment at maturity. Due to the mortgage-related assets held by these issuers, they were exposed to adverse market conditions that affected the value of their collateral and their ability to access short-term funding. These investments were not trading on active markets, and therefore, had no readily determinable market value. As a result of the Company's evaluation as of December 31, 2007, it recorded a \$1,457,000 impairment charge to earnings based upon the Company receiving contemporaneous quotes from established third-party pricing services. This resulted in a new cost basis for the securities of \$4,275,000 at December 31, 2007.

For 2008, the Company recorded additional net impairment charges of \$906,000 related to these two investments. The Company liquidated its position in these two investments during the third quarter of 2008, one by sale and the other by a structured payment. The Company received a combined total of \$3,369,000 from the settlement of these investments during 2008.

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

	<b>Years Ended December 31,</b>	
	<b>2009</b>	<b>2008</b>
Federal government and government agency obligations	\$ 150,648	\$ 137,981
Commercial paper and corporate obligations	5,842	21,627
Money market funds	4,296	
	<b>\$ 160,786</b>	<b>\$ 159,608</b>

The fair value of long-term available-for-sale investments (included in Other assets) with maturities or estimated lives of one to five years consists of the following:

	<b>Years Ended December 31,</b>	
	<b>2009</b>	<b>2008</b>
Federal government and government agency obligations	\$ 4,853	\$



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The following table shows the gross unrealized gains and (losses) aggregated by investment category:

	<b>Cost</b>	<b>Gross Unrealized Gains</b>	<b>Gross Unrealized (Losses)</b>	<b>Estimated Fair Value</b>
<b>As of December 31, 2009:</b>				
Federal government and government agency obligations	\$ 147,354	\$ 75	\$ (82)	\$ 147,347
Commercial paper and corporate obligations	2,142	1	(200)	1,943
	\$ 149,496	\$ 76	\$ (282)	\$ 149,290
<b>As of December 31, 2008:</b>				
Federal government and government agency obligations	\$ 126,106	\$ 373	\$ (2)	\$ 126,477
Commercial paper and corporate obligations	2,993	87	(783)	2,297
	\$ 129,099	\$ 460	\$ (785)	\$ 128,774

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 were not material in 2009, 2008 and 2007.

**4) Fair Value Measurements**

In accordance with the provisions of fair value accounting, a fair value measurement assumes that a 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 and liability occur in sufficient frequency and volume to provide pricing information on an ongoing basis. Level 1 assets and liabilities include debt and equity securities and derivative contracts that are traded in an active exchange market.
- 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 and derivative contracts whose value is determined using a pricing model with inputs that are observable in the market or can be derived principally from or corroborated by observable market data. This category generally includes certain U.S. Government and Agency mortgage-backed debt securities, corporate debt securities, and non-exchange traded derivative contracts.

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.

Table of Contents**MKS INSTRUMENTS, INC.****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)**  
**(Tables 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, 2009, are summarized as follows:

Description	December 31, 2009	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)
Assets				
Cash equivalents	\$ 6,939	\$ 6,939	\$	\$
Available-for-sale securities	165,639	165,639		
Derivatives currency forward contracts	1,505		1,505	
Total assets	\$ 174,083	\$ 172,578	\$ 1,505	\$
Liabilities				
Derivatives currency forward contracts	\$ 423	\$	\$ 423	\$

Assets and liabilities of the Company measured at fair value on a recurring basis as of December 31, 2008, are summarized as follows:

Description	December 31, 2008	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)
Assets				
Cash equivalents	\$ 13,550	\$ 13,550	\$	\$
Available-for-sale securities	159,608	159,608		
Derivatives currency forward contracts	2,645		2,645	
Total assets	\$ 175,803	\$ 173,158	\$ 2,645	\$

Liabilities

Derivatives	currency forward contracts	\$	2,137	\$		\$	2,137	\$
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**Cash Equivalents**

As of December 31, 2009 and December 31, 2008, cash equivalents consisted of Federal Government and Government Agency obligations, commercial paper, and corporate obligations, classified within Level 1 of the fair value hierarchy because they are valued using quoted market prices in active markets.

**Available-For-Sale Securities**

As of December 31, 2009 and December 31, 2008, available-for-sale securities consisted of Federal Government and Government Agency obligations, commercial paper, corporate obligations and money market funds classified within Level 1 of the fair value hierarchy because they are valued using quoted market prices in active markets.

**Table of Contents****MKS INSTRUMENTS, INC.****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)**  
**(Tables in thousands, except share and per share data)****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 Company's forward foreign currency exchange contracts are valued using broker quotations, or market transactions in either the listed or over-the-counter markets. As such, these derivative instruments are classified within Level 2.

The table below presents a reconciliation for all assets and liabilities measured at fair value on a recurring basis using significant unobservable inputs within Level 3 for the period from January 1, 2008 to December 31, 2008. There were no Level 3 investments at December 31, 2009 or December 31, 2008.

	<b>Fair Value Measurements Using Significant Unobservable Inputs (Level 3) Available-For-Sale Securities</b>	
Beginning balance at January 1, 2008	\$	4,275
Total losses (realized)		
Included in earnings (or changes in net assets)		(1,412)
Settlements		(490)
Transfers out of Level 3		(2,373)
Ending balance at December 31, 2008	\$	
The amount of total gains or losses for the period included in earnings (or changes in net assets) attributable to the change in unrealized gains or losses relating to assets still held at the reporting date	\$	

Assets and liabilities of the Company measured at fair value on a non-recurring basis as of and for the year ended December 31, 2009 are summarized as follows:

<b>Fair Value Measurements at Reporting Date Using</b>		
<b>Quoted Prices in Active Markets for</b>	<b>Significant Other</b>	<b>Significant Unobservable</b>

<b>Description</b>	<b>December 31, 2009</b>	<b>Identical Assets (Level 1)</b>	<b>Observable Inputs (Level 2)</b>	<b>Inputs (Level 3)</b>	<b>Total Losses</b>
Assets					
Goodwill	\$ 144,511	\$	\$	\$ 144,511	\$ 193,254
Definite-lived intangible assets	4,963			4,963	11,699
Long-lived assets held and used	1,297		1,297		3,544
Total assets	\$ 150,771	\$	\$ 1,297	\$ 149,474	\$ 208,497

In accordance with the provisions of accounting for goodwill and other intangible assets, goodwill with a carrying amount of \$337,765,000 was written down to its implied fair value of \$144,511,000, resulting in an impairment charge of \$193,254,000, which was included in earnings in the second quarter of 2009. In accordance with the provisions of accounting for the impairment of long-lived assets, definite-lived intangible assets with a carrying amount of \$18,866,000, were written down to their fair value of \$7,167,000, resulting in an impairment charge of \$11,699,000, which was included in earnings in the second quarter of 2009. Refer to Note 8 for the

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information and description used to develop the inputs and the fair value determination of the goodwill and other intangible assets.

The long-lived asset held and used with a carrying amount of \$4,841,000 was written down to its fair value of \$1,297,000, resulting in a loss of \$3,544,000, which was included in earnings in the second quarter of 2009.

