

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

**SCHEDULE 14A
(Rule 14A-101)**

**INFORMATION REQUIRED IN
PROXY STATEMENT**

SCHEDULE 14A INFORMATION

**Proxy Statement Pursuant to Section 14(a) of the
Securities Exchange Act of 1934
(Amendment No.)**

Filed by the Registrant

Filed by a Party other than the Registrant

Check the appropriate box:

- Preliminary Proxy Statement
- Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))**
- Definitive Proxy Statement
- Definitive Additional Materials
- Soliciting Material Pursuant to §240.14a-12

MKS Instruments, Inc.

(Name of Registrant as Specified in its Charter)

Payment of Filing Fee (Check the appropriate box):

- No fee required.
- Fee computed on table below per Exchange Act Rules 14a-6(i)(1) and 0-11.

1) Title of each class of securities to which transaction applies:

2) Aggregate number of securities to which transaction applies:

3) Per unit price or other underlying value of transaction computed pursuant to Exchange Act Rule 0-11 (set forth the amount on which the filing fee is calculated and state how it was determined):

4) Proposed maximum aggregate value of transaction:

5) Total fee paid:

Fee paid previously with preliminary materials.

Check box if any part of the fee is offset as provided by Exchange Act Rule 0-11(a)(2) and identify the filing for which the offsetting fee was paid previously. Identify the previous filing by registration statement number, or the Form or Schedule and the date of its filing.

1) Amount Previously Paid:

2) Form, Schedule or Registration Statement No.:

3) Filing Party:

4) Date Filed:



MKS INSTRUMENTS, INC.
2 Tech Drive, Suite 201
Andover, Massachusetts 01810

March 27, 2020

Dear Shareholder:

You are cordially invited to attend the 2020 Annual Meeting of Shareholders of MKS Instruments, Inc. to be held on Tuesday, May 12, 2020 at 10:00 a.m., Eastern Time, at MKS Instruments, Inc., 2 Tech Drive, Suite 201, Andover, Massachusetts 01810.

The attached notice of Annual Meeting and proxy statement describe the business to be transacted at the Annual Meeting and provide additional information about us that you should know when voting your shares. The principal business at the Annual Meeting will be (i) the election of two Class III Directors, each for a three-year term, (ii) the approval, on an advisory basis, of executive compensation and (iii) the ratification of the selection of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the year ending December 31, 2020.

Whether or not you plan to attend the Annual Meeting, please carefully review the attached proxy materials and take the time to cast your vote. If you attend the Annual Meeting, you may vote in person if you wish, even if you have previously voted, in which case your proxy vote will be revoked.

On behalf of MKS, I would like to express our appreciation for your continued interest in our Company.

Sincerely,

JOHN T.C. LEE
President and Chief Executive Officer



**MKS INSTRUMENTS, INC.
2 Tech Drive, Suite 201
Andover, Massachusetts 01810**

**NOTICE OF 2020 ANNUAL MEETING OF SHAREHOLDERS
TO BE HELD ON MAY 12, 2020**

To our Shareholders:

The 2020 Annual Meeting of Shareholders of MKS INSTRUMENTS, INC., a Massachusetts corporation, will be held on Tuesday, May 12, 2020 at 10:00 a.m., Eastern Time, at MKS Instruments, Inc., 2 Tech Drive, Suite 201, Andover, Massachusetts 01810 for the following purposes:

1. The election of two Class III Directors, each for a three-year term;
2. The approval, on an advisory basis, of executive compensation; and
3. The ratification of the selection of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the year ending December 31, 2020.

The shareholders will also act on any other business as may properly come before the meeting.

We provide access to our proxy materials over the Internet under the U.S. Securities and Exchange Commission's "notice and access" rules. As a result, we mail to our shareholders a Notice of Internet Availability of Proxy Materials, which we refer to as the Notice. We are mailing the Notice on or about March 27, 2020, and it contains instructions on how to access the proxy statement and our Annual Report for the fiscal year ended December 31, 2019, which we refer to as the 2019 Annual Report, over the Internet. The Notice also contains instructions on how each of our shareholders can receive a paper copy of our proxy materials, including this proxy statement, our 2019 Annual Report, and a form of proxy card or voting instruction card. All shareholders who do not receive the Notice, including shareholders who have previously requested to receive paper copies of proxy materials, will receive a paper copy of the proxy materials by mail unless they have previously requested delivery of proxy materials electronically.

The Board of Directors has fixed the close of business on March 4, 2020 as the record date for the determination of shareholders entitled to notice of, and to vote at, the Annual Meeting and any adjournment or postponement thereof. Your vote is important no matter how many shares you own. Whether you expect to attend the meeting or not, please vote your shares by using the Internet as described in the instructions included in your Notice, by calling the toll-free telephone number, or, if you received a paper copy of the proxy materials, by completing, signing, dating and returning your proxy card or voting instruction card. Your prompt response is necessary to ensure that your shares are represented at the meeting. You can change your vote and revoke your proxy any time before the polls close at the meeting by following the procedures described in the accompanying proxy statement.

If you would like to attend the Annual Meeting and your shares are held by a broker, bank or other nominee, you must bring to the Annual Meeting a letter from the nominee confirming your beneficial ownership of such shares. In order to vote your shares at the Annual Meeting, you must obtain from the nominee a proxy issued in your name. You must also bring a form of personal identification.

By Order of the Board of Directors,

KATHLEEN F. BURKE
Secretary

Andover, Massachusetts
March 27, 2020

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**MKS INSTRUMENTS, INC.
2 Tech Drive, Suite 201
Andover, Massachusetts 01810**

PROXY STATEMENT

This proxy statement is furnished in connection with the solicitation of proxies by the Board of Directors of MKS Instruments, Inc., a Massachusetts corporation, for use at the 2020 Annual Meeting of Shareholders to be held on May 12, 2020 at 10:00 a.m., Eastern Time, at MKS Instruments, Inc., 2 Tech Drive, Suite 201, Andover, Massachusetts 01810, and at any adjournment or postponement thereof, which we refer to as the 2020 Annual Meeting. References in this proxy statement to “we,” “us,” the “Company” or “MKS” refer to MKS Instruments, Inc. and its consolidated subsidiaries.

All proxies will be voted in accordance with the applicable shareholder’s instructions. If no choice is specified in the proxy, the shares will be voted in favor of the matters set forth in the accompanying Notice of 2020 Annual Meeting of Shareholders. Any proxy may be revoked by a shareholder at any time before its exercise by delivery of written revocation to the Secretary of MKS. Attendance at the 2020 Annual Meeting will not in itself be deemed to revoke a proxy unless the shareholder gives affirmative notice at the 2020 Annual Meeting that the shareholder intends to revoke the proxy and vote in person.

We provide access to our proxy materials over the Internet under the “notice and access” rules of the U.S. Securities and Exchange Commission, which we refer to as the SEC. As a result, we mail to our shareholders a Notice of Internet Availability of Proxy Materials, which we refer to as the Notice. We are mailing the Notice on or about March 27, 2020, and it contains instructions on how to access the proxy statement and our Annual Report for the fiscal year ended December 31, 2019, which we refer to as the 2019 Annual Report, over the Internet. The Notice also contains instructions on how each of our shareholders can receive a paper copy of our proxy materials, including this proxy statement, our 2019 Annual Report, and a form of proxy card or voting instruction card. All shareholders who do not receive the Notice, including shareholders who have previously requested to receive paper copies of proxy materials, will receive a paper copy of the proxy materials by mail unless they have previously requested delivery of proxy materials electronically.

**IMPORTANT NOTICE REGARDING THE AVAILABILITY OF PROXY MATERIALS FOR THE ANNUAL MEETING OF
SHAREHOLDERS TO BE HELD ON MAY 12, 2020**

This proxy statement and the 2019 Annual Report to Shareholders are available for viewing, printing and downloading at <http://investor.mksinst.com/financial-information/annual-reports>.

A COPY OF OUR ANNUAL REPORT ON FORM 10-K FOR THE YEAR ENDED DECEMBER 31, 2019 AS FILED WITH THE SEC, EXCLUDING EXHIBITS, WILL BE FURNISHED WITHOUT CHARGE TO ANY SHAREHOLDER UPON WRITTEN REQUEST TO: INVESTOR RELATIONS DEPARTMENT, MKS INSTRUMENTS, INC., 2 TECH DRIVE, SUITE 201, ANDOVER, MA 01810. EXHIBITS WILL BE PROVIDED UPON WRITTEN REQUEST AND PAYMENT OF AN APPROPRIATE PROCESSING FEE.

VOTING OF SECURITIES AND VOTES REQUIRED

At the close of business on March 4, 2020, the record date for the determination of shareholders entitled to notice of, and to vote at, the 2020 Annual Meeting, there were issued and outstanding and entitled to vote 54,871,406 shares of our common stock, no par value per share, which we refer to as our Common Stock. Each outstanding share entitles the record holder to one vote on each matter submitted at the 2020 Annual Meeting.

In order to transact business at the 2020 Annual Meeting, we must have a quorum. Under our Amended and Restated By-Laws, the holders of a majority of the shares of Common Stock issued and outstanding and entitled to vote at the 2020 Annual Meeting shall constitute a quorum for the transaction of business at the 2020 Annual Meeting. Shares of Common Stock held by shareholders present in person or represented by proxy (including “broker non-votes” and shares that abstain or do not vote with respect to a particular proposal to be voted upon) will be counted for purposes of determining whether a quorum exists at the 2020 Annual Meeting. If a quorum is not present, the meeting will be adjourned until a quorum is obtained.

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The affirmative vote of the holders of a plurality of the votes cast on the matter is required for the election of directors (Proposal One); provided, however, any director nominee who receives a greater number of withhold votes than affirmative votes, which we refer to as a Majority Withhold Vote, in an uncontested election must offer to tender to the Board of Directors his or her resignation promptly following the certification of election results. The Board of Directors must accept or reject a resignation within 90 days following the certification of election results and publicly disclose its decision. Accordingly, the nominees who receive the highest number of votes of the shares present, in person or by proxy, and entitled to vote shall be elected to the available Class III Director positions, and in the event any nominee receives a Majority Withhold Vote, the resignation policy will apply as summarized here and as set forth in Section B.4 of our Corporate Governance Guidelines which are posted on our website at investor.mksinst.com in the Corporate Governance tab. The advisory vote on executive compensation (Proposal Two) and the ratification of PricewaterhouseCoopers LLP (Proposal Three) require the affirmative vote of the holders of a majority of the votes cast on the matter. Proposal Two is a non-binding proposal.

Shares held by shareholders who abstain from voting as to a particular matter, and “broker non-votes,” which are shares held in “street name” by banks, brokers or nominees, who indicate on their proxies that they do not have discretionary authority to vote such shares as to a particular non-routine matter, including the election of directors and the advisory vote on executive compensation, will not be counted as votes in favor of, or as votes cast for, a matter. Accordingly, abstentions and broker non-votes will have no effect on the voting on a matter that requires the affirmative vote of a majority of the votes cast on the matter. If the shares you own are held in street name by a bank or brokerage firm, your bank or brokerage firm, as the record holder of your shares, is required to vote your shares according to your instructions. In order to vote your shares, you will need to follow the directions your bank or brokerage firm provides you.

PROPOSAL ONE – ELECTION OF DIRECTORS

Our Amended and Restated By-Laws provide for a Board of Directors that is divided into three classes. The term of the Class I Directors expires at the 2021 Annual Meeting of Shareholders, the term of the Class II Directors expires at the 2022 Annual Meeting of Shareholders and the term of the Class III Directors expires at the 2020 Annual Meeting. Our Board of Directors, upon the recommendation of our Nominating and Corporate Governance Committee, has nominated Joseph B. Donahue and Janice K. Henry to serve as Class III Directors for a term to expire at the 2023 Annual Meeting of Shareholders. Each nominee has consented to being named herein and, if elected, to serve as a director until his or her successor is duly elected and qualified.

Shares represented by all proxies received by the Board of Directors and not so marked as to withhold authority to vote for an individual director will be voted (unless one or more nominees are unable or unwilling to serve) for the election of the nominees named below. The Board of Directors expects that each of the nominees named below will be available for election, but if either of them is not a candidate at the time the election occurs, it is intended that such proxies will be voted for the election of a substitute nominee to be designated by the Board of Directors.

THE BOARD OF DIRECTORS BELIEVES THAT APPROVAL OF THE ELECTION OF JOSEPH B. DONAHUE AND JANICE K. HENRY TO SERVE AS CLASS III DIRECTORS IS IN THE BEST INTERESTS OF MKS AND OUR SHAREHOLDERS AND THEREFORE RECOMMENDS A VOTE “FOR” BOTH NOMINEES.

DIRECTORS

Set forth below are the names and ages of each member of our Board of Directors and our two director nominees, Joseph B. Donahue and Janice K. Henry, the positions and offices held, principal occupation and business experience during at least the past five years, the names of other publicly held companies on which the individual currently serves, or in the past five years has served, as a director and the year each member of our Board of Directors joined our Board. We have also included information about each individual’s specific experience, qualifications, attributes, or skills that led the Board of Directors to conclude that he or she should serve as a director of MKS. Information with respect to the number of shares of Common Stock beneficially owned by each individual, directly or indirectly, as of January 1, 2020, appears in this proxy statement under the heading “Security Ownership of Certain Beneficial Owners and Management.” John R. Bertucci, Gregory R. Beecher and Rick D. Hess, who currently serve as Class III Directors, are not standing for re-election to the Board of Directors and, accordingly, their tenure as directors will end as of the date of our 2020 Annual Meeting on May 12, 2020. For this reason, their biographical information and qualifications have been omitted below.

<u>Name</u>	<u>Age</u>	<u>Position</u>	<u>Class to Which Director Currently Belongs</u>
John R. Bertucci*	79	Director, Chairman	III
Rajeev Batra(2)(3)	52	Director	I
Gregory R. Beecher(1)*	62	Director	III
Gerald G. Colella	63	Director, Former Chief Executive Officer	I
Joseph B. Donahue	61	Director Nominee	N/A
Janice K. Henry	68	Director Nominee	N/A
Rick D. Hess(2)*	66	Director	III
John T.C. Lee	57	Director, President and Chief Executive Officer	II
Jacqueline F. Moloney(1)(3)	66	Director	II
Elizabeth A. Mora(1)(2)	59	Director	I
Michelle M. Warner(3)	53	Director	II

(1) Member of Audit Committee

(2) Member of Compensation Committee

(3) Member of Nominating and Corporate Governance Committee

(*) Not standing for re-election to the Board

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<u>Name</u>	<u>Year Became Director</u>	<u>Background and Qualifications</u>
Rajeev Batra	2018	<p>Mr. Batra has served as President of Siemens Digital Industries U.S., an innovation leader in automation and digital transformation in the process and discrete industries, since April 2019. Previously, Mr. Batra served in various senior roles at Siemens U.S., including President of the Digital Factory Division from October 2014 to April 2019, President of the Industry Automation Division from October 2009 to October 2014, Vice President and General Manager, Automation & Motion Division from October 2007 to October 2009, and Vice President and General Manager, Automotive & Aerospace Vertical Markets from October 2002 to October 2007. Mr. Batra is also a director of Amsted Industries, a diversified global manufacturer of industrial components serving primarily the railroad, vehicular, and construction and building markets, and serves as Chairman of NEMA (National Electrical Manufacturers Association). Mr. Batra received a B.S. in Electrical Engineering from Lawrence Technological University and an M.B.A. from the University of Michigan. Mr. Batra's 15-plus years in executive leadership roles in the broad industrial (process and discrete) markets, his extensive portfolio experience in the automation, digitalization and I4.0/IoT areas, and his current role as President of Siemens Digital Industries U.S., qualify him to serve as a member of our Board of Directors.</p>
Gerald G. Colella	2014	<p>Mr. Colella served as our Chief Executive Officer from January 2014 until his retirement on January 1, 2020. Additionally, he served as our President from February 2013 to May 2018. He served as our Chief Operating Officer from January 2010 until December 2013 (additionally serving as Vice President until his promotion to President in February 2013). He served as our Vice President and Chief Business Officer from April 2005 until January 2010. Mr. Colella joined MKS in 1983 and progressed from materials planning and logistics to leading our global business and service operations before assuming his senior management roles. Mr. Colella serves as a director of GCP Applied Technologies Inc., a publicly held company that provides construction and building material products. He holds a B.A. in Secondary Education from the University of Massachusetts and an M.B.A. from Southern New Hampshire University. Mr. Colella's 35-plus years of experience within the Company, including direct knowledge and experience in operations, business strategy and growth, both organically and by acquisitions, gives him particularly deep insight into our organization.</p>

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<u>Name</u>	<u>Year Became Director</u>	<u>Background and Qualifications</u>
Joseph B. Donahue	Director Nominee	Mr. Donahue served as Executive Vice President and Chief Operating Officer of TE Connectivity Ltd., a publicly held manufacturer of connectors, sensors and minimally invasive surgical assemblies for the automotive, industrial, medical, aerospace and communications/consumer markets, from 2011 until 2017. He concurrently served as President of the Network Solutions segment of TE Connectivity from August 2012 until the divestiture of that business in August 2015. He also served at TE Connectivity (formerly Tyco Electronics Ltd.), including as President, Transportation Solutions segment from 2010 through July 2012, President of the Global Automotive Division from 2008 through 2009 and Senior Vice President of the same division beginning in September 2007. From September 2006 to August 2007, he was Group Vice President, Woodcoatings Division, for Valspar Corporation, a manufacturer of commercial and industrial coatings. Over the prior 16 years, Mr. Donahue held a variety of senior management roles at TE Connectivity and AMP Incorporated. Mr. Donahue holds a B.S. in Biological Sciences and an M.S. in Plastics Engineering from the University of Massachusetts, Lowell. He holds an M.S. in Manufacturing Systems Engineering from Lehigh University. Mr. Donahue's extensive experience in executive leadership roles for companies serving multiple markets, including industrial, as well as his experience managing all aspects of company global operations, including supply chain, manufacturing, environment, health and safety, lean, his international experience having lived and worked in Japan, China and Germany, and his merger and acquisition experience qualify him to serve as a member of our Board of Directors.
Janice K. Henry	Director Nominee	Ms. Henry served at Martin Marietta Materials, a chemical and materials manufacturer, as Senior Vice President from 1998 until 2006, as Chief Financial Officer from 1994 until 2005, and as Treasurer from 2002 until 2006. After her retirement in 2006, she provided consulting services to Martin Marietta Materials, Inc. until 2009. Ms. Henry served as Corporate Secretary of Martin Marietta Corporation (now Lockheed Martin) from 1986 to 1990. Ms. Henry serves as a member of the Corporation of The Charles Stark Draper Laboratory, Inc., a non-profit engineering research and development laboratory serving the national interest in applied research, engineering development, advanced technical education, and technology transfer. Ms. Henry serves as a director of GCP Applied Technologies Inc., a publicly held company that provides construction and building material products. Ms. Henry previously served as a director of W.R. Grace from 2012 until 2016 when it spun off GCP Applied Technologies, of North American Galvanizing and Coatings, Inc. from 2008 until its acquisition in 2010 by AZZ Inc., of Inco Limited from 2004 until its acquisition in 2006 by Companhia Vale do Rio Doce (now Vale S.A.), and of Cliffs Natural Resources, Inc. (now Cleveland-Cliffs, Inc.) from 2009 until 2014. Ms. Henry received an M.B.A in Finance and Investments from The George Washington University and a B.S. in Management from Columbia Union College. Ms. Henry's significant experience in financial and accounting leadership, mergers and acquisitions, capital structuring and strategic planning qualify her to serve as a member of our Board of Directors. Ms. Henry's board service with other public companies also provides valuable experience.

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<u>Name</u>	<u>Year Became Director</u>	<u>Background and Qualifications</u>
John T.C. Lee	2020	<p>Dr. Lee has served as our President and Chief Executive Officer since January 2020. From September 2019 to January 2020, he served as our President, from May 2018 to September 2019, he served as our President and Chief Operating Officer, and he served as our Senior Vice President and Chief Operating Officer from November 2016 until May 2018. From January 2014 until October 2016, Dr. Lee served as our Senior Vice President of Business Units. From November 2012 until December 2013, Dr. Lee served as our Senior Vice President, Controls, HPS (our integrated process solutions business), and Pressure, Flow, Measurement and Control, or PFMC. From January 2011 to November 2012, he served as Senior Vice President, Controls and PFMC, and from October 2007 to January 2011, he served as our Group Vice President, Controls and Information Technology products. Prior to joining MKS, Dr. Lee served as the Managing Director of Factory Technology and Projects within the Solar Business Group at Applied Materials, Inc., a global leader providing processing equipment to the semiconductor and display markets, from February 2007 until October 2007. From 2002 until 2007, he served as General Manager of the Cleans Product Group and the Maydan Technology Center at Applied Materials. Prior to Applied Materials, Dr. Lee served from 1997 until 2002 as Research Director of the Silicon Fabrication Research Department at Lucent Technologies, Inc., a voice, data and video communications provider, and from 1991 until 1997 as a Member of the Technical Staff in the Plasma Processing Research Group within Bell Labs. Dr. Lee serves as a member of the Diversity Committee of The Charles Stark Draper Laboratory, Inc., a non-profit engineering research and development laboratory serving the national interest in applied research, engineering development, advanced technical education, and technology transfer. Dr. Lee holds a B.S. from Princeton University and both an M.S.C.E.P. and a Ph.D. from the Massachusetts Institute of Technology, all in Chemical Engineering. Dr. Lee's education combined with his technical understanding of our numerous and varied complex products, gained from over twelve years of experience working in progressive leadership roles at our Company, and previously at one of our largest customers, provide him with a unique leadership perspective.</p>
Jacqueline F. Moloney	2016	<p>Ms. Moloney has served since 2015 as the Chancellor of the University of Massachusetts, Lowell, a public university with over 17,000 students, and served as its Executive Vice Chancellor from 2007 to 2015. Ms. Moloney has been a tenured professor at the University since 1994 and served as the Dean of Online and Continuing Education from 1994 to 2007. Since 2008, Ms. Moloney has served as a director and member of the compensation, nominating and corporate governance, strategic planning, technology and executive committees of Enterprise Bancorp, Inc., a publicly held bank. She holds an Ed.D. from the University of Massachusetts, Lowell. Ms. Moloney has over 30 years of experience as a leader in non-profit organizations. She has a deep history of working with business and industry, and she established the first incubators at the University of Massachusetts, Lowell, which are the home to approximately 50 early stage companies. She provides valuable knowledge and insight on emerging strategic planning and management and business trends.</p>

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<u>Name</u>	<u>Year Became Director</u>	<u>Background and Qualifications</u>
Elizabeth A. Mora	2012	<p>Ms. Mora has served since March 2016 as the Chief Administrative Officer, and from 2008 to February 2016 served as the Chief Financial Officer, of The Charles Stark Draper Laboratory, Inc., a non-profit engineering research and development laboratory serving the national interest in applied research, engineering development, advanced technical education, and technology transfer, or Draper Labs. From 1997 until 2008, she worked for Harvard University, ultimately serving as Chief Financial Officer and Vice President for Finance, and previously serving as Associate Vice President, Research Administration and the Director of the Office of Sponsored Research. Prior to joining Harvard, Ms. Mora worked for Coopers and Lybrand (now PricewaterhouseCoopers LLP) from 1989 to 1997 and was one of the founding members of its National Regulatory Consulting Practice. Ms. Mora is a Certified Public Accountant and has an M.B.A. from the Simmons College Graduate School of Management. She is the Chair of the Board at GCP Applied Technologies, Inc., a publicly held company that provides construction and building material products, and has served on its Board of Directors since 2016. Ms. Mora's extensive financial background, including her current role as Chief Administrative Officer of a prominent research and development organization, provides valuable insights for our Board of Directors, the Audit Committee and the Compensation Committee, and strong leadership as Chair of the Compensation Committee. Also, Ms. Mora provides valuable insights on cyber security based on her oversight of Information Technology at Draper Labs, a leader in cyber security threat detection.</p>
Michelle M. Warner	2019	<p>Ms. Warner served as Senior Vice President, General Counsel and Corporate Secretary for USG Corporation, a leading manufacturer of building products and solutions, from January 2016 until its acquisition by privately held Gerb. Knauf KG in April 2019. From 1997 until 2015, she worked in a variety of legal positions for Motorola Solutions, Inc. (formerly Motorola, Inc.), a provider of communication infrastructure, devices, accessories, software and services, most recently as Deputy General Counsel and Corporate Secretary, prior to that, serving as Corporate Vice President, Law, Corporate, Securities and Transactions. She serves on the Board of Directors for Logan Square Preservation, a non-profit organization, and is Chair of the President's Council and an ex officio member of the Board of Trustees of the Museum of Science and Industry, Chicago. She also serves on the Board of Advisors of Denison University. Ms. Warner received a J.D. from the Northwestern University School of Law and a B.S. in Economics from Denison University. Due to Ms. Warner's strong background in mergers and acquisitions, as well as securities and corporate governance, she provides valuable experience to our Board.</p>

Director Skills, Experience and Background

MKS is a global provider of instruments, systems, subsystems and process control solutions that measure, monitor, deliver, analyze, power and control critical parameters of advanced manufacturing processes to improve process performance and productivity for our customers. Many of the markets for our products are cyclical and highly competitive. As we discuss below under Corporate Governance – Director Candidates, the Nominating and Corporate Governance Committee is responsible for evaluating the appropriate skills, experience and background that MKS seeks in Board members in the context of our business and the existing composition of the Board. This evaluation includes numerous factors, such as integrity, business acumen, knowledge of our business and industry, effectiveness, experience, diligence, conflicts of interest and the ability to act in the interests of all shareholders.

Listed below are the skills and experience that we consider important for our directors given our current business and organizational structure. The continuing directors' and director nominees' biographies and the matrix below note each director's and director nominee's relevant experience, qualifications and skills relative to this list.

Skills/Competencies

- Industry Experience

A significant portion of our sales are derived from products sold to semiconductor capital equipment manufacturers and semiconductor device manufacturers. In addition, our products are used in the industrial technologies, life and health sciences, as well as research and defense markets. Directors who have education and experience in semiconductor technology and other industrial technologies are valuable for their perspectives on our research and development efforts, competing technologies, the products and processes we develop, our manufacturing and assembly and the markets in which we compete.

- M&A and Business Development Experience

Directors with a background in mergers and acquisitions, and business development provide insights into developing and implementing strategies for growing our business. Useful experience in this area includes skills in assessing and analyzing the "fit" of a proposed acquisition with our long-term strategy, valuing transactions and assessing management's integration plans with existing operations.

- CEO/COO/CFO Experience

Directors who have served in senior leadership positions are important to us because they have the experience and perspective to analyze, shape, and oversee the execution of important operational and policy issues.

- Experienced Director

Directors with public company board experience understand the dynamics and operation of a corporate board, the relationship of a public company board to the Chief Executive Officer and other executive officers, the legal and regulatory landscape in which public companies must operate, and how to oversee an ever-changing mix of strategic, operational, and compliance-related matters.

- International Experience

We are a global organization with manufacturing, research and development, and sales offices in many countries. We sell our products to thousands of customers worldwide and a significant portion of our revenues are from sales to customers in international markets. Our manufacturing facility locations include Austria, China, France, Germany, Israel, Italy, Mexico, Romania, Singapore, South Korea, the United Kingdom and the United States. Because of these factors, directors with international experience can provide valuable business, regulatory and cultural perspectives regarding many important aspects of our business.

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Functional Background

- Accounting/Finance

Knowledge of financial markets, financing operations, and accounting and financial reporting processes is very important as it assists our directors in understanding, advising on, and overseeing our capital structure, financing and investing activities as well as our financial reporting and internal controls.

- Engineering/R&D

Our products incorporate sophisticated technologies to measure, monitor, deliver, analyze, power and control complex semiconductor and advanced manufacturing processes, thereby enhancing uptime, yield and throughput for our customers. We have developed, and continue to develop, new products to address industry trends. Directors with education and experience in engineering, and research and development provide valuable perspectives regarding our research and development efforts, competing technologies, the products and processes we develop, our manufacturing and assembly and the markets in which we compete.

- Regulatory/Legal/Governance

Directors with a regulatory, legal or governance background can assist the Board in fulfilling its oversight responsibilities regarding our compliance, engagement with regulatory authorities, and governance structure.

- Marketing/Sales

Directors with marketing, brand management and sales experience can provide expertise and guidance as we seek to grow sales, expand the markets in which we compete, and strengthen our brands.

- Operations

As we operate in many cyclical markets, with rapid demand changes, and have a broad footprint of international manufacturing operations, understanding of and experience with manufacturing and other operational processes are valuable assets to our Board.

- Digitization/Cybersecurity/IoT

The markets we serve increasingly rely on digitization and electronic connectivity as growth drivers, including, for example, the Internet of Things, or IoT. Further, we rely on various information technology networks and systems, some of which are managed by third parties, to process, transmit and store electronic information and to carry out and support a variety of business activities, and the safety and security of our digital information is paramount to our success. Directors who have a sophisticated understanding of global digitization, and/or cybersecurity literacy can assist with the Board's oversight of driving future growth and securing our digital information in the rapidly evolving digital landscape.

Personal Demographics

Representation of a mix of ages, gender and racially diverse perspectives expand the Board's understanding of the needs and perspectives of our customers, suppliers, employees and stockholders. In addition, we consider the tenure each director has on our Board.

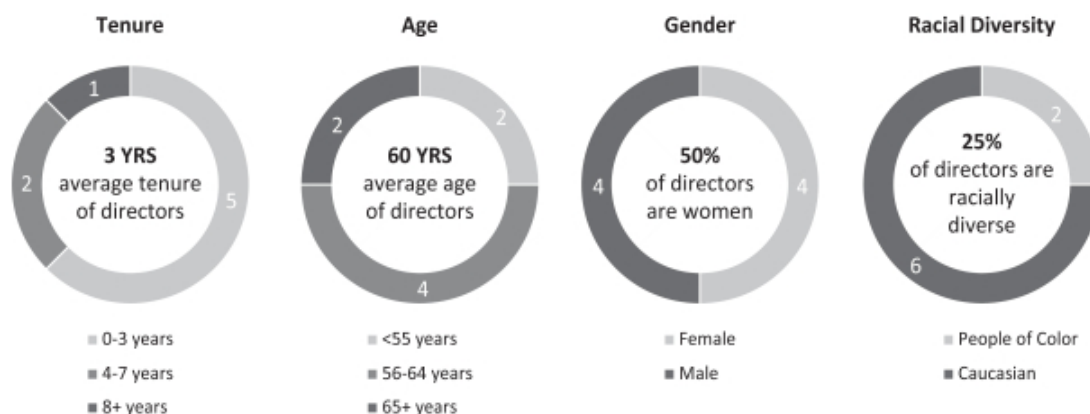
Board Skills Matrix

Listed below are the skills and competencies that we consider important for our directors and director nominees to ensure effective oversight of the Company’s business. The continuing directors’ and director nominees’ biographies note each continuing director’s and director nominee’s relevant experience, qualifications and skills relative to this list.

	Current Members									Nominees	
	1	2	3	4	5	6	7	8	9	1	2
	John Bertucci	Rajeev Batra	Gregory Beecher	Gerald Colella	Rick Hess	Jacqueline Moloney	Elizabeth Mora	Michelle Warner	John T.C. Lee	Jamie Henry	Joseph Donahue
SKILLS/COMPETENCIES											
• Industry Experience	✓	✓	✓	✓	✓			✓	✓	✓	✓
• M&A Business Development Experience	✓		✓	✓	✓	✓		✓	✓	✓	✓
• CEO/COO/CFO Experience	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
• Experienced Director	✓		✓	✓	✓	✓	✓			✓	
• International Experience	✓		✓	✓	✓	✓		✓	✓	✓	✓
FUNCTIONAL BACKGROUND											
• Accounting/Finance			✓				✓			✓	
• Engineering/R&D	✓	✓			✓				✓		✓
• Regulatory/Legal/Governance							✓	✓		✓	
• Marketing/Sales	✓	✓		✓							
• Operations	✓	✓	✓	✓							✓
• Digitization/Cybersecurity/IoT		✓	✓				✓				
PERSONAL DEMOGRAPHICS											
• Tenure (years)	50	2	14	6	3	4	8	1	0	0	0
• Age	79	52	62	63	66	66	59	53	57	68	61
• Gender (Female/Male/Nonbinary)	M	M	M	M	M	F	F	F	M	F	M
• Racial Diversity (Caucasian/Non-Caucasian)	C	N	C	C	C	C	C	C	N	C	C

Demographic Ratio Graphs

The following demographic ratio graphs show data for our continuing directors and director nominees.



PROPOSAL TWO – ADVISORY VOTE ON EXECUTIVE COMPENSATION

The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, or the Dodd-Frank Act, enables our shareholders to vote to approve, on a non-binding, advisory basis, the compensation of our 2019 Named Executive Officers as disclosed in this proxy statement under the heading “Executive Compensation” including “Compensation Discussion and Analysis,” the tabular disclosure regarding such compensation, and the accompanying narrative disclosure. This vote is not intended to address any specific item of compensation, but rather the overall compensation of our 2019 Named Executive Officers and the philosophy, policies and practices of executive compensation described in this proxy statement. The advisory vote is not a vote on our compensation practices for non-executive employees or our Board of Directors. The Dodd-Frank Act requires the Company to hold the advisory vote on executive compensation at least once every three years, but we have elected to submit the advisory vote to shareholders annually.

As described in detail under the heading “Executive Compensation — Compensation Discussion and Analysis,” our executive compensation programs are designed to attract, motivate, and retain our executive officers, who are critical to our success. Under these programs, our executive officers are rewarded for the achievement of specific short-term and long-term goals. Please see the “Compensation Discussion and Analysis” for additional details about our executive compensation philosophy and programs, including information about the compensation of our 2019 Named Executive Officers.

The Compensation Committee continually reviews the compensation programs for our executive officers to ensure they achieve the desired goals of aligning our executive compensation structure with our shareholders’ interests and current market practices.

Our Board of Directors is asking shareholders to approve a non-binding advisory vote on the following resolution:

RESOLVED, that the compensation paid to the Company’s 2019 Named Executive Officers, as disclosed pursuant to the compensation disclosure rules of the SEC, including the Compensation Discussion and Analysis, the compensation tables and any related material disclosed in this proxy statement, is hereby approved.

This vote on the compensation of our 2019 Named Executive Officers is advisory, and therefore not binding on the Company, the Compensation Committee or our Board of Directors. Our Board of Directors and our Compensation Committee value the opinions of our shareholders and to the extent there is any significant vote against the 2019 Named Executive Officers’ compensation as disclosed in this proxy statement, we will consider our shareholders’ concerns and the Compensation Committee will evaluate whether any actions are necessary to address those concerns.

THE BOARD OF DIRECTORS BELIEVES THAT THE PROPOSAL TO APPROVE, ON A NON-BINDING ADVISORY BASIS, THE EXECUTIVE COMPENSATION CONTAINED IN THIS PROXY STATEMENT IS IN THE BEST INTERESTS OF MKS AND OUR SHAREHOLDERS AND THEREFORE RECOMMENDS A VOTE “FOR” THIS PROPOSAL.

PROPOSAL THREE – RATIFICATION OF SELECTION OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Our Audit Committee has selected PricewaterhouseCoopers LLP, or PwC, as the Company’s independent registered public accounting firm for the fiscal year ending December 31, 2020. PwC was our independent registered public accounting firm for the fiscal year ended December 31, 2019.

Representatives of PwC are expected to be present at the 2020 Annual Meeting and will have the opportunity to make a statement if they so desire and will be available to respond to appropriate questions from shareholders. In the event that the ratification of the selection of PwC as our independent registered public accounting firm is not obtained at the 2020 Annual Meeting, the Board of Directors will reconsider its appointment.

THE BOARD OF DIRECTORS BELIEVES THAT THE PROPOSAL TO RATIFY THE SELECTION OF PWC AS OUR INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FOR THE FISCAL YEAR ENDING DECEMBER 31, 2020 IS IN THE BEST INTERESTS OF MKS AND OUR SHAREHOLDERS AND THEREFORE RECOMMENDS A VOTE “FOR” THIS PROPOSAL.

CORPORATE GOVERNANCE

Board Independence

The Board of Directors has determined that all of the members of the Board of Directors, other than Mr. Colella and Dr. Lee, are independent as defined under the rules of the Nasdaq Stock Market, or Nasdaq.

Board Leadership Structure

Since 2005, we have separated the roles of Chief Executive Officer and Chairman of the Board of Directors in recognition of the differences between the two roles. The Chief Executive Officer is responsible for setting the strategic direction of the Company and the day-to-day leadership and performance of the Company, while the Chairman of the Board of Directors provides guidance to the Chief Executive Officer, sets the agenda for Board meetings and presides over meetings of the full Board of Directors. Mr. Bertucci, who has been our Chairman of the Board of Directors since 1995, will not be standing for re-election to the Board and, accordingly, his tenure as a director and Chairman will end as of the date of our 2020 Annual Meeting on May 12, 2020. Mr. Colella, our former Chief Executive Officer and current member of our Board of Directors, will assume the role as Chairman at that time.

In addition, the Board of Directors has established the position of Lead Director. Our Corporate Governance Guidelines provide that during any period in which the Chairman of the Board of Directors is not an independent director, and in such other instances as the Board of Directors may determine from time to time, a Lead Director shall be elected by and from the independent directors. While we are not currently obligated under our Corporate Governance Guidelines to have a Lead Director, as our Chairman of the Board of Directors is independent, we will be required to have a Lead Director in May 2020 when Mr. Colella, our former Chief Executive Officer and a non-independent member of our Board of Directors, assumes the role of Chairman. Mr. Beecher, who has been our Lead Director since 2012, will not be standing for re-election to the Board and, accordingly, his tenure as a director and Lead Director will end as of the date of our 2020 Annual Meeting on May 12, 2020. The Board will appoint a new Lead Director at that time.

The primary role of the Lead Director is to serve as a liaison between the independent directors and the Chairman of the Board of Directors and/or the Chief Executive Officer and to represent the interests of the independent directors, as appropriate. Pursuant to our Corporate Governance Guidelines, which are posted on our website at investor.mksinst.com in the Corporate Governance tab, the Lead Director shall, among other matters:

- have the authority to call meetings of the independent directors;
- preside at all meetings of the Board of Directors at which the Chairman of the Board of Directors is not present;

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- assure that at least two meetings per year of only the independent directors are held and chair any such meetings of the independent directors;
- facilitate communications and serve as a liaison between the independent directors and the Chairman of the Board of Directors and/or the Chief Executive Officer, provided that any director is free to communicate directly with the Chairman of the Board of Directors and with the Chief Executive Officer;
- work with the Chairman of the Board of Directors and the Chief Executive Officer in the preparation of the agenda for each Board of Directors meeting and approve each such agenda;
- if a meeting is held between a major shareholder and a representative of the independent directors, the Lead Director shall serve, subject to availability, as such representative of the independent directors; and
- otherwise consult with the Chairman of the Board of Directors and the Chief Executive Officer on matters relating to corporate governance and performance of the Board of Directors.

Our Board of Directors believes that its leadership structure is appropriate at this time for our Company because it strikes an effective balance between management and independent leadership participation in the Board of Directors' process.

Communications from Shareholders

The Board of Directors will give attention to written communications that are submitted by shareholders and will respond if appropriate. The Chair of the Nominating and Corporate Governance Committee, with the assistance of our General Counsel, is primarily responsible for monitoring communications from shareholders and for providing copies or summaries to the other directors as he or she considers appropriate. Communications are forwarded to all directors if they relate to important substantive matters and include suggestions or comments that the Chair of the Nominating and Corporate Governance Committee considers to be important for the directors to know. In general, communications relating to corporate governance and long-term corporate strategy are more likely to be forwarded than communications relating to ordinary business affairs, personal grievances and matters as to which we tend to receive repetitive or duplicative communications.