Assets and liabilities of the Company measured at fair value on a non-recurring basis as of and for the twelve months ended December 31, 2008 are summarized as follows:

Description	December 31, 2008	Fair Value Measurements at Reporting Date Using			Total Losses
		Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	
Assets					
Goodwill	\$ 337,765	\$	\$	\$ 337,765	\$
Definite-lived intangible assets	21,069			21,069	6,069
Total assets	\$ 358,834	\$	\$	\$ 358,834	\$ 6,069

During the fourth quarter of 2008, the adverse economic climate was a significant factor that indicated that the carrying amount of certain long-lived asset groups were not recoverable. A review of future cash flows indentified asset groups within Yield Dynamics ( YDI ), which the Company acquired in 2007, that had carrying values in excess of future cash flows. The Company reviewed the fair value of the long-lived assets for these asset groups and determined that intangible assets related to customer technologies, relationships and patents and trademarks had carrying values that exceeded their estimated fair values. As a result, an impairment charge of \$6,069,000 was recorded in the fourth quarter of 2008.

**5) Derivatives**

In March 2008, the FASB amended existing guidance to provide enhanced disclosure about how and why the entity uses derivative instruments, how the instruments and related hedged items are accounted for and how the instruments and related hedged items affect the financial position, results of operations, and cash flows of the entity. The Company adopted this new guidance effective January 1, 2009.

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 European 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 accumulated other comprehensive income ( OCI ) in stockholders equity. These changes in fair value will



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subsequently be reclassified into earnings as a component of product cost, 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 that 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, 2009 and 2008, the Company had outstanding forward foreign exchange contracts with gross notional values of \$48,724,000 and \$30,556,000, respectively. The following tables provide a summary of the primary net hedging positions and corresponding fair values held as of December 31, 2009 and 2008:

<b>Currency Hedged (Buy/Sell)</b>	<b>December 31, 2009</b>	
	<b>Gross Notional Value</b>	<b>Fair Value(1)</b>
U.S. Dollar/Japanese Yen	\$ 28,980	\$ 1,220
U.S. Dollar/South Korean Won	8,477	(338)
U.S. Dollar/Euro	8,069	149
U.S. Dollar/U.K. Pound Sterling	3,198	51
<b>Total</b>	<b>\$ 48,724</b>	<b>\$ 1,082</b>

<b>Currency Hedged (Buy/Sell)</b>	<b>December 31, 2008</b>	
	<b>Gross Notional Value</b>	<b>Fair Value(1)</b>
U.S. Dollar/Japanese Yen	\$ 17,348	\$ (2,137)
U.S. Dollar/South Korean Won	7,607	1,926
U.S. Dollar/Euro	4,176	313
U.S. Dollar/U.K. Pound Sterling	1,425	406
<b>Total</b>	<b>\$ 30,556</b>	<b>\$ 508</b>

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

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

<b>Derivatives Designated as Hedging Instruments</b>	<b>Years Ended December 31,</b>	
	<b>2009</b>	<b>2008</b>
Derivative assets		
Forward exchange contracts	\$ 1,505	\$ 2,645
Derivative liabilities		
Forward exchange contracts	423	2,137
Total net derivative assets designated as hedging instruments(1)	\$ 1,082	\$ 508

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- (1) The derivative asset of \$1,505,000 and derivative liability of \$423,000 are classified in other current assets and other current liabilities, respectively, in the consolidated balance sheet as of December 31, 2009. The derivative net asset of \$508,000 is classified in other current assets in the consolidated balance sheet as of December 31, 2008.

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

<b>Derivatives Designated as Cash Flow Hedging Relationships</b>	<b>Years Ended December 31,</b>		
	<b>2009</b>	<b>2008</b>	<b>2007</b>
Forward exchange contracts			
Net gain (loss) recognized in OCI(1)	\$ 1,290	\$ 465	\$ (955)
Net gain (loss) reclassified from accumulated OCI into income(2)	1,062	(1,176)	1,312
Net gain (loss) recognized in income(3)	313	(223)	

- (1) Net change in the fair value of the effective portion classified in OCI.
- (2) Effective portion classified as cost of products.
- (3) Ineffective portion amount excluded from effectiveness testing, classified in selling, general and administrative.

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

<b>Derivatives Not Designated as Hedging Instruments</b>	<b>Years Ended December 31,</b>		
	<b>2009</b>	<b>2008</b>	<b>2007</b>
Forward exchange contracts			
Net gain recognized in income(1)	\$ 9	\$ 2,669	\$

- (1) Classified in selling, general and administrative.

The \$2,669,000 gain was primarily attributable to the settlement of cash and intercompany loans at different foreign exchange rates related to a legal entity consolidation among some of the Company's foreign subsidiaries.

**6) Inventories**

Inventories consist of the following:

	<b>Years Ended December 31,</b>	
	<b>2009</b>	<b>2008</b>
Raw material	\$ 56,083	\$ 63,696
Work in process	16,501	17,436
Finished goods	45,420	50,387
	\$ 118,004	\$ 131,519

During 2009, the Company recorded charges of \$20,335,000 for excess and obsolete inventory. Of this amount, \$14,373,000 was recorded in the first quarter of 2009, primarily as a result of a lower inventory consumption plan in the first quarter of 2009 that the Company implemented in response to the weakness in its markets during that period.

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Property, plant and equipment consist of the following:

	<b>Years Ended December 31,</b>	
	<b>2009</b>	<b>2008</b>
Land	\$ 9,086	\$ 12,308
Buildings	64,786	65,926
Machinery and equipment	92,136	90,215
Furniture and fixtures and office equipment	52,844	51,574
Leasehold improvements	18,050	16,016
Construction in progress	1,355	5,455
	238,257	241,494
Less: accumulated depreciation and amortization	171,061	159,477
	\$ 67,196	\$ 82,017

As a result of a facility consolidation in Asia, the Company recorded an asset impairment charge of \$3,544,000 in the second quarter of 2009 resulting from the write-down of the value of a building to its estimated fair value.

Depreciation and amortization of property, plant and equipment totaled \$14,352,000, \$14,523,000 and \$14,476,000 for the years 2009, 2008 and 2007, respectively.

**8) Goodwill and Intangible Assets****Goodwill**

The Company tests goodwill for impairment on an annual basis, which has been determined to be as of October 31 of each fiscal year. The Company also tests goodwill between annual tests if an event occurs or circumstances change that indicate that the fair value of a reporting unit may be below its carrying value. Due to various factors, including current market and economic conditions that contributed to a decline in the Company's forecasted business levels, and the excess of the Company's consolidated net assets over its market capitalization for a sustained period of time, the Company concluded an interim assessment for impairment should be conducted for its goodwill as of April 30, 2009, the date of the triggering event.

Goodwill impairment is determined using a two-step process. The first step involves a comparison of the estimated fair value of a reporting unit to its carrying amount, including goodwill. In performing the first step, the Company

determines the fair value of a reporting unit using a discounted cash flow ( DCF ) analysis. Determining fair value requires the exercise of significant judgment, including judgments about appropriate discount rates, perpetual growth rates, and the amount and timing of expected future cash flows. 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 forecasts. If the estimated fair value of a reporting unit exceeds its carrying amount, goodwill of the reporting unit is not impaired and the second step of the impairment test is not necessary. If the carrying amount of a reporting unit exceeds its estimated fair value, then the second step of the goodwill impairment test must be performed. The second step of the goodwill impairment test compares the implied fair value of the reporting unit s goodwill with its carrying amount of goodwill to measure the amount of impairment loss, if any. The implied fair value of goodwill is determined in the same manner as the amount of goodwill recognized in a business combination, whereby the estimated fair value of the reporting unit is allocated to all of the assets and liabilities of that unit (including any

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unrecognized intangible assets) as if the reporting unit had been acquired in a business combination and the fair value of the reporting unit was the purchase price paid. If the carrying amount of the reporting unit's goodwill exceeds the implied fair value of that goodwill, an impairment loss is recognized in an amount equal to that excess.