Shareholders who wish to send communications on any topic to the Board of Directors should address such communications to the Board of Directors in care of Kathleen F. Burke, Esq., Senior Vice President, General Counsel and Secretary, MKS Instruments, Inc., 2 Tech Drive, Suite 201, Andover, MA 01810.

Code of Business Conduct and Ethics

We have adopted a code of business conduct and ethics that applies to all of our directors, officers and employees (including the principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions), which is posted on our website at investor.mksinst.com in the Corporate Governance tab. We intend to disclose on our website any amendments to, or waivers for our executive officers or directors from, our code of business conduct and ethics.

Board's Role in Risk Oversight

Management is responsible for the day-to-day management of risks the Company faces, while the Board of Directors, as a whole and through its committees, has the ultimate responsibility for the oversight of risk management. Senior management attends quarterly meetings of the Board of Directors, provides presentations on operations, including significant risks, and is available to address any questions or concerns raised by the Board of Directors. Additionally, our three standing board committees assist the Board of Directors in fulfilling its oversight responsibilities in certain areas of risk. Pursuant to its charter, the Audit Committee coordinates the Board of Directors' oversight of the Company's internal controls over financial reporting, disclosure controls and procedures, and code of business conduct and ethics. The Audit Committee also is responsible for discussing the

Company's policies with respect to financial risk assessment and financial risk management. Management regularly reports to the Audit Committee on these areas. The Compensation Committee assists the Board of Directors in fulfilling its oversight responsibilities with respect to the management of risks arising from our compensation policies and programs as well as succession planning. The Nominating and Corporate Governance Committee assists the Board of Directors in fulfilling its oversight responsibilities with respect to the management of risks associated with board organization, membership and structure, succession planning for our directors, corporate governance and corporate social responsibility. In addition, from time to time, the Board of Directors may constitute a special committee to focus on a particular matter or risk. When any of the committees receives a report related to material risk oversight, the chair of the relevant committee reports on the discussion to the full Board of Directors.

Transactions with Related Persons

Our code of business conduct and ethics sets forth the general principle that our directors, officers and employees should refrain from engaging in any activity having a personal interest that presents a conflict of interest. The code of business conduct and ethics prohibits directors, officers and employees from engaging in any activity that may reasonably be expected to give rise to a conflict of interest or to adversely affect our interests. The code of business conduct and ethics provides that all employees are responsible to disclose to their managers, the Human Resources Department or the Legal Department any material transaction or relationship that reasonably could be expected to give rise to a material conflict of interest, and officers and directors must report such transactions to the Board of Directors, which shall be responsible for determining whether such transaction or relationship constitutes a material conflict of interest.

In addition, our written Related Person Transaction Procedures set forth the procedures for reviewing transactions that could be deemed to be "related person transactions" (defined as transactions required to be disclosed pursuant to Item 404 of Regulation S-K of applicable SEC regulations). In accordance with these procedures, directors and executive officers are required to submit annual certifications regarding interests and affiliations held by them and certain of their family members. We then review our records to determine whether we have engaged in any transactions since the beginning of our prior fiscal year with such affiliated persons and entities or with any person or entity known by MKS to be the beneficial owner of more than 5% of our voting securities, and provide a summary to the Audit Committee of any such material transaction in which the related person has a direct or indirect interest. In accordance with the procedures, the Audit Committee reviews any such transactions (including, but not limited to, transactions constituting related person transactions). In reviewing any such transaction, the Audit Committee considers, among other things, the related person's interest in the transaction, the approximate dollar value of the transaction, whether the transaction was undertaken in the ordinary course of business, whether the terms of the transaction were at arm's length, the purpose and potential benefits to the Company of the transaction, and whether the transaction is in the best interests of the Company. The Audit Committee may, in its sole discretion, impose such conditions as it deems appropriate in connection with any related person transaction. In accordance with the Audit Committee charter, the Audit Committee reviews the Related Person Transaction Procedures from time to time.

Wellington Management Group, LLP, Wellington Group Holdings LLP, Wellington Investment Advisors Holdings LLP, and Wellington Management Company LLP, which we refer to collectively as the Wellington Group, collectively beneficially owned approximately 7% of the Company's outstanding voting shares as of December 31, 2019, according to a filing they have made with the SEC. Wellington Management LLP, an affiliate of the Wellington Group, manages cash accounts of MKS, in the aggregate amount of approximately \$164 million as of December 31, 2019. In 2019, MKS paid Wellington Management LLP approximately \$300,000 for these cash management services. Wellington Management LLP must manage the MKS cash accounts in accordance with, and subject to, the Company's Corporate Investment Policy, which establishes clear guidelines for acceptable investments. As part of our Related Person Transaction Procedures, our Audit Committee reviewed the foregoing relationship with Wellington Management LLP.

Board of Director Meetings and Committees of the Board of Directors

The Board of Directors held four meetings in 2019. During 2019, each director attended at least 75% of the aggregate of the total number of meetings of the Board of Directors and the total number of meetings of all committees of the Board of Directors on which he or she served. Pursuant to our Corporate Governance Guidelines, directors are encouraged to attend our annual meeting of shareholders. All of the directors then serving on the Board of Directors, other than Messrs. Chute and Hanley, who were not standing for re-election at the 2019 Annual Meeting, attended the 2019 Annual Meeting of Shareholders.

The Board of Directors has established three standing committees — Audit, Compensation, and Nominating and Corporate Governance — each of which operates under a charter that has been approved by the Board of Directors. Each committee's current charter is posted on our website at investor.mksinst.com in the Corporate Governance tab.

Audit Committee

The Audit Committee consists of Mr. Beecher (Chair), Ms. Moloney and Ms. Mora. The Board of Directors has determined that each of the three current members of the Audit Committee is an "audit committee financial expert" as defined in applicable SEC regulations. Each member of the Audit Committee also meets the requirements for independence under applicable Nasdaq and SEC rules. The Audit Committee's responsibilities include:

- appointing, approving the fees of, assessing the independence of, evaluating, retaining and, when necessary, terminating the engagement of our independent registered public accounting firm;
- overseeing the work of our independent registered public accounting firm, including through the receipt and consideration of certain reports from the independent registered public accounting firm;
- reviewing and discussing our annual audited financial statements and related disclosures with management and the independent registered public accounting firm;
- reviewing our quarterly unaudited financial statements;
- coordinating oversight of our internal controls over financial reporting, disclosure controls and procedures, and code of business conduct and ethics;
- overseeing our internal audit function;
- discussing our policies with respect to financial risk assessment and financial risk management;
- establishing procedures for the receipt and retention of accounting-related complaints and concerns;
- discussing generally the types of information to be disclosed in our earnings press releases, as well as in financial information and earnings guidance provided to analysts, rating agencies and others;
- meeting independently with our internal audit staff, independent registered public accounting firm and management;
- reviewing our procedures for reviewing related person transactions, recommending any changes to these procedures and reviewing any related person transactions;
- reviewing and approving swaps, including those subject to mandatory clearing; and
- preparing the Audit Committee report required to be included in the annual proxy statement.

The Audit Committee held five meetings in 2019.

Compensation Committee

The Compensation Committee consists of Ms. Mora (Chair), Mr. Batra and Mr. Hess. Dr. Peter R. Hanley also served on the Compensation Committee until May 2019 when his tenure as a director ended. Each member of the Compensation Committee meets the requirements for independence under applicable Nasdaq and SEC rules. The Compensation Committee's responsibilities include:

- reviewing and approving the compensation of our Chief Executive Officer and our other executive officers;
- overseeing the evaluation of our executive officers;
- overseeing Chief Executive Officer and other executives' succession planning;
- periodically reviewing and approving our management incentive bonus plans;
- overseeing the risks associated with our compensation policies and practices and annually reviewing whether such policies and practices are reasonably likely to have a material adverse effect on the Company;
- reviewing the Compensation Discussion and Analysis required to be included in the annual proxy statement;
- preparing the annual Compensation Committee Report required to be included in the annual proxy statement;
- overseeing and administering our equity incentive plans;
- reviewing and making recommendations to the Board of Directors with respect to director compensation; and
- appointing, compensating, assessing the independence of, and overseeing the work of any compensation consultant.

The Compensation Committee held six meetings in 2019. See the section below entitled "Executive Compensation — Compensation Discussion and Analysis" for further information about the role of the Compensation Committee and the scope of its activities.

Compensation Risk Assessment

Our Compensation Committee engaged its independent compensation consultant, Pearl Meyer, to conduct a risk assessment of our compensation programs and practices to understand if any risks exist that are reasonably likely to have a material adverse effect on our Company, and the results were reviewed by our Compensation Committee. Based on this assessment, our Compensation Committee concluded that our compensation programs and practices, as a whole, are appropriately structured and do not pose a material risk to our Company. Our compensation programs are intended to reward our executive officers and other employees for strong performance over the long-term, with consideration to short-term actions and results that strengthen and grow our Company. We believe our compensation programs provide the appropriate balance between short-term and long-term incentives, focusing on sustainable and profitable growth for our Company.

Compensation Committee Interlocks and Insider Participation

In 2019, the Compensation Committee was comprised of Ms. Mora (Chair), Mr. Hess, Mr. Batra and Dr. Hanley, who stepped down in May 2019 when his tenure as a director ended. None of the members of the Compensation Committee during 2019 were, at any time, officers or employees of MKS or our subsidiaries, and none of them had any relationship with us requiring disclosure under applicable SEC rules and regulations. None of our executive officers serves, or has served, as a member of the Board of Directors or Compensation Committee (or other committee serving an equivalent function) of any other entity which has one or more executive officers serving as a member of our Board of Directors or Compensation Committee.

Nominating and Corporate Governance Committee

The Nominating and Corporate Governance Committee consists of Ms. Moloney (Chair), Mr. Batra and Ms. Warner. Mr. Batra and Ms. Warner replaced Dr. Hanley and Richard S. Chute, each of whom stepped down in May 2019 when his tenure as a director ended. Each member of the Nominating and Corporate Governance Committee meets the requirements for independence under applicable Nasdaq and SEC rules. The Nominating and Corporate Governance Committee's responsibilities include:

- identifying individuals qualified to become members of the Board of Directors, consistent with criteria approved by the Board of Directors;
- recommending to the Board of Directors the persons to be nominated for election as directors and to each of the committees of the Board of Directors;
- designating a Lead Director (if any), subject to the approval of the independent directors;
- reviewing each director's continuation on the Board of Directors at least once every three years;
- overseeing corporate governance policies and reviewing the Company's charter, by-laws and corporate governance guidelines;
- reviewing and reporting to the Board of Directors on the Company's corporate social responsibility and sustainability efforts;
- retaining and terminating any search firm to be used to identify director nominees;
- periodically reviewing the Board of Directors' leadership structure to assess whether it is appropriate;
- conducting the annual evaluations of the Board of Directors, each of the committees of the Board of Directors and the directors who are up for nomination; and
- monitoring communications from shareholders and other interested parties.

The Nominating and Corporate Governance Committee held five meetings in 2019.

For information relating to the nomination of directors, see "Director Candidates" below.

Director Candidates

The Nominating and Corporate Governance Committee recommended to the Board of Directors that the director nominees be nominated by the Board of Directors for election as Class III Directors. The Nominating and Corporate Governance Committee utilizes a number of processes to identify and evaluate director candidates, including the engagement of a third-party executive search firm and other resources to identify potential director candidates, as needed. Activities relating to identifying and selecting nominees include Board assessments of each incumbent director nominee for the current year, requests to Board members and others for recommendations of potential candidates, meetings from time to time to evaluate biographical information and background material relating to potential candidates and interviews of selected candidates by the members of the Nominating and Corporate Governance Committee and the Board of Directors. In the case of Mr. Donahue, he was identified as a potential candidate by a non-management member of our Board of Directors. In the case of Ms. Henry, she was identified as a potential candidate by a non-management member of our Board of Directors, by our Chief Executive Officer and by one of our other executive officers. Mr. Donahue and Ms. Henry were recognized for their experience and expertise, which were complementary to the existing Board's skillsets. The Nominating and Corporate Governance Committee recommended to the Board of Directors the nomination of Mr. Donahue and Ms. Henry.

In considering whether to recommend any particular candidate for inclusion in the Board of Directors' slate of recommended director nominees, the Nominating and Corporate Governance Committee applies the criteria attached to the Company's Corporate Governance Guidelines. These criteria include the candidate's integrity, business acumen, knowledge of our business and industry, effectiveness, experience, diligence, conflicts of

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interest and the ability to act in the interests of all shareholders. The Nominating and Corporate Governance Committee does not assign specific weights to particular criteria and no particular criterion is a prerequisite for each prospective nominee. The Nominating and Corporate Governance Committee also assesses the candidate's professional background and skills against those of the existing Board members to ensure a breadth and diversity of expertise that suits the Company's current and future business risks, industries and challenges. See "Directors — Board Skills Matrix." Nominees shall not be discriminated against on the basis of race, religion, national origin, sex, sexual orientation, disability or any other basis proscribed by law. In considering director candidates, the Nominating and Corporate Governance Committee takes into account the value of diversity on the Board of Directors. While the Nominating and Corporate Governance Committee does not have a formal policy with respect to diversity, the Board of Directors and the Nominating and Corporate Governance Committee believe that it is essential that the members of the Board of Directors represent diverse viewpoints. In considering candidates for the Board of Directors, the Nominating and Corporate Governance Committee considers the entirety of each candidate's credentials in the context of these standards. We believe that the backgrounds and qualifications of our directors, considered as a group, should provide a composite mix of experience, knowledge and abilities that will allow the Board of Directors to fulfill its responsibilities.

Shareholders may recommend individuals to the Nominating and Corporate Governance Committee for consideration as potential director candidates by submitting their names, together with appropriate biographical information and background materials and a statement as to whether the shareholder or group of shareholders making the recommendation has beneficially owned at least \$2,000 in market value or 1% of our Common Stock, whichever is less, for at least a year as of the date such recommendation is made, to the Nominating and Corporate Governance Committee, in care of Kathleen F. Burke, Esq., Senior Vice President, General Counsel and Secretary, MKS Instruments, Inc., 2 Tech Drive, Suite 201, Andover, MA 01810. Assuming that appropriate biographical and background material has been provided on a timely basis, the Nominating and Corporate Governance Committee will evaluate shareholder-recommended candidates by following substantially the same process, and applying the same criteria, as it does in considering other candidates.

Shareholders also have the right under our Amended and Restated By-Laws to directly nominate director candidates, without any action or recommendation on the part of the Nominating and Corporate Governance Committee or the Board of Directors, by following the procedures set forth under the heading "Deadline for Submission of Shareholder Proposals for the 2021 Annual Meeting" below.

DIRECTOR COMPENSATION

Cash Compensation

The following table summarizes the cash compensation payable by us to non-employee directors in 2019:

	Annual Retainer
Base Retainer for All Non-Employee Board Members	\$70,000
<i>Additional Retainers for Services:</i>	
Chairman	\$60,000
Lead Director	\$25,000
Audit Committee Chair	\$25,000
Other Audit Committee Members	\$12,500
Compensation Committee Chair	\$20,000
Other Compensation Committee Members	\$ 8,000
Nominating and Corporate Governance Committee Chair	\$12,500
Other Nominating and Corporate Governance Committee Members	\$ 5,500

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In February 2020, the Board of Directors, upon the recommendation of the Compensation Committee, approved several changes to our non-employee director cash compensation program. The Compensation Committee recommended these changes after reviewing a competitive analysis of director compensation programs of our peer group prepared by the Committee's independent compensation consultant, Pearl Meyer, and finding that certain components of board compensation fell below the median of our peer group. The table below sets forth the cash compensation payable by us to non-employee directors under the new cash compensation program effective as of January 1, 2020:

	Annual Retainer
Base Retainer for All Non-Employee Board Members	\$70,000
<i>Additional Retainers for Services:</i>	
Chairman	\$75,000
Lead Director	\$25,000
Audit Committee Chair	\$25,000
Other Audit Committee Members	\$12,500
Compensation Committee Chair	\$20,000
Other Compensation Committee Members	\$10,000
Nominating and Corporate Governance Committee Chair	\$15,000
Other Nominating and Corporate Governance Committee Members	\$ 7,500

In addition, from time to time, the Board of Directors may establish special committees related to specific matters and may include a retainer for service on such special committees in its discretion.

Equity Compensation

Non-employee directors are eligible for awards under our 2014 Stock Incentive Plan, which is administered by the Compensation Committee. In 2019, under our director compensation program, non-employee directors received automatic grants of restricted stock units, or RSUs, on the date of the 2019 Annual Meeting of Shareholders, with a grant date value of \$170,000, which RSUs shall vest in full on the day prior to the 2020 Annual Meeting. In February 2020, the Board of Directors, upon the recommendation of the Compensation Committee, increased the value of the annual RSU grant to \$200,000 for each non-employee director, effective on the date of the 2020 Annual Meeting. Our Compensation Committee recommended this increase after reviewing the board compensation analysis discussed above under Director Compensation — Cash Compensation and finding that the equity compensation paid to non-employee members of our Board fell below the median of our peer group.

If a new non-employee director joins our Board of Directors after our annual meeting of shareholders but before January 1st of the following year, he or she will be entitled to an initial RSU grant with a value equal to the annual RSU grant. In the event a non-employee director joins our Board of Directors during the period from January 1st through the date of that year's annual meeting of shareholders, he or she will not be entitled to an initial RSU grant but will be entitled to the annual RSU grant on the date of the annual meeting of shareholders.

Mr. Bertucci

Mr. Bertucci resigned from his employment as our Executive Chairman effective December 31, 2006. At that time, he remained a Class III Director and became non-executive Chairman of the Board of Directors. Pursuant to the terms of his employment agreement, Mr. Bertucci receives retiree medical benefits for life for himself and his spouse, which had a net present value of \$326,082 as of December 31, 2019. Mr. Bertucci also receives a car allowance for life, which had a net present value of \$169,444 as of December 31, 2019. Mr. Bertucci receives no other retirement benefits.

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The following table summarizes compensation paid to non-employee directors in 2019. Mr. Colella is excluded from the table because he was an executive officer in 2019, and his compensation is set forth in the Executive Compensation section below, under the heading “Executive Compensation Tables — Summary Compensation Table for 2019.”

Director Compensation Table for 2019

Name	Fees Earned or Paid in Cash (\$)	Stock Awards \$(1)	All Other Compensation (\$)	Total (\$)
Rajeev Batra	\$ 81,550	\$170,000	\$ -	\$251,550
Gregory R. Beecher	\$123,000(2)	\$170,000	\$ -	\$293,000
John R. Bertucci	\$133,000(2)	\$170,000	\$ 41,801(3)	\$344,801
Richard S. Chute(4)	\$ 29,237	\$ -	\$ -	\$ 29,237
Peter R. Hanley(4)	\$ 29,591	\$ -	\$ -	\$ 29,591
Rick D. Hess	\$ 78,000	\$170,000	\$ -	\$248,000
Jacqueline F. Moloney	\$ 92,519	\$170,000	\$ -	\$262,519
Elizabeth A. Mora	\$102,500	\$170,000	\$ -	\$272,500
Michelle M. Warner(5)	\$ 48,742	\$170,000	\$ -	\$218,742

- (1) Represents the aggregate grant date fair value for each RSU granted during the year, calculated in accordance with Financial Accounting Standards Board Accounting Standards Codification 718, or ASC 718. The assumptions used in determining the grant date fair values of these awards are set forth in Note 17 to our consolidated financial statements, which were included in our 2019 Annual Report filed with the SEC on February 28, 2020. The outstanding stock awards held as of December 31, 2019 by each of the non-employee directors consisted of 1,980 RSUs.
- (2) Includes \$3,000 in consideration for services on a special committee of the Board of Directors, which compensation consisted of a flat fee of \$3,000 for up to five meetings and \$1,000 per meeting thereafter up to a maximum of \$10,000.
- (3) In connection with his retirement and pursuant to the terms of his previous employment agreement, Mr. Bertucci receives retiree medical benefits and a car allowance. The retiree medical benefits consist of benefits for life for himself and his spouse. We paid \$21,937 for this benefit in 2019. We paid \$19,864 for Mr. Bertucci’s car allowance in 2019.
- (4) Messrs. Chute and Hanley each served as a director until May 2019.
- (5) Ms. Warner became a director in May 2019.

AUDIT AND FINANCIAL ACCOUNTING OVERSIGHT

Audit Committee Report

The Audit Committee of our Board of Directors has reviewed our audited financial statements for the year ended December 31, 2019 and discussed them with our management.

The Audit Committee has also received from, and discussed with, PricewaterhouseCoopers LLP, or PwC, our independent registered public accounting firm, various communications that our registered public accounting firm is required to provide to the Audit Committee, including the matters required to be discussed by the applicable requirements of the Public Company Accounting Oversight Board and the Commission.

The Audit Committee has received the written disclosures and the letter from our independent registered public accounting firm required by the applicable requirements of the Public Company Accounting Oversight Board and the Commission, and has discussed with our registered public accounting firm its independence.

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Based on the review and discussions referred to above, the Audit Committee recommended to our Board of Directors that the audited financial statements be included in our Annual Report on Form 10-K for the year ended December 31, 2019.

Respectfully submitted,

Gregory R. Beecher, Chair
Jacqueline F. Moloney
Elizabeth A. Mora

Principal Accountant Fees and Services

For the years ended December 31, 2019 and 2018, aggregate fees for professional services rendered by our independent registered public accounting firm, PwC, in the following categories were as follows:

	<u>2019</u>	<u>2018</u>
Audit Fees	\$ 4,664,773	\$ 3,396,704
Audit-Related Fees	-	588,620
Tax Fees	259,076	389,613
All Other Fees	2,700	2,700
Total	<u>\$ 4,926,549</u>	<u>\$ 4,377,637</u>

Audit Fees

Audit fees billed for both years consisted of fees for professional services rendered for: (i) the audit of our annual consolidated financial statements, (ii) statutory audits, (iii) the review of our consolidated financial statements included in our quarterly reports on Form 10-Q, (iv) audit services related to other reports filed with the SEC, and (v) the audit of our internal controls over financial reporting as required by the rules and regulations promulgated under Section 404 of the Sarbanes-Oxley Act of 2002.

Audit-Related Fees

Audit-Related fees for the year ended December 31, 2018 were for due diligence performed in connection with our acquisition of Electro Scientific Industries, Inc. and for professional services associated with a new leasing accounting standard.

Tax Fees

Tax Fees for the years ended December 31, 2019 and December 31, 2018 were for services related to tax compliance, including the preparation of tax returns, and tax planning and tax advice, including assistance with foreign operations and foreign tax audits.

All Other Fees

All Other Fees for the years ended December 31, 2019 and 2018 were for accounting research software.

In 2019 and 2018, all Audit Fees, Audit-Related Fees, Tax Fees and All Other Fees were pre-approved pursuant to the Audit Committee's pre-approval requirements, described below.

Pre-Approval Policy and Procedures

The Audit Committee's charter sets forth the Audit Committee's obligations relating to the approval of all audit and non-audit services that are to be performed by our independent registered public accounting firm. The

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charter provides that we will not engage our independent registered public accounting firm to provide audit or non-audit services unless the service is pre-approved by the Audit Committee. In addition, we will not engage any other accounting firm to provide audit services unless such services are pre-approved by the Audit Committee. It is the Audit Committee's policy that with respect to services performed or to be performed by PwC in connection with each fiscal year of the Company, the annual fees for non-audit services in such year shall not exceed one half of the aggregate fees payable to PwC for such year, without the prior express approval of the Audit Committee.

In connection with the foregoing, the Audit Committee may approve specific services in advance. In addition, from time to time, the Audit Committee may pre-approve specified types of services that are expected to be provided to us by our independent registered public accounting firm during the next 12 months. Any such pre-approval of types of services is detailed as to the particular service or type of service to be provided and is also generally subject to a maximum dollar amount.

The Audit Committee has also delegated to the Chair of the Audit Committee the authority to approve any audit or non-audit services to be provided to us by our independent registered public accounting firm. Any approval of services by the Chair of the Audit Committee pursuant to this delegated authority is reported on at the next meeting of the Audit Committee.

The Audit Committee has considered and determined that the provision of the non-audit services noted in the foregoing table is compatible with maintaining PwC's independence.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth certain information with respect to the beneficial ownership of our Common Stock by (i) each shareholder known to us to be the beneficial owner of more than 5% of the outstanding shares of our Common Stock; (ii) the Named Executive Officers named in the Summary Compensation Table below; (iii) each of our current directors and director nominees; and (iv) all of our directors, director nominees and executive officers as a group. Unless otherwise indicated in the footnotes to the table, all equity amounts set forth in the table are as of January 1, 2020; and the address for each of our directors and executive officers is: c/o MKS Instruments, Inc., 2 Tech Drive, Suite 201, Andover, Massachusetts 01810.

<u>Name of Beneficial Owners</u>	<u>Number of Shares Beneficially Owned(1)</u>	<u>Percentage of Common Stock Beneficially Owned</u>
<i>5% shareholders</i>		
Black Rock, Inc. 55 East 52 nd Street New York, NY 10055	5,157,397(2)	9.44%
The Vanguard Group, Inc. 100 Vanguard Blvd. Malvern, PA 19355	5,080,203(3)	9.31%
Capital International Investors 11100 Santa Monica Boulevard 16th Floor Los Angeles, CA 90025	4,357,432(4)	7.98%
Wellington Management Group, LLP 280 Congress Street Boston, MA 02210	3,832,320(5)	7.02%
<i>Named Executive Officers</i>		
Gerald G. Colella	98,548(6)	*
John T.C. Lee	24,704(7)	*
Seth H. Bagshaw	31,989(8)	*
Kathleen F. Burke	35,483(9)	*
John R. Abrams	-(10)	-
<i>Non-Employee Directors; Director Nominees</i>		
Rajeev Batra	2,114	*
Gregory R. Beecher	18,143	*
John R. Bertucci	367,050(11)	*
Joseph B. Donahue	-(12)	-
Janice K. Henry	-(12)	-
Rick D. Hess	3,487	*
Jacqueline F. Moloney	5,232	*
Elizabeth A. Mora	13,837	*
Michelle M. Warner	-	-
All directors, director nominees and executive officers as a group (14 persons)	600,587(13)	1.10%

* Represents less than 1% of the outstanding Common Stock.

(1) We believe that each shareholder has sole voting and investment power with respect to the shares listed, except as otherwise noted. The number of shares beneficially owned by each shareholder is determined

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under SEC rules, and the information is not necessarily indicative of ownership for any other purpose. Under such rules, beneficial ownership includes any shares as to which the person has sole or shared voting or investment power and also any shares that the individual has the right to acquire within 60 days after January 1, 2020, subject to the vesting of RSUs or the exercise of any stock option or other right. The inclusion herein of any shares of Common Stock deemed beneficially owned does not constitute an admission by such shareholder of beneficial ownership of those shares of Common Stock. Percentage ownership calculations are based on 54,628,370 shares of Common Stock outstanding as of January 1, 2020. Shares of Common Stock which an individual or entity has a right to acquire within the 60-day period following January 1, 2020, pursuant to the vesting of RSUs or the exercise of any stock options or other right, are deemed to be outstanding for the purpose of computing the percentage ownership of such individual or entity, but are not deemed to be outstanding for the purpose of computing the percentage ownership of any other person or entity shown in the table.

- (2) Based on information set forth in Schedule 13G/A filed by Black Rock, Inc. on February 5, 2020, reporting stock ownership as of December 31, 2019. Black Rock, Inc. has sole voting power with respect to 4,949,175 shares and sole investment power with respect to 5,157,397 shares.
- (3) Based on information set forth in Schedule 13G/A filed by The Vanguard Group, Inc. on February 12, 2020, reporting stock ownership as of December 31, 2019. The Vanguard Group, Inc. has sole voting power with respect to 28,348 shares, shared voting power with respect to 10,836 shares, sole investment power with respect to 5,048,403 shares and shared investment power with respect to 31,800 shares.
- (4) Based on information set forth in Schedule 13G filed by Capital International Investors, division of Capital Research and Management Company, on February 14, 2020, reporting stock ownership as of December 31, 2019. Capital International Investors has sole voting power with respect to 4,357,356 shares, and sole investment power with respect to 4,357,432 shares.
- (5) Based on information set forth in Schedule 13G filed by Wellington Management Group, LLP on January 30, 2020, reporting stock ownership as of December 31, 2019. Wellington Management Group LLP has shared voting power with respect to 3,455,090 shares and sole investment power with respect to 3,832,320 shares.
- (6) Consists of 98,548 shares held in the name of Mr. Colella's trusts.
- (7) Consists of 12,050 shares held directly by Dr. Lee and 12,654 shares subject to RSUs that vest within 60 days after January 1, 2020.
- (8) Consists of 19,009 shares held directly by Mr. Bagshaw and 12,980 shares subject to RSUs that vest within 60 days after January 1, 2020.
- (9) Consists of 28,930 shares held directly by Ms. Burke and 6,553 shares subject to RSUs that vest within 60 days after January 1, 2020.
- (10) Mr. Abrams, our former Senior Vice President of Global Sales, retired on February 28, 2019.
- (11) Consists of 83,245 shares held directly by Mr. Bertucci, 102,050 shares held in the name of Mr. Bertucci's trusts, 79,705 shares held directly by Mr. Bertucci's wife and 102,050 shares held in the name of Mrs. Bertucci's trusts.
- (12) Director nominee.
- (13) Consists of 568,400 shares held directly or indirectly by such directors, director nominees and executive officers and 32,187 shares subject to RSUs that vest within 60 days of January 1, 2020.

To our knowledge, there are no voting trusts or similar arrangements among any of the foregoing persons or entities with respect to the voting of shares of Common Stock.

EXECUTIVE OFFICERS

The following is a brief summary of the background of each of our current executive officers, other than Dr. Lee, whose background is described under the heading “Directors” above:

<u>Name</u>	<u>Age</u>	<u>Background and Qualifications</u>
Seth H. Bagshaw, Senior Vice President, Chief Financial Officer and Treasurer	60	Mr. Bagshaw has served as our Senior Vice President and Chief Financial Officer since May 2017 and as Treasurer since March 2011. From January 2010 to May 2017, he served as our Vice President and Chief Financial Officer. From March 2006 until January 2010, Mr. Bagshaw served as our Vice President and Corporate Controller. Prior to joining MKS, Mr. Bagshaw served as Vice President and Chief Financial Officer of Vette Corp., an integrated global supplier of thermal management systems, from 2004 until 2006. From 1999 until 2004, Mr. Bagshaw served as Vice President and Corporate Controller of Varian Semiconductor Equipment Associates, Inc., a leading producer of ion implantation equipment used in the semiconductor manufacturing industry, and from 1998 until 1999, he served as Vice President and Chief Financial Officer of Palo Alto Products International, Inc., an industrial design, engineering and manufacturing company, until its acquisition by Flextronics International, Ltd. Prior to that, Mr. Bagshaw held several senior financial management positions at Waters Corporation, a developer of innovative analytical science solutions, most recently as Vice President and Chief Financial Officer of its Asia-Pacific region, and was a Senior Manager at PricewaterhouseCoopers LLP. Mr. Bagshaw has been a member of the Board of Directors of Associated Industries of Massachusetts, a non-profit state-wide employer advocacy and service organization, since 2010 and has served on its Audit Committee since 2014. Mr. Bagshaw is a Certified Public Accountant and has a B.S. in Business Administration from Boston University and an M.B.A. from Cornell University.
Kathleen F. Burke, Senior Vice President, General Counsel and Secretary	55	Ms. Burke has served as our Senior Vice President and General Counsel since May 2017 and as our Secretary since May 2019. From April 2011 to May 2017, she served as our Vice President and General Counsel, and from January 2005 to May 2019, she served as our Assistant Secretary. From January 2005 to April 2011, Ms. Burke served as our General Counsel, and from February 2004 to January 2005, she served as our Corporate Counsel. Prior to joining MKS, Ms. Burke was a corporate attorney at WilmerHale (formerly Hale and Dorr LLP), a full-service international law firm, from 1994 to 2004. Ms. Burke has been a member of the Board of Directors of the Northeast Chapter of the Association of Corporate Counsel, a global legal association, since 2009 and served as the Chapter’s President from 2011 to 2013, and its Vice President and Treasurer from 2009 to 2011. Ms. Burke holds a B.A. from Boston College and a J.D. from Boston College Law School.

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<u>Name</u>	<u>Age</u>	<u>Background and Qualifications</u>
James A. Schreiner, Senior Vice President and Chief Operating Officer	58	Mr. Schreiner has served as our Senior Vice President and Chief Operating Officer since September 2019. From July 2017 to September 2019, he served as the Senior Vice President of Global Operations for the Rosemount Measurement & Analytical Group of Automation Solutions at Emerson Electric, a multinational corporation that manufactures products and provides engineering services for a wide range of industrial, commercial, and consumer markets. Mr. Schreiner served in other senior roles at Emerson Electric, including Vice President of North America from March 2016 to July 2017, and Vice President of Europe from November 2010 to March 2016, both for the Rosemount Measurement & Analytical Group at Emerson Electric. Prior to Emerson Electric, Mr. Schreiner served in progressive leadership roles at Plexus Corporation, ILX Lightwave Corporation, Tetrapak and 3M Corporation. Mr. Schreiner holds a B.S. in Electrical Engineering from Montana State University, Bozeman as well as an Executive MBA from the University of Colorado, Denver.

Our executive officers are appointed by the Board of Directors on an annual basis and serve until their successors are duly appointed and qualified. There are no family relationships among any of our executive officers or directors.

EXECUTIVE COMPENSATION

Compensation Discussion and Analysis

Introduction

The purpose of this section of our proxy statement is to provide an overview of our executive compensation program, our compensation philosophy and objectives, and the material decisions we made with respect to each element of our executive compensation program.

In May 2019, we announced our Chief Executive Officer succession plan. Pursuant to that plan, on January 1, 2020, our then Chief Executive Officer, Gerald G. Colella, retired and our then President, John T.C. Lee, succeeded Mr. Colella as Chief Executive Officer and continued to serve as President. Mr. Colella continues to serve on our Board of Directors and, as previously announced, will assume the role of Chairman of our Board in May 2020.

Throughout this proxy statement, we refer to the “2019 Named Executive Officers” listed below.

<u>Name</u>	<u>Title</u>
Gerald G. Colella	Former Chief Executive Officer
John T.C. Lee	Current President and Chief Executive Officer; Former President
Seth H. Bagshaw	Senior Vice President, Chief Financial Officer and Treasurer
Kathleen F. Burke	Senior Vice President, General Counsel and Secretary
John R. Abrams(1)	Former Senior Vice President of Global Sales

(1) Mr. Abrams retired as our Senior Vice President of Global Sales on February 28, 2019.

Following this Compensation Discussion and Analysis, you will find a series of tables containing specific information about the compensation earned or paid in 2019 to our 2019 Named Executive Officers. When we announced Mr. Abrams’ retirement in May of 2018, we entered into a Transition and Retirement Agreement with Mr. Abrams, which set forth, among other things, Mr. Abrams’ compensation upon his retirement. As a result, we did not make any compensation decisions with respect to Mr. Abrams during 2019 and he was not eligible for a salary adjustment or a 2019 cash bonus, and he did not receive any equity awards. For this reason, Mr. Abrams is not included in the discussion that follows. We refer to our 2019 Named Executive Officers who did serve through December 31, 2019 as the “Named Executive Officers” throughout the discussion below. References to “2019 Named Executive Officers” include Mr. Abrams. For a detailed discussion of the material terms of Mr. Abrams’ Transition and Retirement Agreement, see “Executive Compensation Tables — Potential Payments Upon Termination or Change-in-Control.”

Executive Summary

Our Business

We are a global provider of instruments, systems, subsystems and process control solutions that measure, monitor, deliver, analyze, power and control critical parameters of advanced manufacturing processes to improve process performance and productivity for our customers. Our products are derived from our core competencies in pressure measurement and control, flow measurement and control, gas and vapor delivery, gas composition analysis, electronic control technology, reactive gas generation and delivery, power generation and delivery, vacuum technology, lasers, photonics, optics, precision motion control, vibration control and laser-based manufacturing systems solutions. We also provide services relating to the maintenance and repair of our products, installation services and training. Our primary served markets include semiconductor, industrial technologies, life and health sciences, research and defense.

Company Performance in 2019

The first half of 2019 was challenging for MKS due to the continued downturn in our Semiconductor Market, where our customers continued to experience excess production capacity, which drove lower capital expenditures negatively impacting our business. In our Advanced Markets, heightened geopolitical and trade headwinds led to more cautious spending. In addition, the consumer electronics market also underwent a prolonged period of digestion of excess capacity. However, in the second half of the year, we saw improved fundamentals within the Semiconductor Market and stabilization in our Advanced Markets, as trade tensions started to ease. In the fourth quarter of 2019, we delivered strong net revenues of \$500 million and experienced strong sequential growth in our Semiconductor Market net revenues, which increased 22% in the quarter. This growth was driven by strong foundry and logic spending, as well as early signs of recovery in memory.

In February 2019, MKS completed the acquisition of Electro Scientific Industries, Inc., or ESI, a worldwide leader in advanced manufacturing processes within the printed circuit board, electronic thin film and electronic component markets. Our acquisition of ESI represents a significant step in broadening our market reach and expanding our addressable market by approximately \$2.2 billion. The acquisition also provides MKS with a more balanced portfolio, with approximately 51% of our combined revenue in 2019 coming from Advanced Markets, and 49% from the Semiconductor Market. We expect the addition of ESI to further strengthen our expertise in the lasers, photonics and optics markets, enabling us to develop systems that provide unique and cost-effective solutions to meet the challenges of our customers' evolving technology needs.

In 2019, key results include:

- net revenues of \$1.9 billion, a decrease of 8% from \$2.1 billion in 2018, driven largely by softness in the Semiconductor Market during the first half of 2019, as well as geopolitical and cyclical headwinds; net revenues in the Semiconductor Market were \$929 million, a decrease of 19% compared to 2018, while net revenues from Advanced Markets, which included the contribution from ESI of \$151 million, were \$971 million, an increase of 4% compared to 2018;
- net revenues for the Vacuum and Analysis Division of \$990 million, a decrease of 21% from \$1.3 billion in 2018. The decline was driven largely by softness in the Semiconductor Market during the first half of 2019. Net revenues for the Light and Motion Division were \$726 million in 2019, a decrease of 11% from \$814 million in 2018, driven largely by lower shipments to industrial manufacturing customers. Net revenues for the Equipment and Solutions Division were \$184 million in 2019;
- net income of \$140 million, or \$2.55 per diluted share, compared to net income of \$393 million, or \$7.14 per diluted share in 2018;
- substantial completion of the successful integration of ESI, and commencement of beta shipments of our differentiated High Density Interconnect PCB drilling tool, which represents a meaningful expansion of our addressable market;
- a return of approximately \$44 million to MKS shareholders in cash dividends; and
- further strengthening of our balance sheet position and cost structure by completing our fifth repricing of our existing term loan as well as \$100 million in voluntary principal prepayments in 2019.

2019 Compensation Outcomes

Our executive compensation program is designed to reward our Named Executive Officers for performance and to align their interests with those of our shareholders. As a result of our financial results in 2019, our Named Executive Officers received 91% of their target variable cash compensation tied to non-GAAP operating income and 82% of their target performance-based equity compensation tied to non-GAAP cash flow from operations. We believe these financial performance metrics are important to our shareholders because each is an indicator of how well we manage the operations and capital of our Company. The rigor of our performance goals for 2019 is evidenced by the fact that both our variable cash and our performance-based equity compensation plans funded

below target. In 2019, the variable cash compensation for all our executive officers was tied to the financial performance of our Company, excluding the financial performance of the Company's Equipment and Solutions Division, which division was formed as a result of the Company's acquisition of Electro Scientific Industries, Inc., or ESI, in 2019.