In the interim assessment, the Company determined that for certain reporting units, the carrying amount of their net assets exceeded their respective fair values, indicating that a potential impairment existed. After completing the second step of the goodwill impairment test, the Company recorded a goodwill impairment charge in the second quarter of 2009 of \$193,254,000. The Company completed its annual impairment test as of October 31, 2009 and concluded that no additional impairment of goodwill existed.

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

	<b>Gross</b>	<b>2009</b>		<b>Gross</b>	<b>2008</b>	
	<b>Carrying</b>	<b>Accumulated</b>	<b>Net</b>	<b>Carrying</b>	<b>Accumulated</b>	<b>Net</b>
	<b>Amount</b>	<b>Impairment</b>		<b>Amount</b>	<b>Loss</b>	
		<b>Loss</b>				
Beginning balance at January 1	\$ 337,765	\$	\$ 337,765	\$ 337,473	\$	\$ 337,473
Adjustments to deferred tax assets				292		292
Impairment losses		(193,254)	(193,254)			
Ending balance at December 31	\$ 337,765	\$ (193,254)	\$ 144,511	\$ 337,765	\$	\$ 337,765

**Intangible Assets**

The Company is required to test certain long-lived assets when indicators of impairment are present. Due to various factors, including current market and economic conditions that contributed to a decline in the Company's forecasted business levels, and the excess of the Company's consolidated net assets over market capitalization for a sustained period of time, the Company concluded an interim assessment for impairment should be conducted for its intangible assets as of April 30, 2009. For the purposes of an 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. The Company tested the long-lived assets in question for recoverability by comparing the sum of the undiscounted cash flows attributable to each respective asset group to their carrying amounts, and determined that the carrying amounts were not recoverable. Management then evaluated the fair values of each long-lived asset of the potentially impaired long-lived asset group to determine the amount of the impairment, if any. The fair value of each intangible asset was based primarily on an income approach, which is a present value technique used to measure the fair value of future cash flows produced by the asset. The Company estimated future cash flows over the remaining useful life of each intangible asset. As a result of this analysis, the Company determined that certain of its intangible

assets related to completed technology, customer relationships, and patents and trademarks had carrying values that exceeded their estimated fair values. As a result, an impairment charge of \$11,699,000 was recorded in the second quarter of 2009.

During the fourth quarter of 2008, the adverse economic climate was a significant factor that indicated that the carrying amount of certain long-lived asset groups were not recoverable. A review of future cash flows identified asset groups which had carrying values in excess of future cash flows. The Company reviewed the fair value of the long-lived assets for these asset groups and determined that intangible assets related to customer technologies, relationships, and patents and trademarks had carrying values that exceeded their estimated fair values. As a result, an impairment charge of \$6,069,000 was recorded in the fourth quarter of 2008.



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

<b>For The Year Ended December 31, 2009:</b>	<b>Gross</b>	<b>Impairment Charges</b>	<b>Accumulated Amortization</b>	<b>Net</b>
Completed technology	\$ 88,855	\$ (3,812)	\$ (82,705)	\$ 2,338
Customer relationships	21,879	(7,113)	(13,326)	1,440
Patents, trademarks, trade names and other	29,672	(774)	(27,713)	1,185
	\$ 140,406	\$ (11,699)	\$ (123,744)	\$ 4,963

<b>For The Year Ended December 31, 2008:</b>	<b>Gross</b>	<b>Impairment Charges</b>	<b>Accumulated Amortization</b>	<b>Net</b>
Completed technology	\$ 93,204	\$ (4,349)	\$ (80,685)	\$ 8,170
Customer relationships	23,542	(1,663)	(12,152)	9,727
Patents, trademarks, trade names and other	29,729	(57)	(26,500)	3,172
	\$ 146,475	\$ (6,069)	\$ (119,337)	\$ 21,069

Aggregate amortization expense related to acquired intangibles for the years 2009, 2008 and 2007 were \$4,407,000, \$9,001,000 and \$16,183,000, respectively. Estimated amortization expense related to acquired intangibles for each of the four remaining years is as follows:

<b>Year</b>	<b>Amount</b>
2010	\$ 2,134
2011	1,588
2012	634
2013	607

**9) Other Balance Sheet Information**

<b>Years Ended December 31,</b>	
<b>2009</b>	<b>2008</b>

Other Assets:		
Deferred tax assets, net	\$ 17,373	\$ 12,743
Long-term marketable securities	4,853	
Other	2,292	2,617
Total other assets	\$ 24,518	\$ 15,360
Other Current Liabilities:		
Product warranties	\$ 6,560	\$ 8,334
Deferred revenue	4,101	4,631
Other	10,804	11,204
Total other current liabilities	\$ 21,465	\$ 24,169
Other Liabilities:		
Income taxes payable	\$ 6,773	\$ 11,756
Accrued compensation	10,424	9,567
Other	639	587
Total other liabilities	\$ 17,836	\$ 21,910

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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 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.

Product warranty activity was as follows:

	<b>Years Ended December 31,</b>	
	<b>2009</b>	<b>2008</b>
Balance at beginning of year	\$ 8,334	\$ 9,497
Provisions for product warranties	2,520	5,345
Direct charges to the warranty liability	(4,294)	(6,508)
Balance at end of year	\$ 6,560	\$ 8,334

**11) Restructuring**

In the first quarter of 2009, the Company initiated a restructuring plan due to the global financial crisis and its impact on the Company's semiconductor equipment OEM customers and the other markets it serves. The plan included a reduction in the Company's worldwide headcount of approximately 630 people, which represented approximately 24% of its global workforce.

The Company recorded restructuring charges of \$5,812,000 during 2009. The restructuring charges were primarily for severance and other charges associated with the reductions in workforce. As of December 31, 2009, the accrued restructuring costs totaled \$220,000 and were included in accrued compensation in the consolidated balance sheets. These costs will be substantially paid by June 30, 2010. The costs related to workforce reductions that took place during 2008 were immaterial.

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

**Year Ended  
December 31,  
2009**

Beginning balance	\$	
Severance and employee related costs		5,812
Payments		(5,592)
Ending balance	\$	220

## 12) Debt

### Credit Agreements and Short-Term Borrowings

On March 18, 2009, the Company entered into an amendment to the Optional Advance Demand Grid Note dated August 3, 2004 (the "Grid Note"). The unsecured short-term LIBOR based loan agreement with HSBC Bank USA is utilized primarily by the Company's Japanese subsidiary for short-term liquidity purposes. The credit line as amended (a) decreased the maximum amount of the note from \$35,000,000 to \$5,000,000, (b) decreased the limit for standby letters of credit under the note from \$750,000 to \$650,000, and (c) established an annual facility fee of

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0.0375% of the maximum amount of the note. The Company believes the reduced amount of the note more accurately reflects its anticipated utilization of this line, and minimizes the cost of the new facility fee. At December 31, 2008, total outstanding borrowings under this line of credit were \$1,101,000 at an interest rate of 1.65%. The Company did not have outstanding borrowings under this line of credit at December 31, 2009.