When our Compensation Committee set 2019 executive compensation in early 2019, long-term equity incentive compensation comprised 65% of total target compensation for our Chief Executive Officer and 59.2% of total target compensation, on average, for our other Named Executive Officers. Total target compensation is defined as the sum of base salary, target annual cash incentive compensation and target long-term equity incentive compensation. By making equity a substantial component of executive officer compensation, we align our executive officers' long-term interests with those of our shareholders. Also, at least 50% of each Named Executive Officer's target long-term equity incentive compensation is based on a measure of Company performance.

Our annual cash incentive plan is designed to complement our long-term equity incentive plan by focusing on our Company's annual financial performance as measured by non-GAAP operating income. In 2019, our target annual cash incentive compensation comprised 19.1% of total target compensation for our Chief Executive Officer and 17.7% of total target compensation, on average, for our other Named Executive Officers.

In 2019, base salary accounted for 15.9% of total target compensation for our Chief Executive Officer and 23.1% of total target compensation, on average, for our other Named Executive Officers. In 2019, our Chief Executive Officer had 84.1% of his total target compensation opportunity tied to annual and long-term incentive compensation and our other Named Executive Officers, on average, had 76.9% of their total target compensation opportunity tied to annual and long-term incentive compensation.

Consideration of 2019 Advisory Vote on Executive Compensation

At our 2019 Annual Meeting of Shareholders, held on May 8, 2019, we submitted to our shareholders an advisory vote on executive compensation. Although annual advisory "say-on-pay" votes are non-binding, our Compensation Committee has considered, and will continue to consider, the outcome of this vote each year when making compensation decisions for our Named Executive Officers. At the 2019 Annual Meeting, our shareholders overwhelmingly approved our executive compensation, with approximately 96.5% of the votes cast voting in favor of the "say-on-pay" proposal.

The Compensation Committee considered the results of the 2019 say-on-pay vote, and based upon the strong shareholder support, does not believe that our executive compensation program requires material changes. The Compensation Committee will continue to consider the views of our shareholders in connection with our executive compensation program and will consider changes based upon evolving best practices, market compensation information and changing regulatory requirements. The Compensation Committee believes that the 2019 shareholder vote was an endorsement of our compensation and pay decisions made in relation to our performance.

Compensation Philosophy and Objectives

The primary objectives of our executive compensation program are to:

- attract and retain high caliber executive talent;
- motivate and reward the attainment of short-term objectives that drive long-term value; and
- foster long-term alignment of executive and shareholder interests.

We target each of the various compensation elements, including base salary, annual cash incentive compensation, and long-term equity incentive compensation, to be within a competitive range around median levels for the individual position in the market. The competitive range is considered alongside other key factors when setting compensation levels, and final values may range from approximately the 25th percentile to approximately the 75th percentile, as appropriate. In considering the compensation of our Named Executive

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Officers relative to the market, we also look qualitatively at the individual's overall performance, tenure and potential contributions to MKS' ongoing growth. Currently, all of our Named Executive Officers are paid within the competitive range of our peer group.

Base salaries are designed to provide executives with a level of predictability and stability with respect to a portion of their total compensation package. Base salaries are a relatively small component in the overall pay packages of our Named Executive Officers because we believe the significant majority of executive compensation should be variable and based on performance.

Our annual cash incentive compensation program is designed to reward the attainment of short-term earnings goals that drive the long-term growth of MKS. We believe that our program goals are aligned with significant value creation, and that our plan creates a strong link between pay and performance while providing meaningful incentive for our Named Executive Officers to exceed our financial goals.

We provide our Named Executive Officers with long-term equity incentive compensation in the form of restricted stock units, or RSUs, approximately half of which are performance-based, in order to:

- foster long-term alignment of executive and shareholder interests;
- balance the short-term focus of annual cash incentive compensation with creating long-term shareholder value;
- reward strong operational performance; and
- retain executives by providing equity-based compensation that generally vests over a three-year period.

In order to further underscore our compensation values, and enhance the efficacy of our pay programs, we have also implemented the following practices:

What We Do

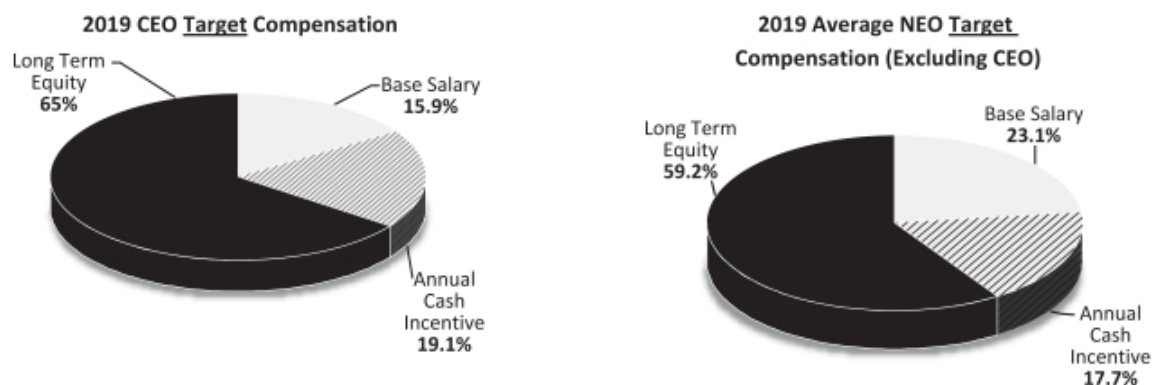
- ✓ Provide maximum payout caps under incentive plans
- ✓ Have a clawback policy for incentive-based compensation
- ✓ Provide change-in-control benefits only upon a qualified termination of employment
- ✓ Review prior levels of compensation when making executive compensation decisions
- ✓ Have stock ownership guidelines
- ✓ Have a fully independent Compensation Committee
- ✓ Utilize an independent compensation consultant

What We Do Not Do

- x No repricing of underwater options without shareholder approval
- x No hedging or pledging of MKS shares
- x No incentives for excessive risk taking
- x No excessive perquisites

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The following charts show the components of total target compensation for our Chief Executive Officer and our other Named Executive Officers as a group for 2019.



When the Compensation Committee met in July 2018 to review peer companies to be used to determine 2019 executive compensation, the Committee elected to make no changes to the peer group with the exception of Microsemi Corporation, which was removed because it was acquired by Microchip Technology, Inc. in 2018. The 18 peer companies were selected based on similar industry, market capitalization and revenue, with a revenue and market capitalization range relative to our trailing 12-month revenue as of June 30, 2018 of between .3 to 3 times. Publicly available compensation data from the following comparable peer companies was used in determining executive compensation for 2019:

Advanced Energy Industries, Inc.
AMETEK, Inc.
Amkor Technology Inc.
Brooks Automation, Inc.
Coherent, Inc.
Cypress Semiconductor Corp.
Entegris, Inc.
Finisar Corp.
FLIR Systems, Inc.

Keysight Technologies, Inc.
KLA-Tencor Corporation
Kulicke and Soffa Industries, Inc.
Lumentum Holdings Inc.
National Instruments Corporation
Plantronics, Inc.
Sensata Technologies Holding
Teradyne, Inc.
Viavi Solutions, Inc. (formerly JDS Uniphase Corporation)

Our Compensation Committee also considered size and industry-appropriate broad survey data from the 2019 Radford Global Technology Survey.

Elements of Compensation

The following summarizes the compensation elements for our Named Executive Officers:

Base Salary

When our Compensation Committee set 2019 annual executive compensation in February 2019, it approved a salary increase of approximately 4% for each of Mr. Colella, our former Chief Executive Officer, Dr. Lee, our President and Chief Executive Officer, Mr. Bagshaw, our Senior Vice President, Chief Financial Officer and Treasurer, and Ms. Burke, our Senior Vice President, General Counsel and Secretary. These increases were based on the compensation data collected from our peer group.

Annual Cash Incentive Compensation

For 2019, the Compensation Committee did not make any changes to our annual cash incentive program compared to 2018. Under our annual cash incentive plan, each Named Executive Officer was eligible to receive a performance bonus based on a specified percentage of eligible earnings, which is defined as eligible W-2

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earnings received during the 2019 calendar year (i.e., base salary, including regular, holiday, vacation and sick pay, but excluding bonus payments). Bonus payouts in 2019 were based entirely on non-GAAP operating income after bonus and excluding any charges or income not related to the operating performance of the Company.

In 2019, payouts under the annual cash incentive plan were determined by multiplying a Named Executive Officer's "Target Bonus Amount" by the Company's percentage achievement of the financial performance objective, each as discussed below. Target Bonus Amount is the amount determined by multiplying each Named Executive Officer's eligible earnings in 2019 by the Target Bonus Percentages determined by our Compensation Committee each year. When our Compensation Committee set 2019 annual executive compensation in early 2019, it did not approve any changes to Target Bonus Percentages for our Named Executive Officers compared to 2018.

Listed below is the 2019 Target Bonus Percentage for each Named Executive Officer.

<u>Named Executive Officer</u>	<u>2019 Target Bonus Percentage</u>
Gerald G. Colella	120%
John T.C. Lee	95%
Seth H. Bagshaw	80%
Kathleen F. Burke	60%

In 2019, our Compensation Committee approved goals and associated incentive payout opportunities related to our 2019 non-GAAP operating income performance. As we operate in the highly cyclical semiconductor market, our Compensation Committee views it of paramount importance to set performance goals that are rigorous but attainable given the outlook for the semiconductor market and the other markets in which we serve for the coming year. The rigor of our performance goals for 2019 is evidenced by the fact that our funding for the 2019 annual incentive plan was below target despite the fact we had a strong performance year.

In 2019, participants in the annual cash compensation plan would not receive any portion of their Target Bonus Amount if non-GAAP operating income (before the calculation of bonus) was less than \$195.9 million. Participants would receive 50% of their Target Bonus Amount if such non-GAAP operating income was \$195.9 million, would receive 100% of their Target Bonus Amount if such non-GAAP operating income was \$391.7 million, and would receive the maximum 200% if such non-GAAP operating income was \$550.3 million or more, with proportional payments for achievement in between these levels. In 2019, because our non-GAAP operating income, after bonus and excluding amortization of intangible assets, restructuring charges, acquisition costs and related term loan fees and costs, integration costs, a legal settlement, impairment of investment charges, a gain on the sale of property, executive retirement costs, and costs related to unanticipated tariffs and trade restrictions, was \$355.2 million, participants were eligible to receive 91% of their Target Bonus Amounts under this formula.

Listed below are our Chief Executive Officer's and other Named Executive Officers' earned cash bonus payouts.

<u>Named Executive Officer</u>	<u>Cash Payout</u>	<u>Payment as a Percent of Target</u>
Gerald G. Colella	\$1,134,000	91%
John T.C. Lee	\$ 487,778	91%
Seth H. Bagshaw	\$ 385,280	91%
Kathleen F. Burke	\$ 229,005	91%

Our Compensation Committee has the authority to make other cash bonus awards to our executive officers as it deems appropriate. Our Compensation Committee did not make any discretionary cash bonus awards to our Named Executive Officers in 2019.

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Except as noted below, our Compensation Committee did not make any design changes to our 2020 annual cash incentive program. For all eligible participants, Company performance will be measured using the same financial metric as in previous years – non-GAAP operating income after bonus and excluding any charges or income not related to the operating performance of the Company.

Incorporation of Profit Improvement Bonus Plan for Calendar Years Beginning in 2020

In February 2020, our Board of Directors, upon the recommendation of our Compensation Committee, approved a profit improvement component to our annual cash incentive plan designed to incentivize profitability improvements during cyclical downturns in our business. Individuals who are eligible to participate in our annual incentive bonus plan are also eligible for the profit improvement cash bonus plan. In order to receive any payout under this plan, MKS must achieve specified profit enhancements or cost reductions by the end of the applicable calendar year. A participant's maximum bonus under this plan is 25% of his or her eligible earnings (using the same definition as used in our annual cash incentive plan). Participants are only eligible to receive a payout under the profit improvement cash bonus plan if the participant receives less than 100% of his or her Target Bonus Amount under our annual incentive bonus plan, and any payout under the profit improvement cash bonus plan is capped such that the combined payout under our annual incentive bonus plan and under the profit improvement cash bonus plan will not exceed an amount equal to 100% of the participant's Target Bonus Amount under our annual incentive bonus plan.

Long-Term Equity Incentive Compensation

When our Compensation Committee set 2019 annual executive compensation in early 2019, it awarded the following time-based and performance-based RSUs to our Chief Executive Officer and our other Named Executive Officers. These RSUs vest in three equal annual installments. The performance-based RSUs are subject to a one-year performance metric described below.

<u>Named Executive Officer</u>	<u>Grant Date Value of Performance-Based RSUs(1)</u>	<u>Number of Performance-Based RSUs(1)</u>	<u>Grant Date Value of Time-Based RSUs</u>	<u>Number of Time-Based RSUs</u>
Gerald G. Colella	\$ 2,250,000	26,564.34	\$ 2,000,000	23,612.75
John T.C. Lee	\$ 950,000	11,216.06	\$ 700,000	8,264.46
Seth H. Bagshaw	\$ 950,000	11,216.06	\$ 700,000	8,264.46
Kathleen F. Burke	\$ 400,000	4,722.55	\$ 400,000	4,722.55

(1) Grant date value of performance-based RSUs and corresponding number of RSUs assuming 100% achievement. Achievement is capped at 150%.

With respect to performance-based RSUs, our goal is to select a Company financial performance metric that best aligns with our Company objectives. Recently, including in 2019, our Company financial performance metric for performance-based RSUs has been non-GAAP cash flow from operations (defined as net income plus depreciation, amortization and non-cash stock-based compensation and excluding any charges or income not related to the operating performance of the Company) set at varying revenue levels. Our Compensation Committee believes this financial metric is an appropriate indicator of how effectively we manage the operations of our Company in light of the cyclical nature of the markets we serve as well as providing incentives to continuously improve our financial operating model independent of revenue levels.

We use RSUs as our form of equity incentive compensation because we believe RSUs help to ensure that our executive officers' interests are aligned with our shareholders' interests in both a rising and a declining stock market. We believe RSUs are preferable to options, which have a relatively high accounting cost as compared to their potential value to the executive officer, and are preferable to restricted stock, which gives the executive officer voting and dividend rights prior to full vesting. Also, because RSUs are worth more than options on the date of grant, we are able to grant fewer of these as compared to options, resulting in less dilution to shareholders' holdings.

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In 2019, our Named Executive Officers would have forfeited all of their performance-based RSUs if our non-GAAP cash flow from operations was less than \$264.9 million at a revenue level of \$1.5 billion, or if such cash flow was less than \$448.8 million at a revenue level of \$2.3 billion (with intermediate non-GAAP cash flow minimum thresholds at different revenue levels in between). However, if we did achieve these non-GAAP operating cash flow threshold levels at the respective revenue levels identified, our Named Executive Officers would receive 50% of their target performance-based RSUs. If our non-GAAP cash flow from operations was at or above \$357.5 million at a revenue level of \$1.5 billion, or was at or above \$605.7 million at a revenue level of \$2.3 billion (with proportional thresholds in between), then our Named Executive Officers would receive the maximum of 150% of their target performance-based RSUs. Proportional achievement levels would be made for non-GAAP cash flow between the minimum and maximum levels. In 2019, because our revenue was \$1.73 billion, after excluding revenue from our Equipment and Solutions Division, which was formed as a result of our acquisition of ESI in 2019, and including revenue amounts unrecorded due to trade restrictions, and our non-GAAP cash flow was \$343.4 million, after excluding restructuring charges, executive retirement costs, costs related to tariff and trade restrictions, a legal settlement, acquisition costs and related term loan fees and costs, integration costs, impairment of investment charges, a gain on the sale of property, and the tax effect of each of these excluded costs, in addition to amortization of intangible assets, depreciation of fixed assets, stock-based compensation expense and tax adjustments resulting from additional guidance from the IRS regarding 2017 tax reform, our Named Executive Officers received 82% of their target performance-based RSUs. These performance-based RSUs, along with the time-based RSUs granted to our Named Executive Officers, vest in equal annual installments over three years from the original date of grant.

It is our practice to make an initial equity-based grant to all of our Named Executive Officers at the time they commence employment in an amount that is consistent with amounts granted to other executive officers in the industry at similar levels of seniority. In addition, we typically make an annual grant of equity-based compensation to our Named Executive Officers during the first fiscal quarter of each year. Discretionary equity-based awards may also be made throughout the year to provide an incentive to achieve a specific goal or to reward a significant achievement or for other reasons that the Compensation Committee determines. In October 2019, our Compensation Committee made a discretionary equity-based award to two of our Named Executive Officers as set forth below.

<u>Named Executive Officer</u>	<u>Grant Date Value of Time-Based Retention RSUs</u>	<u>Number of Time-Based Retention RSUs</u>
Seth H. Bagshaw	\$ 1,000,000	8,716.12
Kathleen F. Burke	\$ 500,000	4,358.06

Our Compensation Committee made these awards to Mr. Bagshaw and Ms. Burke to incentivize their continued services during a time of significant transition of the management team, including the retirement of our Chief Executive Officer, Gerald Colella, whose tenure at MKS spanned more than three decades, culminating with his service as our Chief Executive Officer for the last six years. These awards differ from typical awards in two ways. First, vesting is back-weighted to promote retention during the leadership transition period, with the first installment vesting on the second anniversary of the date of grant and the second equal installment vesting on the third anniversary of the date of grant. Second, these awards are not subject to favorable vesting treatment upon a qualifying retirement from the Company.

Supplemental Retirement Benefits

We provide supplemental retirement benefits, including supplemental lifetime retiree medical benefits, to our former Chief Executive Officer, Mr. Colella, or, in the event of his death, to his spouse. These supplemental retirement benefits were designed to reward Mr. Colella's long service with us and to serve as a significant incentive for Mr. Colella to remain employed with us until age 62. Mr. Colella, who first joined our Company in 1983 as our Materials Planning and Logistics Manager, served in numerous capacities over the course of the next thirty-six years to ultimately become our Chief Executive Officer. Mr. Colella retired on January 1, 2020 at age 63. As a result, Mr. Colella vested in full as to all of his supplemental retirement benefits. See "Executive

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Compensation Tables — Retirement and Post-Employment Tables — Pension Benefits” below for a description of the supplemental retirement benefits we provide to Mr. Colella. Since 2011, it has been our policy not to offer these types of retirement benefits to other executive officers. While these benefits were attractive elements to retain certain of our most senior executive officers historically, the elimination of these benefits more closely meets our objective to align executive compensation with Company financial performance.

Perquisites

We offer certain perquisites to our executive officers, including our 2019 Named Executive Officers, to allow executives to focus on corporate strategy and enhancing shareholder value and to provide competitive pay packages. These perquisites include car payments, company paid health and life insurance, reimbursement of certain out-of-pocket healthcare costs, golf club memberships, financial planning benefits and executive physicals. We believe offering these benefits is important to maintaining a competitive position in attracting and retaining key personnel and these benefits are consistent with market practices.

Severance and Change-in-Control Provisions

Each of our Named Executive Officers is entitled to certain payments and benefits in the event his or her employment terminates under specified circumstances as described in the applicable agreement. In exchange for these payments and benefits, each Named Executive Officer is restricted from competing with the Company during and following his or her termination of employment for a twelve-month period. In addition, RSU agreements with our Named Executive Officers provide for acceleration of vesting in the event the executive’s employment is terminated without cause or the executive resigns for good reason within 24 months after a change-in-control. The severance and change-in-control provisions are designed to be competitive in the marketplace, to provide security for our Named Executive Officers in the event that we are acquired and his or her respective position is impacted and to provide an incentive for the Named Executive Officer to stay with us through such a change-in-control event. These provisions are also intended to protect us from competitive harm, by compensating our Named Executive Officers for agreeing to substantial non-compete provisions after employment termination. See “Executive Compensation Tables — Potential Payments Upon Termination or Change-in-Control” for more information about these agreements.