On January 31, 2010, the Company entered into an amendment to the Grid Note, as amended, to extend its maturity date to July 31, 2010.

Additionally, the Company's Japanese subsidiary has lines of credit and short-term borrowing arrangements with two financial institutions which provide for aggregate borrowings as of December 31, 2009 of up to an equivalent of \$26,893,000 U.S. dollars, which generally expire and are renewed at three month intervals. At December 31, 2009 and 2008, total borrowings outstanding under these arrangements were \$12,885,000 and \$16,707,000, respectively, at interest rates ranging from 0.76% to 1.48% at December 31, 2009 and at interest rates ranging from 1.20% to 1.68% at December 31, 2008.

**Long-Term Debt**

The Company had a long-term debt agreement with the County of Monroe Industrial Development Agency (COMIDA) for a manufacturing facility located in Rochester, New York. The terms were the same as that of the underlying Industrial Development Revenue Bond which called for payments of interest only through July 1, 2014, at which time the Bond was repayable in a lump sum of \$5,000,000. Interest was reset annually based on bond remarketing, with an option by the Company to elect a fixed rate, subject to a maximum rate of 13.0% per annum. On July 1, 2008, the Company repaid the entire debt agreement.

**13) Income Taxes**

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

	<b>Years Ended December 31,</b>		
	<b>2009</b>	<b>2008</b>	<b>2007</b>
U.S. Federal income tax statutory rate	(35.0)%	35.0%	35.0%
Federal and state tax credits	(1.6)	(5.5)	(4.3)
State income taxes, net of federal benefit	(0.6)	1.3	1.7
Effect of foreign operations taxed at various rates	(1.4)	(11.0)	(4.9)
Extraterritorial income and qualified production activity tax benefit	(0.4)	(3.9)	(0.7)
Non-deductible goodwill	27.9		
Deferred tax asset valuation allowance	0.2	8.4	
Other	(0.1)	2.3	1.2
	(11.0)%	26.6%	28.0%



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The components of income before income taxes and the related provision (benefit) for income taxes consist of the following:

	<b>Years Ended December 31,</b>		
	<b>2009</b>	<b>2008</b>	<b>2007</b>
Income (loss) before income taxes:			
United States	\$ (263,078)	\$ (8,201)	\$ 64,228
Foreign	24,220	49,253	55,788
	\$ (238,858)	\$ 41,052	\$ 120,016
Current taxes (benefit):			
United States Federal	\$ (26,216)	\$ 7,098	\$ 29,663
State	(261)	1,367	1,682
Foreign	7,687	11,529	12,594
	(18,790)	19,994	43,939
Deferred taxes:			
United States Federal	(4,333)	(11,304)	(7,741)
State and Foreign	(3,076)	2,245	(2,542)
	(7,409)	(9,059)	(10,283)
Provision (benefit) for income taxes	\$ (26,199)	\$ 10,935	\$ 33,656

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

	<b>Years Ended</b>	
	<b>December 31,</b>	
	<b>2009</b>	<b>2008</b>
Deferred tax assets:		
Net operating losses and credits	\$ 8,131	\$ 7,465
Inventory and warranty reserves	19,611	17,440
Accounts receivable and other accruals	2,568	2,358
Depreciation and amortization	6,370	5,798
Stock-based compensation	6,602	8,976
Executive supplemental retirement benefits	3,305	2,952
Other	2,547	2,297

Total deferred tax assets	\$ 49,134	\$ 47,286
Deferred tax liabilities:		
Acquired intangible assets	(5,015)	(10,717)
Other	(40)	(115)
Total deferred tax liabilities	(5,055)	(10,832)
Valuation allowance	(5,201)	(4,653)
Net deferred tax assets	\$ 38,878	\$ 31,801

At December 31, 2009 and 2008, the Company had gross Massachusetts research credit carryforwards of \$6,589,000 and \$6,353,000, respectively. These credit carryforwards will expire at various dates through 2024. In



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addition, at December 31, 2009, the Company has a U.S. federal capital loss carryforward of \$2,332,000 that will expire in 2013, and has gross state net operating loss carryforwards of \$22,832,000 that will expire at various dates through 2029.

At December 31, 2009, as a result of the acquisition of YDI in 2007, the Company has a U.S. federal net operating loss carryforward of \$5,490,000 and a U.S. federal general business credit carryforward of \$810,000. The Company's intention is to carryforward both these tax attributes, subject to the limitations of the Internal Revenue Code. The loss and credit carryforwards expire at various dates through 2027.

Although the Company believes that its tax positions are consistent with applicable U.S. federal, state and international laws, certain tax reserves are maintained at December 31, 2009 should these positions 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:

	<b>2009</b>	<b>2008</b>
Balance at beginning of year	\$ 14,678	\$ 16,123
Increase (decrease) for prior years	(41)	49
Increases for the current year	1,693	1,680
Reductions related to settlements with taxing authorities	(7,245)	(1,533)
Reductions related to expiration of statute of limitations		(1,641)
Balance at end of year	\$ 9,085	\$ 14,678

At December 31, 2009, the total amount of gross unrecognized tax benefits, which excludes interest and penalties, was approximately \$9,085,000. The decrease from December 31, 2008 was primarily attributable to the close of the 2005 and 2006 U.S. federal tax audits. At December 31, 2009, if these benefits were recognized in a future period, the timing of which is not estimable, the net unrecognized tax benefit of \$6,500,000, excluding interest and penalties, would impact the Company's effective tax rate.

The Company accrues interest and penalties, if applicable, for any uncertain tax positions. Any interest and penalty expense is a component of income tax expense. At December 31, 2009 and 2008, the Company had \$651,000 and \$1,730,000, respectively, accrued for interest on net unrecognized tax benefits.

Over the next 12 months it is reasonably possible that the Company may recognize \$1,900,000 to \$2,400,000 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 following tax years, in the major tax jurisdictions noted, are open for assessment or refund: U.S. Federal: 2006 to 2008, Germany: 2001 to 2008, Korea: 2004 to 2008, Japan: 2004 to 2008 and the United Kingdom: 2007 and 2008. As of December 31, 2009 and currently, there are ongoing audits in various tax jurisdictions for various tax years.

On a quarterly basis, the Company evaluates both positive and negative evidence that bears on 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 2009, the Company increased its valuation allowance by \$548,000 for state tax credit carryforwards, as the Company has determined it is more likely than not that the deferred tax assets related to these attributes will not be realized. In addition, the Company recorded a net benefit to income tax expense of \$5,725,000, excluding interest and penalties, primarily due to discrete reserve releases primarily related to the close of the 2005 and 2006 U.S. federal tax audits.

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During 2007, the Company amended prior U.S. federal tax returns to reflect revised estimates for qualifying research and development costs that allowed the company to claim additional research tax credits. As a result of this claim, the Company recorded a benefit to income tax expense of \$1,800,000.

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 is anticipated to expire in 2011 and is subject to meeting continued investment, employment and other requirements under the guidelines of the MITL. This tax holiday resulted in income tax savings of \$348,000, \$217,000 and \$3,393,000 for the years 2009, 2008 and 2007, respectively.

Through December 31, 2009, 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, 2009, the Company had \$258,294,000 of undistributed earnings in its foreign subsidiaries.

**14) Net Income (Loss) 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 (loss) per share:

	<b>Years Ended December 31,</b>		
	<b>2009</b>	<b>2008</b>	<b>2007</b>
Net income (loss)	\$ (212,659)	\$ 30,117	\$ 86,360
Shares used in net income (loss) per common share basic	49,318,000	49,717,000	56,349,000
Effect of dilutive securities:			
Stock options, restricted stock and employee stock purchase plan		1,037,000	824,000
Shares used in net income (loss) per common share diluted	49,318,000	50,754,000	57,173,000
Net income (loss) per common share basic	\$ (4.31)	\$ 0.61	\$ 1.53
Net income (loss) per common share diluted	\$ (4.31)	\$ 0.59	\$ 1.51

As of December 31, 2009, 2008 and 2007, stock options and restricted stock units relating to an aggregate of approximately 4,096,705, 6,383,828 and 6,472,406 shares, respectively, were outstanding. For 2009, all potentially dilutive common shares were excluded from the dilutive computation as the effect of including such securities in the computation would be anti-dilutive due to the Company's net loss for the year. For the years ended December 31, 2008 and December 31, 2007, 3,152,261 and 3,684,435 shares, respectively, were not included in the computation of diluted earnings per share because the exercise price exceeded the average price per share for the period.

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**15) Stockholders Equity**

**Stock Repurchase Program**

On February 12, 2007, MKS Board of Directors approved a share repurchase program (the Program) for the repurchase of up to \$300,000,000 of its outstanding stock over the subsequent two years. The repurchases were made from time to time on the open market or through privately negotiated transactions. The timing and amount of any shares repurchased under the Program was dependent upon a variety of factors, including price, corporate and regulatory requirements, capital availability, and other market conditions. During 2007, the Company repurchased 4,779,000 shares of common stock for \$101,157,000 for an average price of \$21.17 per share. During 2008, the Company repurchased 5,667,000 shares of common stock for \$115,723,000 for an average price of \$20.42 per share. The Program expired on February 11, 2009 with no additional share repurchases in 2009. In total, the Company repurchased 10,446,000 shares of common stock for \$216,880,000 for an average price of \$20.76 per share

**Stock Option Exchange Program**

Pursuant to the Company's tender offer to exchange outstanding stock options, during the third quarter 2009, options to purchase 1,330,000 shares of common stock were exchanged for 189,000 restricted stock units with a one year vesting period. Participants exchanged their eligible option awards for restricted stock units of an approximate equal fair value and, as such, no incremental compensation expense was recognized as a result of the exchange.

**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. The price at which an employee's option is exercised is the lower of (1) 85% of the closing price of the Common Stock on the NASDAQ Global Market on the day that each offering commences or (2) 85% of the closing price on the day that each offering terminates. During 2009 and 2008, the Company issued 106,841 and 201,341 shares, respectively, of Common Stock to employees who participated in the Purchase Plan at an exercise price of \$11.08 per share in 2009 and \$15.28 and \$12.16 per share in 2008, respectively. As of December 31, 2009, there were 697,263 shares reserved for future issuance under the Purchase Plan. During 2009, the Company suspended the June 1 and December 1 Purchase Plan cycles and as a result, no shares were issued for these cycles.

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. The price at which an employee's option is exercised is the lower of (1) 85% of the closing price of the Common Stock on the NASDAQ Global Market on the day that each offering commences or (2) 85% of the closing price on the day that each offering terminates. During

2009 and 2008, the Company issued 19,571 and 41,391 shares, respectively, of Common Stock to employees who participated in the Foreign Purchase Plan at an exercise price of \$11.08 per share in 2009 and \$15.28 and \$12.16 per share in 2008, respectively. As of December 31, 2009, there were 271,455 shares reserved for future issuance under the Foreign Purchase Plan. During 2009, the Company suspended the June 1 and December 1 Foreign Purchase Plan cycles and as a result, no shares were issued for these cycles.

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**MKS INSTRUMENTS, INC.**

**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)**  
**(Tables in thousands, except share and per share data)**

**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 ) and under the 1996 Director Stock Option Plan (collectively, the Plans ). 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 restricted stock and restricted stock units (collectively, restricted stock ), 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, 2009, there were 13,422,295 shares authorized for issuance under the 2004 Plan, which amount shall increase each year by an amount equal to 5% of the total outstanding shares of the Company s common stock outstanding on January 1 of such year, provided that the maximum aggregate number of shares of common stock which may be issued under the 2004 Plan is 15,000,000 shares (subject to adjustment for certain changes in MKS capitalization). The Company may grant options, restricted stock awards, stock appreciation rights and other stock-based awards to employees, officers, directors, consultants and advisors under the 2004 Plan. As of December 31, 2009, there were 11,148,013 shares available for future grants under the 2004 Plan.

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 are 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, vest 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 vest 20% after one year and 5% per quarter thereafter, and expire 10 years after the grant date. Options 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. Restricted stock awards generally vest three years from the date of grant. Certain restricted stock awards involve stock to be issued upon the achievement of performance conditions (performance shares) under the Company s stock incentive plans. Such performance shares become available subject to time-based vesting conditions if, and to the extent that, financial 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 performance objectives for the applicable period.

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**(Tables in thousands, except share and per share data)**

The following table presents the activity for restricted stock under the Plans:

		Years Ended December 31,			
		2009		2008	
	Non-vested Restricted Stock	Weighted Average Grant Date Fair Value	Non-vested Restricted Stock	Weighted Average Grant Date Fair Value	
Non-vested restricted stock	beginning of				
period		1,824,990	\$ 21.87	1,349,350	\$ 21.98
Granted		682,156	\$ 15.27	709,313	\$ 21.51
Vested		(666,247)	\$ 21.91	(110,640)	\$ 22.45
Forfeited or expired		(259,016)	\$ 17.25	(123,033)	\$ 20.43
Non-vested restricted stock	end of period	1,581,883	\$ 19.77	1,824,990	\$ 21.87

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

		Years Ended December 31,					
		2009		2008		2007	
	Options	Weighted Average Exercise Price	Options	Weighted Average Exercise Price	Options	Weighted Average Exercise Price	
Outstanding	beginning of						
period		4,558,838	\$ 23.44	5,123,056	\$ 22.74	7,614,655	\$ 21.62
Exercised		(134,118)	\$ 14.54	(425,256)	\$ 14.32	(2,233,303)	\$ 18.58
Forfeited or expired		(1,909,898)	\$ 26.18	(138,962)	\$ 25.58	(258,296)	\$ 25.59
Outstanding	end of period	2,514,822	\$ 21.67	4,558,838	\$ 23.44	5,123,056	\$ 22.74
Exercisable at end of							
period		2,514,197	\$ 21.67	4,535,282	\$ 23.46	4,810,516	\$ 23.22

The following table summarizes information with respect to options outstanding and exercisable under the Plans at December 31, 2009:



		Options Outstanding			Options Exercisable			
			Weighted Average					
		Number of Shares	Weighted Average Exercise Price	Remaining Contractual Life (In Years)	Aggregate Intrinsic Value (In Thousands)	Number of Shares	Weighted Average Exercise Price	Aggregate Intrinsic Value (In Thousands)
\$12.59	\$13.87	17,547	\$ 13.32	2.48	\$ 72	17,547	\$ 13.32	\$ 72
\$14.09	\$18.73	1,084,869	\$ 16.23	3.48	1,344	1,084,244	\$ 16.23	1,344
\$20.02	\$29.00	1,189,246	\$ 24.50	2.73		1,189,246	\$ 24.50	
\$29.93	\$50.81	223,160	\$ 33.66	1.79		223,160	\$ 33.66	
		2,514,822	\$ 21.67	2.97	\$ 1,416	2,514,197	\$ 21.67	\$ 1,416

The weighted average remaining contractual life of options exercisable was 2.96 years at December 31, 2009.