Transition and Retirement Agreement

On May 9, 2018, Mr. Abrams entered into a Transition and Retirement Agreement with the Company. Mr. Abrams retired on February 28, 2019. Mr. Abrams’ Transition and Retirement Agreement superseded and replaced the Employment Agreement that he entered into with the Company effective August 1, 2016. For a detailed discussion of the material terms of the Transition and Retirement Agreement, see “Executive Compensation Tables — Potential Payments Upon Termination or Change-in-Control.”

Compensation of our Chief Executive Officer

We entered into an employment agreement with Mr. Colella upon his becoming Chief Executive Officer and President in January 2014. The terms of Mr. Colella’s employment agreement reflected his role as the leader of our Company and the experience he brought to the position having served more than 30 years at MKS. For a detailed discussion of the material terms of Mr. Colella’s employment agreement, including all amendments to this employment agreement, see “Executive Compensation Tables — Potential Payments Upon Termination or Change-in-Control.”

Compensation of our Other Named Executive Officers

We have entered into employment agreements with each of our other Named Executive Officers. For a detailed discussion of the material terms of these executive employment agreements, including all amendments to these employment agreements, see “Executive Compensation Tables — Potential Payments Upon Termination or Change-in-Control.”

Compensation Consultant

We engage a compensation consultant to serve as an independent advisor to the Compensation Committee regarding compensation for our directors and our executive officers. The Compensation Committee utilizes the compensation consultant in the following ways:

- to provide the Compensation Committee with occasional consultation regarding compensation strategies and programs;
- to review our peer group to determine the appropriateness of its composition;
- to conduct formal competitive compensation analysis for the Compensation Committee regarding our directors and each executive officer, on a position-by-position basis, in comparison to similarly situated executive officers in our peer group using benchmarking data; and
- to assist the Compensation Committee with conducting a risk assessment of the Company's compensation policies and practices.

From October 2014 through May 2019, the Compensation Committee engaged Meridian as its compensation consultant. The Compensation Committee determined that the engagement of Meridian as a compensation consultant did not raise any conflicts of interest with MKS. In May 2019, the Compensation Committee elected to engage a new compensation consultant, Pearl Meyer. The Compensation Committee has determined that the engagement of Pearl Meyer as a compensation consultant does not raise any conflicts of interest with MKS.

Role of our Chief Executive Officer

Our Chief Executive Officer reviews with the Compensation Committee the performance of all other Named Executive Officers and makes recommendations relating to compensation of such executive officers. Management develops proposed company financial goals for review and approval by the Compensation Committee for the annual cash incentive plan and long-term performance-based equity incentive compensation, develops proposals relating to potential changes in compensation programs for review and approval by the Compensation Committee and provides the Compensation Committee and its advisors with information necessary to evaluate and implement compensation proposals and programs. Our Chief Executive Officer does not participate in discussions regarding his own compensation.

Governance Policies

Stock Ownership Guidelines

The Stock Ownership Guidelines for 2019, which were applicable to members of the Board of Directors, the Chief Executive Officer and any other person who is or was a named executive officer while the guidelines were effective, provided that:

- Non-Employee Members of the Board of Directors shall own an amount of stock of the Company with a value equal to at least five times the annual retainer for Board service (exclusive of any compensation for committee service, meeting fees, leadership roles and the like).
- The Chief Executive Officer shall own an amount of stock of the Company with a value equal to at least three times his or her annual base salary (excluding any bonus, award or special compensation).
- Other named executive officers shall own an amount of stock of the Company with a value equal to at least two times his or her annual base salary (excluding any bonus, award or special compensation).

These guidelines were based, in each case, on values in effect as of December 31 of the applicable year. The Stock Ownership Guidelines provide for a phase-in period over five years to achieve the respective ownership goals.

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In October 2019, our Board of Directors, upon the recommendation of our Compensation Committee, made the following changes to our Stock Ownership Guidelines, which changes are effective as of January 1, 2020:

- Non-Employee Members of the Board of Directors shall own at least the lesser of (i) 4,000 shares of the Company's Common Stock or (ii) the number of shares of the Company's Common Stock equal in value to five times the annual retainer for Board service (exclusive of any compensation for committee service, meeting fees, leadership roles and the like).
- The Chief Executive Officer shall own at least the lesser of (i) 50,000 shares of the Company's Common Stock or (ii) the number of shares of the Company's Common Stock with a value equal to five times his or her annual base salary (excluding any bonus, award or special compensation).
- Other Named Executive Officers shall own at least the lesser of (i) 10,000 shares of the Company's Common Stock or (ii) the number of shares of the Company's Common Stock with a value equal to two times his or her annual base salary (excluding any bonus, award or special compensation).

The purpose of these changes was to: (i) facilitate self-monitoring by adding a fixed goal to the holding requirements that was not dependent on variable stock price calculations and (ii) increase our Chief Executive Officer's ownership goal from three times his annual base salary to five times his annual base salary to align with shareholder interests. All Named Executive Officers and directors were in compliance with the Stock Ownership Guidelines as of the end of December 2019.

Clawback Policy

Our Clawback Policy, which is applicable to incentive-based compensation (specifically our cash incentive plan and our performance-based RSUs) that is awarded to our current and former executive officers, provides that in the event we are required to prepare an accounting restatement due to material noncompliance with financial reporting requirements, we will use reasonable efforts to recover any amount in excess of what would have been paid to such executive officers (or such former executive officers) under the accounting restatement for any such incentive-based compensation during the three-year period preceding the restatement.

Prohibition on Hedging and Pledging

Our Insider Trading Policy prohibits any of our directors or employees from engaging in transactions involving financial instruments that are designed to hedge or offset any decrease in the market value of our securities (including pre-paid variable forward contracts, equity swaps, collars and exchange funds), and prohibits such individuals from purchasing our securities on margin or pledging such securities as collateral for a loan.

Impact of Accounting and Tax on Executive Compensation

Impact of Code Section 162(m)

Section 162(m) of the Internal Revenue Code of 1986, as amended, generally disallows a tax deduction to public companies for compensation in excess of \$1 million paid in any one year to each of certain current and former executive officers of the company. Historically, compensation that qualified under Section 162(m) as performance-based compensation was exempt from the deduction limitation. However, subject to certain transition rules, tax legislation signed into law on December 31, 2017 eliminated the performance-based compensation exemption. As a result, for taxable years beginning after December 31, 2017, all compensation in excess of \$1 million paid in any one year to each of the specified officers that is not covered by the transition rules will not be deductible by us. The Compensation Committee reviews the potential effect of Section 162(m) periodically and uses its judgment to authorize compensation payments that may be subject to the limit when the Compensation Committee believes such payments are appropriate and in the best interests of the Company and its stockholders.

Impact of ASC 718

We account for stock-based compensation in accordance with the requirements of ASC 718. The Compensation Committee considers the impact of ASC 718 on our use of equity incentives as a key retention tool. The Compensation Committee regularly reviews its choice of equity incentives, taking into account both tax and accounting considerations.

COMPENSATION COMMITTEE REPORT

The Compensation Committee has reviewed and discussed the “Compensation Discussion and Analysis” required by Item 402(b) of Regulation S-K with management. Based on such review and discussions, the Committee recommended to the Board of Directors that the “Compensation Discussion and Analysis” be included in this proxy statement.

Respectfully submitted,

Elizabeth A. Mora, Chair
Rajeev Batra
Rick D. Hess

EXECUTIVE COMPENSATION TABLES

Summary Compensation Table for 2019

The following table sets forth the aggregate amounts of compensation earned by our Named Executive Officers in the years ended December 31, 2019, 2018 and 2017. The titles for Mr. Colella and Dr. Lee in the table below are as of December 31, 2019. Pursuant to our previously announced Chief Executive Officer succession plan, on January 1, 2020, Mr. Colella retired as our Chief Executive Officer, and Dr. Lee succeeded him as Chief Executive Officer while continuing to serve as our President.

Name and Principal Position	Year	Salary (\$)	Bonus (\$)	Stock Awards \$(3)	Non-Equity Incentive Plan Compensation \$(4)	Change in Pension Value and Nonqualified Deferred Compensation Earnings \$(5)	All Other Compensation \$(6)	Total (\$)
Gerald G. Colella, Chief Executive Officer (principal executive officer)	2019	\$ 1,038,462	\$ -	\$ 4,250,000	\$ 1,134,000	\$ 3,180,682	\$ 66,500	\$ 9,669,644
	2018	\$ 993,269	\$ 119,192(2)	\$ 4,000,000	\$ 1,227,681	\$ 3,855,922	\$ 64,141	\$ 10,260,205
	2017	\$ 824,038	\$ -	\$ 3,000,000	\$ 1,730,481	\$ 2,824,538	\$ 63,664	\$ 8,442,721
John T. C. Lee, President	2019	\$ 564,231	\$ -	\$ 1,650,000	\$ 487,778	\$ -	\$ 62,734	\$ 2,764,743
	2018	\$ 542,431	\$ 50,496(2)	\$ 1,475,000	\$ 520,104	\$ -	\$ 70,898	\$ 2,658,929
	2017	\$ 514,423	\$ -	\$ 1,000,000	\$ 925,961	\$ -	\$ 68,601	\$ 2,508,985
Seth H. Bagshaw, Sr. Vice President, Chief Financial Officer and Treasurer (principal financial officer)	2019	\$ 529,231	\$ -	\$ 2,650,000	\$ 385,280	\$ -	\$ 64,863	\$ 3,629,374
	2018	\$ 509,231	\$ 40,728(2)	\$ 1,400,000	\$ 419,606	\$ -	\$ 60,628	\$ 2,430,193
	2017	\$ 489,423	\$ -	\$ 1,200,000	\$ 783,076	\$ -	\$ 62,365	\$ 2,534,864
Kathleen F. Burke, Sr. Vice President, General Counsel and Secretary(1)	2019	\$ 419,423	\$ -	\$ 1,300,000	\$ 229,005	\$ -	\$ 55,374	\$ 2,003,802
John R. Abrams, Former Sr. Vice President of Global Sales	2019	\$ 81,831	N/A	N/A	N/A	N/A	\$ 894,537	\$ 976,368
	2018	\$ 393,269	\$ 31,462(2)	\$ 700,000	\$ 324,054	\$ -	\$ 52,690	\$ 1,501,475
	2017	\$ 373,462	\$ -	\$ 600,000	\$ 597,539	\$ -	\$ 64,013	\$ 1,635,014

- (1) Under the applicable rules of the SEC, Ms. Burke was not an executive officer in 2017 or 2018. Accordingly, her compensation is not included with respect to such years.
- (2) Represents a discretionary cash bonus equal to 10% of the Named Executive Officer's 2018 Target Bonus Amount for achieving significant cost savings in the second half of 2018 in response to a slowdown in the Company's semiconductor business for this period.
- (3) Represents the aggregate grant date fair value for each RSU granted to the executive officer during the covered year, calculated in accordance with ASC 718. The assumptions used in determining the aggregate grant date fair values of awards are set forth in Note 17 to our consolidated financial statements, which were included in our 2019 Annual Report filed with the SEC on February 28, 2020. The amounts under the "Stock Awards" column do not reflect the amount of compensation actually received by the Named Executive Officers during the fiscal year. Except with respect to Mr. Bagshaw and Ms. Burke for stock awards granted in 2019, at least fifty percent of the values listed under "Stock Awards" represent performance-based RSUs which are valued at the grant date based upon the probable outcome of the

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performance metrics. The maximum value of the RSUs, assuming the highest level of performance is achieved for the performance-based portion of the RSUs, was as follows for 2019, 2018 and 2017:

Named Executive Officer	2019		2018		2017	
	Maximum	Actual	Maximum	Actual	Maximum	Actual
Gerald G. Colella	\$ 5,375,000	\$ 3,845,000	\$ 5,125,000	\$ 4,045,000	\$ 3,750,000	\$ 3,315,000
John T.C. Lee	\$ 2,125,000	\$ 1,479,000	\$ 1,843,750	\$ 1,489,750	\$ 1,250,000	\$ 1,105,000
Seth H. Bagshaw	\$ 3,125,000	\$ 2,479,000	\$ 1,775,000	\$ 1,415,000	\$ 1,500,000	\$ 1,326,000
Kathleen F. Burke	\$ 1,500,000	\$ 1,228,000	N/A	N/A	N/A	N/A
John R. Abrams	N/A	N/A	\$ 875,000	\$ 707,000	\$ 750,000	\$ 663,000

With respect to stock awarded to Mr. Bagshaw and Ms. Burke in 2019, in addition to such executive officer's annual stock award, which was at least fifty percent performance-based RSUs, each received a time-based retention RSU award valued at \$1,000,000 and \$500,000, respectively, on the date of grant. For more information regarding these retention awards, please see the section entitled "Executive Compensation-Compensation Discussion and Analysis-Elements of Compensation-Long Term Equity Incentive Compensation."

- (4) Each Named Executive Officer's annual cash performance bonus for 2019, 2018 and 2017 was calculated based on a specified target percentage of his or her eligible earnings for the relevant plan year. The threshold bonus payout was 50% of this individual target bonus percentage and the maximum payout was 200% of this individual target bonus percentage, with proportional payouts for performance between these levels. For 2019 and 2018, bonus payments were based on a corporate financial performance objective. For 2017, bonus payouts were based 80% on a corporate financial performance objective and 20% on individual performance objectives, except for Mr. Colella, then Chief Executive Officer, whose annual cash performance bonus was based entirely on Company financial performance. Company financial performance was based on the achievement of non-GAAP operating income for the 2019, 2018 and 2017 fiscal years (defined as GAAP operating income after bonus and excluding any charges or income not related to the operating performance of the Company). Individual performance was based on specific management by objective goals that were aligned with the Company's strategic objectives and priorities. The individual target bonus percentage and the actual bonus achieved for each of the Named Executive Officers were as follows:

Named Executive Officer	2019		2018		2017	
	Individual Target Bonus %	Annual Bonus Plan Achievement	Individual Target Bonus %	Annual Bonus Plan Achievement	Individual Target Bonus %	Annual Bonus Plan Achievement
Mr. Colella	120%	91%	120%	103%	105%	200%
Dr. Lee	95%	91%	93.1%	103%	90%	200%
Mr. Bagshaw	80%	91%	80%	103%	80%	200%
Ms. Burke	60%	91%	N/A	N/A	N/A	N/A
Mr. Abrams	N/A	N/A	80%	103%	80%	200%

- (5) Mr. Colella's employment agreement provides for supplemental retirement benefits. For 2019, 2018 and 2017, the amount listed represents the actuarial increase in present value from the prior fiscal year.

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- (6) Executives are eligible to receive payments for car-related expenses, golf club memberships, certain health and disability benefits, and 401(k) match. The amounts paid for such benefits consist of the following:

Named Executive Officer	Year	Auto	Club Membership	Health & Disability Benefits	401(k) Match	Other
Mr. Colella	2019	\$ 18,272	\$ 6,970	\$ 32,858	\$ 8,400	\$ -
	2018	\$ 16,639	\$ 6,760	\$ 31,618	\$ 8,250	\$ 874
	2017	\$ 16,329	\$ 6,630	\$ 32,605	\$ 8,100	\$ -
Dr. Lee	2019	\$ 14,609	\$ 6,970	\$ 32,755	\$ 8,400	\$ -
	2018	\$ 13,999	\$ 6,760	\$ 41,889	\$ 8,250	\$ -
	2017	\$ 13,239	\$ 6,630	\$ 40,632	\$ 8,100	\$ -
Mr. Bagshaw	2019	\$ 12,332	\$ 6,970	\$ 37,161	\$ 8,400	\$ -
	2018	\$ 9,994	\$ 6,760	\$ 35,624	\$ 8,250	\$ -
	2017	\$ 9,349	\$ 6,630	\$ 38,286	\$ 8,100	\$ -
Ms. Burke	2019	\$ 14,287	\$ -	\$ 32,687	\$ 8,400	\$ -
Mr. Abrams	2019	\$ 2,983	\$ -	\$ 12,856	\$ 8,400	\$ 870,298
	2018	\$ 13,819	\$ -	\$ 30,621	\$ 8,250	\$ -
	2017	\$ 14,157	\$ 6,630	\$ 35,126	\$ 8,100	\$ -

Health and Disability Benefits include Company paid medical, dental, vision, short-term and long-term disability and life insurance as well as reimbursement for certain out-of-pocket health care costs capped at \$4,500 annually and a Company-paid annual physical. With respect to the "Other" column, amount indicated for Mr. Colella represents a service award and amount indicated for Mr. Abrams included the \$830,000 payment Mr. Abrams received in connection with his retirement on February 28, 2019 pursuant to the terms of his Transition and Retirement Agreement dated May 9, 2018 and a payment of \$40,298 representing his accumulated vacation.

CEO Pay Ratio

We are required by Section 953(b) of the Dodd-Frank Act and Item 402(u) of Regulation S-K to disclose the ratio of our median employee's annual total compensation to the annual total compensation of our principal executive officer.

The purpose of this disclosure is to provide a measure of the equitability of pay within our Company. We believe our compensation philosophy and process yield an equitable result for all of our employees. During 2019, our principal executive officer was our Chief Executive Officer, Gerald Colella. For 2019, the combined annual total compensation for Mr. Colella was \$9,669,644, and for our median employee was \$79,505, resulting in a pay ratio of approximately 122:1.

We previously identified our median employee in 2017. We are required to identify the median employee once every three years unless re-calculation of the median employee is necessary or appropriate in light of material changes to our workforce composition or compensation arrangements. In February 2019, we acquired Electro Scientific Industries, Inc., or ESI. As a result of the ESI acquisition, we increased our employee population by 14%. Given this change to our employee population, we re-calculated our median employee identified for purposes of our 2019 CEO pay ratio. In accordance with applicable SEC rules, we identified the median employee as of December 18, 2019 (the median employee determination date) by (i) aggregating for each applicable employee (A) annual base salary for salaried employees (or hourly rate multiplied by expected annual work schedule for hourly employees), (B) the actual bonus, commissions and overtime or double-time received for 2019, and (C) the accounting value of any equity granted during 2019, and (ii) ranking this compensation measure for our employees from lowest to highest. This calculation was performed for all employees, excluding Mr. Colella, whether employed on a full-time, part-time, or seasonal basis. For purposes of identifying the median employee, we converted amounts paid in foreign currencies to United States Dollars based on the applicable 2019 average exchange rates as of December 18, 2019.

The pay ratio reported above is a reasonable estimate calculated in a manner consistent with SEC rules based on our internal records and the methodology described above. Because the SEC rules for identifying the median compensated employee and calculating the pay ratio based on that employee's annual total compensation

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allow companies to adopt a variety of methodologies, to apply certain exclusions, and to make reasonable estimates and assumptions that reflect their employee populations and compensation practices, the pay ratio reported by other companies may not be comparable to the pay ratio reported above, as other companies have different employee populations and compensation practices and may utilize different methodologies, exclusions, estimates and assumptions in calculating their own pay ratios.