The aggregate intrinsic value in the table above represents the total pre-tax intrinsic value, based on the Company's closing stock price of \$17.40 as of December 31, 2009, 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, 2009 was 973,000.

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The total cash received from employees as a result of employee stock option exercises during the years 2009 and 2008 was approximately \$1,950,000 and \$6,088,000, respectively. In connection with these exercises, the tax benefits realized by the Company for the years 2009 and 2008 were approximately \$93,000 and \$645,000, respectively.

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

**Accumulated Other Comprehensive Income**

The balance of accumulated other comprehensive income (loss) was comprised of the following:

	<b>Cumulative Translation Adjustments</b>	<b>Financial Instruments Designated as Cash Flow Hedges</b>	<b>Unrealized Gain (Loss) on Investments</b>	<b>Accumulated Other Comprehensive Income (Loss)</b>
Balance at December 31, 2007	\$ 13,210	\$ (87)	\$ 64	\$ 13,187
Foreign currency translation adjustment, net of taxes of \$0	(6,171)			(6,171)
Changes in value of financial instruments designated as cash flow hedges, net of tax of \$299		390		390
Change in unrealized (loss) on investments, net of tax benefit of \$143			(187)	(187)
Balance at December 31, 2008	\$ 7,039	\$ 303	\$ (123)	\$ 7,219
Foreign currency translation adjustment, net of taxes of \$0	3,062			3,062
Changes in value of financial instruments designated as cash flow hedges, net of tax of \$83		267		267
Change in unrealized gain on investments, net of tax benefit of \$29 -			92	92
Balance at December 31, 2009	\$ 10,101	\$ 570	\$ (31)	\$ 10,640

**16) Stock-Based Compensation**

The Company recognized the full impact of its share-based payment plans in the consolidated statements of operations for the years 2009, 2008 and 2007. As of December 31, 2009 and 2008, the Company capitalized



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**(Tables in thousands, except share and per share data)**

\$471,000 of such cost on its consolidated balance sheets. The following table reflects the effect of recording stock-based compensation for the years 2009, 2008 and 2007:

	<b>Years Ended December 31,</b>		
	<b>2009</b>	<b>2008</b>	<b>2007</b>
Stock-based compensation expense by type of award:			
Employee stock options	\$ 158	\$ 1,936	\$ 3,516
Restricted stock	8,218	12,210	8,481
Employee stock purchase plan	469	1,128	921
Total stock-based compensation	8,845	15,274	12,918
Tax effect on stock-based compensation	1,258	(226)	(5,712)
Net effect on net income or net loss	\$ 10,103	\$ 15,048	\$ 7,206
Effect on earnings or loss per share:			
Basic	\$ 0.20	\$ 0.30	\$ 0.13
Diluted	\$ 0.20	\$ 0.30	\$ 0.13

The pre-tax effect within the consolidated statements of operations of recording stock-based compensation for the years 2009, 2008 and 2007 was as follows:

	<b>Years Ended December 31,</b>		
	<b>2009</b>	<b>2008</b>	<b>2007</b>
Cost of sales	\$ 1,298	\$ 2,272	\$ 1,564
Research and development expense	2,026	3,698	3,275
Selling, general and administrative expense	5,521	9,304	8,079
Total pre-tax stock-based compensation expense	\$ 8,845	\$ 15,274	\$ 12,918

**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. 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 2009, 2008 and 2007. The total intrinsic value of options exercised during 2009, 2008 and 2007 was approximately \$327,000, \$3,802,000 and \$16,462,000, respectively.

The weighted average fair value per share of employee stock purchase rights granted in 2009, 2008 and 2007 was \$4.44, \$4.62 and \$4.88, respectively. The fair value of the employees' purchase rights was estimated using the Black-Scholes option-pricing model with the following weighted average assumptions:

	<b>2009</b>	<b>2008</b>	<b>2007</b>
Employee stock purchase rights:			
Expected life (years)	0.5	0.5	0.5
Risk-free interest rate	0.5%	2.6%	5.0%
Expected volatility	68.0%	47.3%	33.0%
Dividend yield	0.0%	0.0%	0.0%

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**MKS INSTRUMENTS, INC.**

**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)**  
**(Tables in thousands, except share and per share data)**

Expected volatilities for 2009, 2008 and 2007 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 2009, 2008 and 2007 was approximately \$10,188,000, \$6,087,000 and \$16,556,000, respectively. As of December 31, 2009, the unrecognized compensation cost related to non-vested stock options was immaterial. As of December 31, 2009, the unrecognized compensation cost related to restricted stock was approximately \$11,445,000, and will be recognized over an estimated weighted average amortization period of 1.7 years.

**17) 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 IRS. The Company, at its discretion, may provide a matching contribution which will generally match up to the first 2% of each participant's compensation, plus 25% of the next 4% of compensation. 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 \$929,000, \$2,755,000 and \$2,516,000 for 2009, 2008 and 2007, respectively. During 2009, the Company suspended the employer match portion of the 401(k) profit-sharing 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 \$881,000, zero and \$3,713,000 in 2009, 2008 and 2007, respectively.

The Company provides supplemental retirement benefits for certain of its officers and executive officers. The total cost of these benefits was \$3,138,000, \$2,054,000 and \$1,867,000 for 2009, 2008 and 2007, respectively. The accumulated benefit obligation was \$8,813,000 and \$7,813,000 at December 31, 2009 and 2008, respectively.

**18) Segment and Geographical Information and Significant Customer**

The Company operates in one segment for the development, manufacturing, sales and servicing of products that measure, control, power and monitor critical parameters of advanced manufacturing processes. The Company's chief decision-maker reviews consolidated operating results to make decisions about allocating resources and assessing performance for the entire Company.

Information about the Company's operations in different geographic regions is presented in the tables below. Net sales 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 sales.

	<b>Years Ended December 31,</b>		
	<b>2009</b>	<b>2008</b>	<b>2007</b>
Geographic net sales			
United States	\$ 222,910	\$ 365,657	\$ 477,801
Japan	49,394	94,843	103,474
Europe	65,858	95,673	88,279
Asia	73,244	90,821	110,933
	\$ 411,406	\$ 646,994	\$ 780,487

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**(Tables in thousands, except share and per share data)**

	<b>Years Ended December 31,</b>	
	<b>2009</b>	<b>2008</b>
Long lived assets		
United States	\$ 52,143	\$ 60,942
Japan	5,886	11,527
Europe	3,621	3,353
Asia	7,838	8,812
	<b>\$ 69,488</b>	<b>\$ 84,634</b>

The Company groups its products into three product groups. Net sales for these product groups are as follows:

	<b>Years Ended December 31,</b>		
	<b>2009</b>	<b>2008</b>	<b>2007</b>
Instruments and Control Systems	\$ 224,590	\$ 336,340	\$ 377,992
Power and Reactive Gas Products	148,191	246,107	319,403
Vacuum and Other Products	38,625	64,547	83,092
	<b>\$ 411,406</b>	<b>\$ 646,994</b>	<b>\$ 780,487</b>

The Company had one customer comprising 12%, 19% and 20% of net sales for 2009, 2008 and 2007, respectively. During the years 2009, 2008 and 2007, the Company estimated that approximately 52%, 57% and 68% of its net sales, respectively, were to semiconductor capital equipment manufacturers and semiconductor device manufacturers.

**19) Acquisitions**

On November 7, 2007, the Company acquired YDI, a provider of yield management technology located in Sunnyvale, California. YDI's data and yield management software, along with MKS' portfolio of sensors that control critical processes, data collection and integration hardware, and real-time fault detection and classification software, provides a comprehensive offering for generating, collecting and analyzing process sensor data and correlating the data to wafers, chambers and tools across the semiconductor fab as well as other thin film manufacturing processes. The purchase price consisted of \$23,659,000 in cash, net of \$651,000 in cash acquired and \$363,000 in acquisition related costs. The purchase agreement includes contingent payments of up to \$10,000,000 based upon achieving specific annual and cumulative revenue targets between 2008 and 2010.



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

Current assets	\$ 693
Intangible assets	9,010
Other assets	4,039
Goodwill	15,407
Total assets acquired	29,149
Current liabilities	(844)
Deferred tax liabilities	(3,632)
Total liabilities assumed	(4,476)
Total purchase price including acquisition costs	\$ 24,673

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**(Tables in thousands, except share and per share data)**

The goodwill and other intangible assets associated with the acquisition are not deductible for tax purposes. Of the \$9,010,000 of acquired intangible assets, the following table reflects the allocation of the acquired intangible assets and related estimates of useful lives:

Customer relationships	\$ 2,300	8 year useful life
Completed technology	5,500	6 year useful life
Others	310	2-5 year useful life
In-process research and development	900	
	<b>\$ 9,010</b>	

This transaction resulted in an amount of purchase price that exceeded the estimated fair values 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) being a provider of yield management software technology which will be increasingly important to solution providers for semiconductor and other industrial customers; and (2) enhanced ability to combine YDI's software products with MKS' multivariate software and traditional hardware products.

The results of this acquisition were included in the Company's consolidated statements of operations beginning on the date of acquisition. The pro forma consolidated statements reflecting the operating results of YDI, had it been acquired as of January 1, 2007, would not differ materially from the operating results of the Company as reported for the twelve months ended December 31, 2007.

As part of its goodwill and intangible asset write-down in the second quarter of 2009, the Company wrote-off all of the YDI goodwill and the remaining intangible assets (see note 8).

**20) Commitments and Contingencies**

The Company is subject to various legal proceedings and claims, which have arisen in the ordinary course of business. In the opinion of management, the ultimate disposition of these matters will not have a material adverse effect on the 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 2014 and thereafter. Generally, the facility leases require the Company to pay maintenance, insurance and real estate taxes. Rental expense under operating leases totaled \$8,974,000, \$9,952,000 and \$8,257,000 for 2009, 2008 and 2007, respectively.

Minimum lease payments under operating leases are as follows:

**Operating Leases**

Year ending December 31,		
2010	\$	7,794
2011		6,005
2012		5,155
2013		3,190
2014		2,738
Thereafter		5,238
Total minimum lease payments	\$	30,120

As of December 31, 2009, 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

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**MKS INSTRUMENTS, INC.**

**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)**  
**(Tables in thousands, except share and per share data)**

commitments covered by these arrangements are for periods of less than one year and aggregate to approximately \$111,834,000. Additionally, the Company has engaged multiple parties to provide certain computer equipment, IT network services and IT support. These contracts range for periods between two and six years and the obligation at December 31, 2009 of approximately \$32,651,000 will be paid over the term of the multiple arrangements. Average annual payments are expected to be approximately \$6,675,000.

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. Because no claim for indemnification has been pursued by any person covered by the relevant provisions of the Company's Restated Articles of Organization, the Company believes that the estimated exposure for these indemnification obligations is currently minimal. Accordingly, the Company has no liabilities recorded for these requirements as of December 31, 2009.

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, 2009.

When, as part of an acquisition, the Company acquires all of the stock or all of the assets and liabilities of another company, the Company assumes liability for certain events or occurrences that took place prior to the date of acquisition. 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 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 indemnifications 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.

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**MKS INSTRUMENTS, INC.**  
**SUPPLEMENTAL FINANCIAL DATA**

	<b>Quarter Ended</b>			
	<b>March 31</b>	<b>June 30</b>	<b>Sept. 30</b>	<b>Dec. 31</b>
	<b>(Table in thousands, except per share data)</b> <b>(Unaudited)</b>			
<b>2009</b>				
Statement of Operations Data				
Net sales	\$ 76,719	\$ 79,155	\$ 106,262	\$ 149,270
Gross profit	10,591	25,528	39,479	62,734
Income (loss) from operations(1)	(40,609)	(222,242)	1,941	20,411
Net income (loss)(2)	\$ (16,499)	\$ (207,134)	\$ (3,973)	\$ 14,947
Net income (loss) per share:				
Basic	\$ (0.34)	\$ (4.20)	\$ (0.08)	\$ 0.30
Diluted	\$ (0.34)	\$ (4.20)	\$ (0.08)	\$ 0.30
<b>2008</b>				
Statement of Operations Data				
Net sales	\$ 193,448	\$ 171,002	\$ 157,364	\$ 125,180
Gross profit	81,907	70,488	62,939	44,609
Income (loss) from operations(3)	27,844	12,905	7,988	(13,204)
Net income (loss)(4)(5)	\$ 20,382	\$ 9,234	\$ 6,791	\$ (6,290)
Net income (loss) per share:				
Basic	\$ 0.39	\$ 0.19	\$ 0.14	\$ (0.13)
Diluted	\$ 0.39	\$ 0.18	\$ 0.14	\$ (0.13)

- (1) Income (loss) from operations for the quarter ended March 31, 2009 includes \$5.6 million of restructuring charges. Income (loss) from operations for the quarter ended June 30, 2009 includes a write-down of goodwill, intangible and long-lived assets of \$208.5 million.
- (2) Net (loss) for the quarter ended March 31, 2009 includes a benefit of \$6.4 million attributable to the reversal of reserve items for uncertain tax positions, as a result of a U.S. federal tax audit close.
- (3) Income (loss) from operations for the quarter ended December 31, 2008 includes a write-down of intangible assets of \$6.1 million.
- (4) Net income for the quarter ended September 30, 2008 includes a net tax expense for discrete items of \$0.8 million attributable to the booking of a valuation allowance on state tax credits of \$2.7 million partially offset by a benefit of \$1.8 million for discrete items related to the reversal of reserve items for uncertain tax positions, as a result of a statute of limitations expiration.
- (5) Net (loss) for the quarter ended December 31, 2008 includes a benefit of \$1.8 million attributable to discrete tax matters related to the reinstatement of the U.S. research and development tax credits and other adjustments.