Grants of Plan-Based Awards Table in Fiscal Year 2019

Name	Grant Date(1)	Estimated Future Payouts Under Non-Equity Incentive Plan Awards(2)			Estimated Future Payouts Under Equity Incentive Plan Awards(3)			All Other Stock Awards: Number of Shares of Stock or Units (#)(4)	Grant Date Fair Value of Stock Awards \$(5)
		Threshold (\$)	Target (\$)	Maximum (\$)	Threshold (#)	Target (#)	Maximum (#)		
Gerald G. Colella	N/A 2/15/2019	\$ 624,000	\$ 1,248,000	\$ 2,496,000	13,282	26,564	39,847	23,613	\$ 4,250,000
John T.C. Lee	N/A 2/15/2019	\$ 268,375	\$ 536,750	\$ 1,073,500	5,608	11,216	16,824	8,264	\$ 1,650,000
Seth H. Bagshaw	N/A 2/15/2019 10/28/2019	\$ 212,000	\$ 424,000	\$ 848,000	5,608	11,216	16,824	8,264 8,716	\$ 1,650,000 \$ 1,000,000
Kathleen F. Burke	N/A 2/15/2019 10/28/2019	\$ 126,000	\$ 252,000	\$ 504,000	2,361	4,723	7,084	4,723 4,358	\$ 800,000 \$ 500,000
John R. Abrams	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

- (1) This column shows the date of grant for all equity awards granted in 2019.
- (2) Represents aggregate threshold, target and maximum payout levels under the annual cash incentive plan. The actual amount of annual cash incentive compensation earned by each Named Executive Officer in 2019 is reported under the Non-Equity Incentive Plan Compensation column in the Summary Compensation Table for 2019. See Footnote 4 to the Summary Compensation Table for 2019 for details on the terms of the annual cash incentive plan.
- (3) Except as otherwise noted, these RSUs vest in equal annual installments over three years beginning in February 2020, subject to achievement of performance criteria established in 2019 and determined in February 2020.
- (4) The RSUs granted on February 15, 2019 vest in equal annual installments over three years beginning in February 2020. The RSUs granted to Mr. Bagshaw and Ms. Burke on October 28, 2019 vest in two equal installments on the second and third anniversaries of the date of grant.
- (5) Reflects the combined grant date fair value of performance-based RSUs at the target achievement level and time-based RSUs. The fair value was \$84.70 per share for RSUs awarded on February 15, 2019 and \$114.73 per share for RSUs awarded on October 28, 2019.

Outstanding Equity Awards at 2019 Fiscal Year-End Table

Name	Stock Awards(1)			Equity Incentive Plan
	Number of Shares or Units of Stock That Have Not Vested (#)	Market Value of Shares or Units of Stock That Have Not Vested(2) (\$)	Equity Incentive Plan Awards: Number of Unearned Shares, Units or Other Rights That Have Not Vested (#)	Awards: Market or Payout Value of Unearned Shares, Units or Other Rights That Have Not Vested(2) (\$)
Gerald G. Colella	15,660(3) 23,289(4) 22,655(5)	\$ 1,722,757 \$ 2,562,023 \$ 2,492,277	39,847(5)	\$4,383,568
John T.C. Lee	5,442(3) 7,879(4) 1,040(6) 8,264(5)	\$ 598,674 \$ 866,769 \$ 114,410 \$ 909,123	16,824(5)	\$1,850,808
Seth H. Bagshaw	6,264(3) 8,145(4) 7,928(5) 8,716(7)	\$ 689,103 \$ 896,031 \$ 872,159 \$ 958,847	16,824(5)	\$1,850,808
Kathleen F. Burke	2,858(3) 4,243(4) 4,723(5) 4,358(7)	\$ 314,409 \$ 466,772 \$ 519,577 \$ 479,424	7,084(5)	\$779,311
John R. Abrams	-	-	-	-

- (1) All stock awards in the above table are RSUs. Except as otherwise noted below, all RSUs vest in three equal annual installments. The annual vesting date is February 15th or the next business day if February 15th is not a business day. RSUs listed in the “Equity Incentive Plan Awards” column were also subject to the achievement of performance criteria. None of the Named Executive Officers had any outstanding Option Awards.
- (2) The values were calculated based on the closing price of our Common Stock on December 31, 2019 of \$110.01 per share.
- (3) Grant date is February 15, 2017.
- (4) Grant date is February 15, 2018.
- (5) Grant date is February 15, 2019.
- (6) Grant date is May 9, 2018.
- (7) Grant date is October 28, 2019. These RSUs vest in two equal installments on the second and third anniversaries of the grant date.

Option Exercises and Stock Vested in Fiscal Year 2019 Table

Name	Stock Awards*	
	Number of Shares Acquired on Vesting (#)(1)	Value Realized on Vesting \$(2)
Gerald G. Colella	55,148	\$ 4,671,056
John T.C. Lee	19,131	\$ 1,620,409
Seth H. Bagshaw	22,204	\$ 1,880,643
Kathleen F. Burke	9,306	\$ 788,187
John R. Abrams	10,002	\$ 847,153

- (1) Reflects the number of shares vested before the surrender of shares in satisfaction of tax withholding obligations.
- (2) Reflects the value realized before satisfaction of tax withholding obligations.
- (*) There were no option exercises in 2019.

Retirement and Post-Employment Tables**Pension Benefits**

Pursuant to an employment agreement, we provide supplemental retirement benefits to Mr. Colella or, in the event of Mr. Colella's death, to his spouse. These supplemental retirement benefits are designed to reward Mr. Colella's long-term service with us and were intended to serve as a significant incentive for Mr. Colella to remain with us. In addition, these benefits are designed to provide for supplemental retirement benefits that are not available under our Company-wide employee benefits due to regulatory limitations on benefit accruals.

The benefits vest upon (a) Mr. Colella reaching both (i) specified ages, and (ii) 25 years of service with us, in each case while employed with us, or (b) Mr. Colella's earlier death, disability, termination without cause (as defined in his employment agreement) or a qualifying termination in connection with a change-in-control (as defined in his employment agreement), and are forfeited in the event of termination for cause. When vested, the benefits provide for a lump sum payment of an aggregate amount calculated in accordance with actuarial tables, payable not sooner than six months after the date of termination (except in the case of death or disability). The actuarial calculations include assumptions for decreased benefit continuation for Mr. Colella's surviving spouse in the event of Mr. Colella's death. The supplemental retirement benefits are not subject to any deduction for social security or other offset amounts. The benefit amount is based upon the final average compensation, which is equal to the average of Mr. Colella's three highest years of compensation (salary plus bonus) during the 10 years prior to Mr. Colella's year of retirement (or other qualifying termination). The benefits for Mr. Colella are currently vested at 100%.

The table below sets forth the present value as of December 31, 2019 of the accumulated benefits under Mr. Colella's supplemental pension arrangement. As previously disclosed, Mr. Colella retired from the Company on January 1, 2020 and the benefits under Mr. Colella's employment agreement were fully vested in 2018. He will be entitled to a lump sum payment of these supplemental retirement benefits on or after July 2, 2020.

None of our other Named Executive Officers are eligible for supplemental retirement benefits.

<u>Name</u>	<u>Plan Name</u>	<u>Number of Years Credited Service (#)(1)</u>	<u>Present Value of Accumulated Benefit \$(2)</u>	<u>Payments During the Last Fiscal Year (\$)</u>
Gerald G. Colella	Supplemental Retirement Benefits under Employment Agreement	25	\$21,341,365	-

- (1) Maximum number of years credited is 25.
- (2) Present value of accumulated benefit is calculated using the same assumptions we used for financial reporting purposes. The calculations use a discount rate of 2.61%, a maturity value rate of 2.61% and salary increases of 5.0% per annum and the mortality table described in IRS Notice 2008-85 for the valuation year. This is the same mortality table that is specified in Internal Revenue Code Section 417(e)(3) for minimum lump sum payments for qualified pension plans. Mr. Colella was vested in 100% of the amount set forth above as of December 31, 2019.

Potential Payments Upon Termination or Change-in-Control

In May 2019, we announced our Chief Executive Officer succession plan. Pursuant to that plan, on January 1, 2020, our then Chief Executive Officer, Gerald G. Colella, retired and our then President, John T.C. Lee, succeeded Mr. Colella as Chief Executive Officer and continued to serve as President. Mr. Colella continues to serve on our Board of Directors and will assume the role of Chairman of our Board in May 2020.

Pursuant to applicable rules of the SEC, this section, including the tables below, summarizes the estimated payments and other benefits that each Named Executive Officer would be eligible to receive if his or her employment had terminated on December 31, 2019, under the circumstances set forth below.

Mr. Colella

Pursuant to the terms of Mr. Colella's employment agreement dated as of October 22, 2013, as amended, in addition to his base salary, Mr. Colella was eligible to participate in the Company's annual cash incentive compensation program, with a targeted goal of 120% of base salary subject to meeting performance goals determined by our Compensation Committee, and long-term equity incentive plan, subject to meeting vesting and/or performance goals determined by our Compensation Committee. Mr. Colella's employment term was month-to-month, with termination upon 30 days' notice by either party, or upon death, disability, or at the Company's election if Mr. Colella failed to perform his duties or committed any other act constituting cause (as defined below).

In the event Mr. Colella's employment was terminated by the Company without cause, he was entitled to the following: (i) continuation of base salary for a period of 18 months, (ii) 1.5 times his target annual cash incentive plan bonus, (iii) payment of any annual cash incentive plan bonus earned for the prior calendar year but not yet paid, (iv) payment for continuation of medical, dental or vision insurance for 18 months and (v) reimbursement for premiums he paid (if any) for continuation of life insurance for 12 months if he elected the Company's group life insurance conversion feature. Payment of such benefits was conditioned upon execution of a release by Mr. Colella and his full compliance with the restrictive covenants described below.

In the event Mr. Colella's employment was terminated due to death or total disability, or Mr. Colella voluntarily terminated his employment (other than for "good reason" within two years of a "change-in-control," each as defined in his employment agreement), we would have paid his base salary accrued through the last date of employment, plus any annual cash incentive plan bonus earned for the prior calendar year, but not yet paid.

In the event Mr. Colella's employment was terminated without cause or was terminated by Mr. Colella for good reason, in either case upon or at any time within two years following a change-in-control, Mr. Colella would have received a lump sum payment equal to 36 months of his base salary and three times his target annual bonus amount, payment of any annual cash incentive plan bonus earned for the prior calendar year, but not yet paid, and continued participation in the Company's medical, dental, vision and life insurance plans for 36 months. In the event such payments were determined to be subject to an excise tax imposed by Section 4999 of the Internal Revenue Code, such payments would have been payable in full or, if applicable, reduced so that no portion of the payments was subject to the excise tax, whichever of the foregoing amounts resulted in receipt by Mr. Colella on an after-tax basis of the greater amount, taking into account all applicable taxes, including the penalty tax. Mr. Colella was not entitled to any gross-up payment for any such excise tax due on such payments.

The Employment Agreement requires Mr. Colella to return all or a portion of any incentive pay for the performance period in which his termination of employment occurred and any performance period ending within the 36 month period prior to his termination of employment, if it is later determined that these awards were calculated on the basis of inaccurate information that results in a restatement of our financial statements, or for other required reasons.

The Employment Agreement provides that Mr. Colella may not, for two years from the termination of his employment, (i) engage in any competitive business or activity, (ii) work for any person who was our executive, officer or agent, or establish any business or partnership with such person that is competitive to the Company, (iii) give, sell or lease any competitive services or goods to any of our customers, or (iv) have any material financial interest in or be a director, officer, partner, executive or consultant to, or exceed specified shareholding limitations in, any of the Company's competitors.

Mr. Colella is also subject to non-solicitation restrictions. During the term of his employment and for a period of two years after termination, Mr. Colella may not solicit any customer to become a customer, distributor or supplier of any other person or entity or to cease doing business with the Company; or solicit or hire any of our executives, officers or agents to terminate such person's employment or engagement with the Company or to work for a third party.

In addition, the Employment Agreement provided Mr. Colella with supplemental retirement benefits, which vested in 2018 when Mr. Colella reached the age of 62 and had served for 25 years with the Company, and which

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will terminate upon violation of the non-competition, non-disclosure, or non-solicitation provisions contained in the Employment Agreement. When vested, subject to his execution of and compliance with a customary release, the supplemental retirement benefit provides for a lump sum payment to Mr. Colella (or in the event of his death, his spouse) of an aggregate amount calculated based upon actuarial assumptions, payable not sooner than six months after the date of termination (except in the case of death). The benefit amount is determined based upon the actuarial equivalent value of an annuity equal to 50% of Mr. Colella's final average compensation, which is equal to the average of his three highest years of compensation (salary plus bonus) during the 10 calendar years prior to the year of retirement (or other qualifying termination). The actuarial calculations include assumptions for decreased benefit continuation (determined as a 50% survivor annuity) for Mr. Colella's surviving spouse in the event of Mr. Colella's death. In the event that any payment under the supplemental retirement benefit would subject Mr. Colella to any excise tax, interest or penalties imposed under Internal Revenue Code Section 4999, we have agreed to make Mr. Colella gross-up payments for such amounts.

In addition, subject to his execution of and compliance with a customary release, Mr. Colella will receive retiree medical benefits for life. Mr. Colella (or his surviving spouse) will pay an annual contribution of \$1,500, and, because he retired before age 65, he (or his surviving spouse) will pay a decreasing percentage of the costs of the benefit (from 30% to 10%) until he reaches age 65. The retiree medical benefit is coordinated with any continuation of medical benefits described above to avoid duplication of benefits.

Mr. Colella's RSU agreements provided for the full acceleration of vesting of all shares (or, in the case of performance-based RSUs that were still subject to performance criteria, the actual number of RSUs to vest based upon satisfaction of performance criteria) upon retirement.

Potential Payments Upon Termination or Change-in-Control Table — Gerald G. Colella

The following table sets forth the estimated benefits that Mr. Colella would have been entitled to receive upon termination of his employment effective December 31, 2019:

Termination Circumstance	Cash Severance		Value of Accelerated Unvested Equity	Benefits Continuation	Acceleration of Pension Benefits(1)	Gross up of I.R.C. Golden Parachute Excise Tax Resulting from Change-in-Control(2)	Total
	Base Salary	Bonus					
Involuntary Without Cause Termination	\$1,560,000	\$1,872,000	\$ -	\$ 33,162(3)	\$21,341,365	N/A	\$24,806,527
Retirement	\$ -	\$ -	\$9,699,336(4)	\$732,773(5)	\$21,341,365	N/A	\$31,773,474
Death	\$ -	\$ -	\$9,699,336(4)	\$326,309	\$10,670,683	N/A	\$20,696,328
Disability	\$ -	\$ -	\$9,699,336(4)	\$732,773(5)	\$21,341,365	N/A	\$31,773,474
Within 24 Months Following a Change-in-Control:							
• Termination by the Company Without Cause	\$3,120,000	\$3,744,000	\$9,699,336(6)	\$752,573(7)	\$21,341,365	\$ -	\$38,657,274
• Executive Resignation for Good Reason	\$3,120,000	\$3,744,000	\$9,699,336(6)	\$752,573(7)	\$21,341,365	\$ -	\$38,657,274
Between 24 Months and 36 Months Following a Change-in-Control:							
• Termination by the Company Without Cause	\$1,560,000	\$1,872,000	\$ -	\$739,373(8)	\$21,341,365	\$ -	\$25,512,738
• Executive Resignation for Good Reason	\$ -	\$ -	\$ -	\$732,773(5)	\$21,341,365	\$ -	\$22,074,138

(1) This amount represents the present value of the accelerated amount of the accumulated benefit under the Supplemental Retirement Benefits. See also the description under "Pension Benefits" above.

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- (2) For purposes of assessing whether Mr. Colella would be liable for an excise tax under Section 4999 of the Internal Revenue Code on parachute payments (and in turn entitled to a gross-up payment), the calculations assume that if Mr. Colella was terminated within 24 months following a change-in-control, the vesting of the target number of his unvested performance-based RSUs and all of his unvested time-based RSUs would be accelerated. Upon a change-in-control, we agreed to reimburse Mr. Colella for excise taxes under Section 4999 solely with respect to his pension benefits.
- (3) Reflects our cost for continuation of life insurance for 12 months and continuation of medical, dental and vision coverage for 18 months following involuntary without cause termination, assuming the termination occurred on December 31, 2019.
- (4) Upon retirement, death or disability, RSUs fully vest, subject to achievement of any remaining performance criteria. The stated value assumes the retirement, death or disability occurred on December 31, 2019 and assumes the target number of unvested performance-based RSUs vested.
- (5) This amount represents the estimated present value of retiree health benefits, in each case assuming the termination occurred on December 31, 2019.
- (6) The unvested time-based RSUs fully vest and the target number of unvested performance-based RSUs vest.
- (7) This amount represents the estimated present value of retiree health benefits, \$732,773, plus our cost for continuation of life insurance for 36 months following termination of employment, \$19,800, assuming the termination occurred on December 31, 2019.
- (8) This amount represents the estimated present value of retiree health benefits, \$732,773, plus our cost for continuation of life insurance for 12 months following termination of employment, \$6,600, assuming the termination occurred on December 31, 2019.

Other Named Executive Officers

Mr. Abrams retired from the Company on February 28, 2019. In advance of his retirement, Mr. Abrams entered into a Transition and Retirement Agreement with the Company on May 9, 2018, which superseded and replaced an employment agreement he entered into with the Company on August 1, 2016. Pursuant to the terms of his Transition and Retirement Agreement, the Company paid Mr. Abrams \$830,000 shortly after his retirement date upon the execution and effectiveness of a customary release and Mr. Abrams remains subject to confidentiality, non-solicitation and non-competition provisions, the material terms of which are the same as discussed below for Dr. Lee, Mr. Bagshaw and Ms. Burke.

Dr. Lee, Mr. Bagshaw and Ms. Burke entered into employment agreements with the Company effective as of August 1, 2016. Dr. Lee's employment agreement was superseded and replaced with a new employment agreement on May 9, 2018 when he was promoted to President of the Company. On October 29, 2018, the Company entered into an amendment to the employment agreements with each of Dr. Lee, Mr. Bagshaw and Ms. Burke. Dr. Lee entered into a new employment agreement with the Company, effective January 1, 2020, when he was promoted to Chief Executive Officer of the Company. Pursuant to applicable rules of the SEC, below is a summary of the material terms of these employment agreements in place as of December 31, 2019. Following this summary and related table of potential payments upon termination or change-in-control on December 31, 2019, is a summary of the material terms of Dr. Lee's latest employment agreement that took effect on January 1, 2020.

In addition to providing for a base salary, and eligibility to participate in the Company's annual cash incentive compensation program and long-term equity incentive plan, the employment agreements with Dr. Lee, Mr. Bagshaw and Ms. Burke provide for terms that are at-will, with termination upon death, disability, or at our election if the executive fails to perform his duties or commits any other act constituting cause (as defined below). In the event that the executive resigns from the Company or is terminated by the Company without cause, subject to certain procedural requirements, the Company will pay such executive his or her base salary for a period of at least 30 days after the notice of such termination or resignation is delivered. In the event that we

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terminate Dr. Lee, Mr. Bagshaw or Ms. Burke's employment without cause, each executive is entitled to a lump sum payment equal to 12 months base salary and to the extent that such executive elects to continue coverage, payment by the Company of premiums for medical, vision and dental insurance coverage under COBRA for a period of 12 months less the premium contribution paid by similarly-situated employees.

In the event that Dr. Lee, Mr. Bagshaw or Ms. Burke's employment is terminated without cause, or is terminated by the executive for good reason (as defined below) within 24 months after a change-in-control (as defined in the applicable agreement), each executive is entitled to: (i) a lump sum payment equal to one and one-half times his or her annual base salary, or two times his annual base salary in the case of Mr. Bagshaw, (ii) a lump sum payment equal to one and one-half times the annual amount of his or her target incentive compensation for which such executive is eligible, or two times the annual amount of his target incentive compensation in the case of Mr. Bagshaw, (iii) a prorated portion of the then current year's target bonus amount, and (iv) to the extent that such executive elects to continue coverage, payment by the Company of its usual share of premiums for medical, vision and dental insurance coverage under COBRA for a period of 18 months, or 24 months in the case of Mr. Bagshaw, following termination. In the event such payments are determined to be subject to an excise tax imposed by Section 4999 of the Internal Revenue Code, such payments will be payable in full or, if applicable, reduced so that no portion of the payments is subject to the excise tax, whichever of the foregoing amounts results in receipt by Dr. Lee, Mr. Bagshaw and Ms. Burke, as the case may be, on an after-tax basis of the greater amount, taking into account all applicable taxes, including the penalty tax. Dr. Lee, Mr. Bagshaw and Ms. Burke are not entitled to any gross-up payment for any such excise tax due.