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**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, 2009. 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, 2009, 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.

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Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2009. In making this assessment, our management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission ( COSO ) in *Internal Control - Integrated Framework*.

Based on our assessment, management concluded that, as of December 31, 2009, our internal control over financial reporting was effective based on those criteria.

Our internal controls over financial reporting as of December 31, 2009 have been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their attestation report which appears on page 35.

## **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 2010 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 2010 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 2010 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 2010 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 2010 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.

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**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 2010 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 2010 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 on this Annual Report on Form 10-K.

**INDEX TO CONSOLIDATED FINANCIAL STATEMENTS**

**Financial Statements:**

<u>Report of Independent Registered Public Accounting Firm</u>	35
<u>Consolidated Balance Sheets at December 31, 2009 and 2008</u>	36
<u>Consolidated Statements of Operations for the years ended December 31, 2009, 2008 and 2007</u>	37
<u>Consolidated Statements of Stockholders' Equity for the years ended December 31, 2009, 2008 and 2007</u>	38
<u>Consolidated Statements of Cash Flows for the years ended December 31, 2009, 2008 and 2007</u>	39
<u>Notes to Consolidated Financial Statements</u>	40

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.

<b>Exhibit No.</b>	<b>Title</b>
+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

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- +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 Performance Stock Award under the 2004 Plan

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<b>Exhibit No.</b>	<b>Title</b>
+10.5(9)*	Form of Restricted Stock Award under the 2004 Plan
+10.6(10)*	Form of Restricted Stock Unit Agreement (cliff vesting) under the 2004 Plan
+10.7(11)*	Form of Restricted Stock Unit Agreement for Initial Grant to Non-Employee Directors under the 2004 Plan
+10.8(11)*	Form of Restricted Stock Unit Agreement for Annual Grant to Non-Employee Directors under the 2004 Plan
+10.9(11)*	Form of Performance-Based Restricted Stock Unit Agreement under the 2004 Plan
+10.10(11)*	Form of Time-Based Restricted Stock Unit Agreement under the 2004 Plan
+10.11(15)*	Form of Restricted Stock Unit Agreement under the 2004 Plan
+10.12(12)*	Second Restated 1995 Stock Incentive Plan (the 1995 Plan )
+10.13(13)*	Form of Nonstatutory Stock Option Agreement under the 1995 Plan
+10.14(8)*	Form of Performance Stock Award under Registrant's 1995 Plan
+10.15(13)*	Fourth Restated 1999 Employee Stock Purchase Plan
+10.16(13)*	Third Restated International Employee Stock Purchase Plan
+10.17(14)*	Employment Agreement dated as of July 1, 2005 between John Bertucci and the Registrant
+10.18(15)*	Employment Agreement dated July 1, 2005 between Leo Berlinghieri and the Registrant, as amended on November 13, 2007
+10.19(21)*	Amendment, dated November 10, 2008, to Employment Agreement between Leo Berlinghieri and the Registrant, dated July 1, 2005, as amended on November 13, 2007 (the Amended Berlinghieri Employee Agreement )
+10.20(20)*	Amendment, dated October 19, 2009, to the Amended Berlinghieri Employment Agreement
+10.21(14)*	Employment Agreement dated as of July 1, 2005 between Ronald C. Weigner and the Registrant (the Weigner Employment Agreement )
+10.22(21)*	Amendment, dated November 10, 2008, to the Weigner Employment Agreement
+10.23(14)*	Employment Agreement dated as of July 1, 2005 between William D. Stewart and the Registrant
+10.24(13)*	Employment Agreement dated as of July 30, 2004 between John Smith and the Registrant (the Smith Employment Agreement )
+10.25(21)*	Amendment, dated November 10, 2008, to the Smith Employment Agreement
+10.26(16)*	Employment Agreement dated as of April 25, 2005 between Gerald Colella and the Registrant
+10.27(20)*	Amendment, dated November 10, 2008, to Employment Agreement between Gerald Colella and the Registrant, dated April 25, 2005 (the Amended Colella Employment Agreement )
+10.28(21)*	Amendment, dated October 19, 2009, to the Amended Colella Employment Agreement
+10.29(17)*	Summary of 2010 Salaries of Named Executive Officers
+10.30(17)*	Summary of 2010 Management Incentive Bonus Plans for Named Executive Officers
+10.31(17)*	Summary of Equity Compensation with Non-Employee Directors
+10.32(20)*	Summary of Cash Compensation to Non-Employee Directors
+10.33(18)	Global Supply Agreement dated April 12, 2005 by and between the Registrant and Applied Materials, Inc.
+10.34(19)	Settlement Agreement dated as of October 3, 2005 by and between the Registrant, Applied Science and Technology, Inc. and Advanced Energy, Inc.
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

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<b>Exhibit No.</b>	<b>Title</b>
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
+ 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.	
(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 Current Report on Form 8-K filed with the Securities and Exchange Commission on May 6, 2009.
(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 Quarterly Report on Form 10-Q for the quarter ended June 30, 2005.
(9)	Incorporated by reference to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on February 17, 2006.
(10)	Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2006.
(11)	Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2006.
(12)	Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2002.
(13)	

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Incorporated by reference to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on May 6, 2009.

- (14) Incorporated by reference to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on July 5, 2005.
- (15) Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2007.
- (16) Incorporated by reference to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on April 27, 2005.
- (17) Incorporated by reference to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on February 12, 2010.
- (18) Incorporated by reference to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on April 27, 2005.
- (19) Incorporated by reference to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on October 7, 2005.
- (20) Incorporated by reference to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on October 23, 2009.
- (21) Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2008.

### (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

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

Description	Balance at Beginning of Year	Additions Charged to		Deductions & Write-offs	Balance at End of Year
		Charged to Costs and Expenses	Other Accounts		
Accounts receivable allowance Year ended December 31,					
2009	\$ 2,148	\$ 3,655	\$	\$ 3,388	\$ 2,415
2008	\$ 2,379	\$ 4,612	\$	\$ 4,843	\$ 2,148
2007	\$ 4,533	\$ 1,721	\$	\$ 3,875	\$ 2,379

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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, President 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.

<b>Signatures</b>	<b>Title</b>	<b>Date</b>
/s/ John R. Bertucci	Chairman of the Board of Directors	February 24, 2010
John R. Bertucci		
/s/ Leo Berlinghieri	Chief Executive Officer, President and Director (Principal Executive Officer)	February 26, 2010
Leo Berlinghieri		
/s/ Seth H. Bagshaw	Vice President and Chief Financial Officer (Principal Financial and Accounting Officer)	February 26, 2010
Seth H. Bagshaw		
/s/ Cristina H. Amon	Director	February 19, 2010
Cristina H. Amon		
/s/ Robert R. Anderson	Director	February 24, 2010
Robert R. Anderson		
/s/ Gregory R. Beecher	Director	February 24, 2010
Gregory R. Beecher		
/s/ Richard S. Chute	Director	February 19, 2010
Richard S. Chute		
/s/ Peter R. Hanley	Director	February 24, 2010
Peter R. Hanley		
/s/ Hans-Jochen Kahl	Director	February 22, 2010
Hans-Jochen Kahl		
/s/ Louis P. Valente	Director	February 22, 2010

Louis P. Valente

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