The employment agreements of Dr. Lee, Mr. Bagshaw and Ms. Burke contain non-competition provisions that provide that each executive may not, during the term of his or her employment and for one year after termination of employment, engage in any competitive business or activity. In addition, each of Dr. Lee, Mr. Bagshaw and Ms. Burke may not, during the term of employment and for one year after the termination of employment: (i) solicit, hire or otherwise induce any Company employee to terminate his or her employment with the Company, (ii) solicit or hire any of our suppliers, joint ventures, research partners or customers for the purpose of competing with the Company, (iii) encourage any of such persons or entities not to enter into a business relationship with MKS or interfere with the relationship between the Company and such persons or entities, or (iv) sell to any of the Company's customers any products of the types sold by the Company with respect to which products the executive officer had material dealings in the performance of his or her duties within the period two years prior to his or her termination.

The RSU agreements for each of Dr. Lee, Mr. Bagshaw and Ms. Burke provide for full acceleration of vesting of all RSUs (or, in the case of performance-based RSUs that are still subject to performance criteria, the target number of RSUs) if such executive is terminated without cause or resigns with good reason within 24 months following a change-in-control (as defined in the applicable agreements). The RSU agreements for each of Dr. Lee, Mr. Bagshaw and Ms. Burke also provide for full acceleration of vesting of all shares (or, in the case of performance-based RSUs that are still subject to performance criteria, the actual number of RSUs to vest based upon satisfaction of performance criteria) upon retirement, death or disability. Retirement, in this context, for Dr. Lee and Ms. Burke, means a voluntary termination of employment by the executive after he or she is at least age 60 and has at least 15 years of service with us. Retirement, in this context, for Mr. Bagshaw means a voluntary termination of employment by the executive after he is at least age 60 and has at least 10 years of service with us. RSUs granted to executives typically vest in three equal annual installments, and typically at least half of the target annual equity grant value is subject to performance criteria.

For purposes of the foregoing description of benefits under the employment agreements with Dr. Lee, Mr. Bagshaw and Ms. Burke, "cause" will exist if the executive: (i) commits a felony or engages in fraud, misappropriation or embezzlement, (ii) knowingly fails or refuses to perform such executive's duties in a material way and, to the extent that the Company determines such failure or refusal can reasonably be cured, fails or refuses to effect a cure within 10 days after the Company notifies such executive in writing of the failure or refusal, (iii) knowingly causes, or knowingly creates a serious risk of causing, material harm to the Company's business or reputation, or (iv) breaches, in a material way, such executive's employment agreement, the confidential information agreement or any other agreement between such executive and the Company, and, to the

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extent that the Company determines such breach can reasonably be cured, fails or refuses to effect a cure within 10 days after the Company notifies such executive in writing of the breach.

For purposes of the foregoing description of benefits under the employment agreements with Dr. Lee, Mr. Bagshaw and Ms. Burke, subject to compliance with certain procedural requirements, “good reason” for the applicable executive to resign will exist if, without such executive’s express written consent: (i) the Company materially reduces such executive’s position, duties or responsibilities, (ii) the Company reduces such executive’s base salary as in effect on the date hereof or as the same may be increased from time to time during the term of the applicable employment agreement, or (iii) the Company changes such executive’s principal place of work to a location more than 50 miles from such executive’s current principal place of work.

Under the RSU agreements for Dr. Lee, Mr. Bagshaw and Ms. Burke, “cause” means conviction for the commission of a felony, willful failure by the executive to perform his or her responsibilities to the Company, or willful misconduct by the executive. Subject to compliance with certain procedural requirements, “good reason” means voluntary separation from service within 90 days following (i) a material diminution in position, duties and responsibilities from those described in the executive’s employment agreement, (ii) a reduction in the executive’s base salary (other than as part of a general salary reduction program affecting senior executives), (iii) a material reduction in the aggregate value of the executive’s pension and welfare benefits from those in effect prior to the change-in-control (other than as proportionate to the reductions applicable to other senior executives pursuant to a cost-saving plan that includes all senior executives), (iv) a material breach of any provision of the employment agreement by the Company, or (v) the Company’s requiring the executive to be based at a location causing a one way commute in excess of 60 miles from the executive’s primary residence.

Potential Payments Upon Termination or Change-in-Control Table — Other Named Executive Officers

The following table sets forth the estimated benefits that Dr. Lee, Mr. Bagshaw and Ms. Burke would have been entitled to receive upon termination of his or her employment effective December 31, 2019 and the actual benefits Mr. Abrams received upon his retirement on February 28, 2019:

Termination Circumstance	Cash Severance		Value of Accelerated Unvested Equity	Benefits Continuation	Total
	Base Salary	Bonus			
Involuntary Without Cause Termination:					
John T.C. Lee	\$ 565,000	\$ -	\$ -	\$ 25,734	\$ 590,734
Seth H. Bagshaw	\$ 530,000	\$ -	\$ -	\$ 25,734	\$ 555,734
Kathleen F. Burke	\$ 420,000	\$ -	\$ -	\$ 25,734	\$ 445,734
John R. Abrams	\$ -	\$ -	\$ -	\$ -	\$ -
Within 24 Months Following a Change-in-Control:					
John T.C. Lee	\$ 847,500	\$ 1,341,875	\$ 3,722,887(1)	\$ 38,601(2)	\$ 5,950,863
Seth H. Bagshaw	\$ 1,060,000	\$ 1,272,000	\$ 4,650,158(1)	\$ 51,468(2)	\$ 7,033,626
Kathleen F. Burke	\$ 630,000	\$ 630,000	\$ 2,299,632(1)	\$ 38,601(2)	\$ 3,598,233
John R. Abrams	\$ -	\$ -	\$ -	\$ -	\$ -
Death or Disability:					
John T.C. Lee	\$ -	\$ -	\$ 3,722,887(3)	\$ -	\$ 3,722,887
Seth H. Bagshaw	\$ -	\$ -	\$ 4,650,158(3)	\$ -	\$ 4,650,158
Kathleen F. Burke	\$ -	\$ -	\$ 2,299,632(3)	\$ -	\$ 2,299,632
John R. Abrams	\$ -	\$ -	\$ -	\$ -	\$ -
Retirement:					
John T.C. Lee	\$ -	\$ -	\$ -(4)	\$ -	\$ -
Seth H. Bagshaw	\$ -	\$ -	\$ 3,691,298(4)	\$ -	\$ 3,691,298
Kathleen F. Burke	\$ -	\$ -	\$ -(4)	\$ -	\$ -
John R. Abrams	\$ -	\$ 830,000(5)	\$ -	\$ -	\$ 830,000

- (1) The unvested time-based RSUs fully vest and the target number of unvested performance-based RSUs vest.
- (2) Reflects our cost for continuation of life insurance, medical, dental and vision coverage for 18 months (or 24 months in the case of Mr. Bagshaw) following involuntary without cause termination within 24 months following a change-in-control, assuming the termination occurred on December 31, 2019.
- (3) Upon death or disability, RSUs fully vest, subject to achievement of any remaining performance criteria. The stated value assumes the death or disability occurred on December 31, 2019 and assumes the target number of unvested performance-based RSUs vested.
- (4) Upon retirement (as defined in the RSU agreements), RSUs for Dr. Lee, Mr. Bagshaw and Ms. Burke fully vest, subject to achievement of any remaining performance criteria. However, Dr. Lee and Ms. Burke did not meet the requirements for retirement as of December 31, 2019.
- (5) Reflects the actual payment Mr. Abrams received in connection with his retirement on February 28, 2019 pursuant to the terms of his Transition and Retirement Agreement dated May 9, 2018.

Dr. Lee's New Employment Agreement in connection with Promotion to Chief Executive Officer

In connection with Dr. Lee's promotion to Chief Executive Officer of the Company, effective January 1, 2020, the Company entered into a new employment agreement with Dr. Lee that superseded and replaced his May 9, 2018 employment agreement, pursuant to which Dr. Lee's 2020 base salary was set at \$850,000, his 2020 target annual cash bonus under the Company's Management and Key Employee Bonus Plan was set at 110% of his eligible earnings and his 2020 target long-term equity incentive award was set at \$3,250,000. The equity incentive award consisted of 55% performance-based RSUs and 45% time-based RSUs. The award of any performance-based RSUs was based on the achievement of certain 2020 Company performance goal(s) approved by our Compensation Committee. The RSUs are subject to the terms and conditions of the Company's 2014 Stock Incentive Plan, and will vest (to the extent earned, if performance-based) in three equal annual installments beginning on February 15, 2021.

Dr. Lee's Employment Agreement provides for a term that is at-will, with termination upon death, disability, or at the election of either party. In the event that Dr. Lee's employment is terminated by the Company without cause (as defined in his employment agreement) or is terminated by Dr. Lee for good reason (as defined in his employment agreement), he is entitled to: (i) continuation of base salary for 18 months, (ii) a lump sum equal to 1.5 times the annual amount of his target cash incentive compensation for which he is eligible, (iii) any cash incentive compensation earned for the calendar year preceding his termination but not yet paid and (iv) to the extent that he elects to continue coverage, payment by the Company of premiums for medical, vision and dental insurance coverage under COBRA for a period of 18 months, less the premium contribution paid by similarly-situated employees.

In the event that Dr. Lee's employment is terminated by the Company without cause, or is terminated by Dr. Lee for good reason, within 24 months after a change-in-control (as defined in his employment agreement), he is entitled to: (i) a lump sum payment equal to three times his annual base salary, (ii) a lump sum payment equal to three times the annual amount of his target cash incentive compensation, (iii) any cash incentive compensation earned for the calendar year preceding his termination but not yet paid, (iv) a prorated portion of his then current year's target cash incentive compensation, and (v) to the extent that he elects to continue coverage, payment by the Company of its usual share of premiums for medical, vision and dental insurance coverage under COBRA during the period of time Dr. Lee is entitled to elect such coverage under COBRA, and after the end of the COBRA continuation period, if Dr. Lee continues to pay the premium that would be charged for COBRA coverage, he may continue such insurance coverage until the end of the 36 month period following his employment termination date on the same terms as if COBRA coverage were still in effect and the Company will continue to pay the Company's usual share of such premiums.

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In the event Dr. Lee's employment is terminated due to death or disability, he (or his estate) is entitled to: (i) any cash incentive compensation earned for the calendar year preceding his termination but not yet paid and (ii) a prorated portion of his then current year's target cash incentive compensation.

Dr. Lee's employment agreement contains non-competition provisions that provide that he may not, during the term of his employment and for one year after termination of employment, engage in any competitive business or activity. In addition, he may not, during the term of employment and for two years after the termination of employment: (i) solicit, hire or otherwise induce any Company employee to terminate his or her employment with the Company, (ii) solicit or hire any of our suppliers, joint ventures, research partners or customers for the purpose of competing with the Company, (iii) encourage any of such persons or entities not to enter into a business relationship with the Company or interfere with the relationship between the Company and such persons or entities, or (iv) sell to any of the Company's customers any products of the types sold by the Company with respect to which products he had material dealings in the performance of his duties within the period two years prior to his termination.

Any equity awarded to Dr. Lee under the current or any future MKS Instruments, Inc. equity incentive plan that is as of Dr. Lee's termination of employment date unvested will be subject to accelerated vesting if and to the extent provided in the equity award agreements governing the award.

Each of the RSU agreements that govern Dr. Lee's current RSU awards: (i) provides for full acceleration of vesting of all RSUs earned if he is terminated without cause or resigns for good reason, within 24 months following a change-in-control (as defined in the RSU agreement) and (ii) provides for full acceleration of vesting of all RSUs earned upon retirement, death or disability. Retirement, in this context, means a voluntary termination of employment by Dr. Lee after he is at least age 60 and has at least 15 years of service with us.

EQUITY COMPENSATION PLAN INFORMATION

The following table provides information about the securities authorized for issuance under our equity compensation plans as of December 31, 2019:

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants and rights(1)(2)	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))
	(a)	(b)	(c)
Equity compensation plans approved by security holders	1,211,388(3)	\$ 29.05(4)	15,068,869(5)
Equity compensation plans not approved by security holders	-	-	-
Total	1,211,388(3)		15,068,869(5)

- (1) When we acquired Newport Corporation, or Newport, in April 2016, we assumed: (i) all RSUs granted under any Newport equity plan that were outstanding immediately prior to the effective time of the acquisition and as to which shares of Newport common stock were not fully distributed in connection with the closing of the acquisition and (ii) all stock appreciation rights granted under any Newport equity plan, whether vested or unvested, that were outstanding immediately prior to the effective time of the acquisition. Such RSUs were converted automatically into RSUs with respect to 360,674 shares of our Common Stock, which we refer to as the Newport Assumed RSUs, and such stock appreciation rights were converted automatically into stock appreciation rights with respect to 899,851 shares of our Common Stock, which we refer to as the Newport Assumed SARs. An additional 59,626 RSUs, which were issued under Newport's equity plans and have vested in accordance with the applicable award agreements, were deferred by the awardees under Newport's Deferred Compensation Plan at the time of vesting and were converted automatically into RSUs with respect to 36,599 shares of our Common Stock. As of December 31, 2019, 5,851 shares of our Common Stock were held in the Newport Deferred Compensation Plan for the benefit of such awardees.
- (2) When we acquired Electro Scientific Industries, Inc., or ESI, in February 2019, we assumed: (i) all RSUs granted under any ESI equity plan that were outstanding immediately prior to the effective time of the acquisition and as to which shares of ESI common stock were not fully distributed in connection with the closing of the acquisition and (ii) all stock appreciation rights granted under any ESI equity plan, whether vested or unvested, that were outstanding immediately prior to the effective time of the acquisition. Such RSUs were converted automatically into RSUs with respect to 736,133 shares of our Common Stock, which we refer to as the ESI Assumed RSUs, and such stock appreciation rights were converted automatically into stock appreciation rights with respect to 12,787 shares of our Common Stock, which we refer to as the ESI Assumed SARs. Included in the 736,133 shares issued pursuant to the ESI Assumed RSUs are 326,283 shares held in the ESI Deferred Compensation Plan. As of December 31, 2019, 330,414 shares of our Common Stock were held in the ESI Deferred Compensation Plan which reflects accrued dividends the awardees are entitled to under the terms of the ESI equity plan.
- (3) As of December 31, 2019, the number of shares reflected in column (a) consists of: (i) Newport Assumed SARs and ESI Assumed SARs with respect to an aggregate of 108,854 shares of our Common Stock, (ii) Newport Assumed RSUs and ESI Assumed RSUs with respect to 332,746 shares of our Common Stock and (iii) RSUs representing the right to receive an aggregate of 769,788 shares of our Common Stock upon vesting, all of which were issued under our 2014 Stock Incentive Plan.
- (4) The weighted average exercise price represents the base value of all outstanding Newport Assumed SARs and ESI Assumed SARs. All outstanding RSUs were awarded without payment of any purchase price.
- (5) This number includes 13,268,546 shares available for issuance under our 2014 Stock Incentive Plan and 1,800,323 shares reserved for issuance under our 2014 Employee Stock Purchase Plan. Shares issued under our 2014 Stock Incentive Plan in respect of RSUs, restricted stock or other stock-based awards with a per share price lower than 100% of fair market value on the date of grant count against the shares available for grant under the plan as 2.4 shares for every share granted.

OTHER MATTERS

Our Board of Directors does not know of any other matters which may come before the meeting. However, if any other matters are properly presented to the meeting, it is the intention of the persons named in the accompanying proxy to vote, or otherwise act, in accordance with their judgment on such matters.

Electronic Voting

If you own shares of Common Stock of record, you may vote your shares over the Internet at www.proxyvote.com or telephonically by calling 1-800-690-6903 and by following the instructions on the Notice or proxy card. Proxies submitted over the Internet or by telephone must be received by 11:59 p.m. Eastern Time on May 11, 2020.

If the shares you own are held in “street name” by a bank, broker or other nominee, your bank, broker or other nominee will provide a vote instruction form to you with this proxy statement, which you may use to direct how your shares will be voted. **You must instruct your bank, broker or other nominee how to vote with respect to the election of directors and the executive compensation advisory vote; your bank, broker or other nominee cannot exercise its discretion to vote on these matters on your behalf.** Many banks and brokers also offer the option of voting over the Internet or by telephone, instructions for which would be provided by your bank or broker on your vote instruction form.

We hope that shareholders will attend the 2020 Annual Meeting. Whether or not you plan to attend, we urge you to vote your shares over the Internet or by telephone, or complete, date, sign and return the proxy card in the accompanying postage-prepaid envelope if you received a printed proxy card. A prompt response will greatly facilitate arrangements for the 2020 Annual Meeting and your cooperation will be appreciated. Shareholders who attend the 2020 Annual Meeting may vote their stock personally even if they have previously sent in their proxies.

Expenses and Solicitation

All costs of solicitation of proxies will be borne by us. In addition to solicitations by mail, our directors, officers and regular employees, without additional remuneration, may solicit proxies by telephone and personal interviews and we reserve the right to retain outside agencies for the purpose of soliciting proxies. Brokers, custodians and fiduciaries will be requested to forward proxy soliciting material to the owners of stock held in their names, and we will reimburse them for their reasonable out-of-pocket expenses incurred in connection with the distribution of proxy materials.

Deadline for Submission of Shareholder Proposals for the 2021 Annual Meeting

Proposals of shareholders intended to be presented at the 2021 Annual Meeting of Shareholders must be received by us at our principal office in Andover, Massachusetts no later than November 27, 2020 for inclusion in the proxy statement for that meeting.

In addition, our Amended and Restated By-Laws (which are on file with the SEC) require that we be given advance notice of matters that shareholders wish to present for action at an annual meeting of shareholders, including director nominations (other than matters included in our proxy statement in accordance with Rule 14a-8 of the Securities Exchange Act of 1934, as amended). The required written notice must be delivered to our Secretary at our principal office at least 90 days but no more than 120 days prior to the first anniversary of the preceding year’s annual meeting or it will be considered untimely. However, in the event that the date of the annual meeting is advanced by more than 20 days, or delayed by more than 60 days, from the first anniversary of the preceding year’s annual meeting, a shareholder’s notice must be received no earlier than the 120th day prior to the annual meeting and not later than the close of business on the later of (i) the 90th day prior to the annual meeting and (ii) the seventh day following the day on which notice of the date of the annual meeting was mailed

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or public disclosure of the date of the annual meeting was made, whichever occurs first. Assuming that the 2021 Annual Meeting of Shareholders is not advanced by more than 20 days or delayed by more than 60 days from the anniversary date of the 2020 Annual Meeting, shareholders will need to give us appropriate notice at the address noted above no earlier than January 12, 2021 and no later than February 11, 2021. The advance notice provisions of our Amended and Restated By-Laws contain the requirements of the written notice of shareholders and supersede the notice requirement contained in Rule 14a-4(c)(1) under the Securities Exchange Act of 1934, as amended.

By Order of the Board of Directors,

KATHLEEN F. BURKE
Secretary

March 27, 2020

Important Notice Regarding the Availability of Proxy Materials for the 2020 Annual Meeting:

The Annual Report, Notice & Proxy Statement are available at www.proxyvote.com.

E95734-P36517

**MKS INSTRUMENTS, INC.
2020 Annual Meeting of Shareholders
May 12, 2020 10:00 AM
This proxy is solicited by the Board of Directors.**

The undersigned shareholder of MKS Instruments, Inc., a Massachusetts corporation (the "Company"), hereby acknowledges receipt of the Notice of 2020 Annual Meeting of Shareholders and Proxy Statement, each dated March 27, 2020, and hereby appoints John T.C. Lee and Kathleen F. Burke, and each of them acting singly, proxies and attorneys-in-fact, with full power to each of substitution, on behalf and in the name of the undersigned, to represent the undersigned at the 2020 Annual Meeting of Shareholders of the Company to be held on May 12, 2020 at 10:00 AM, Eastern Time, at MKS Instruments, Inc., 2 Tech Drive, Suite 201, Andover, MA 01810, and at any adjournment or postponement thereof, and to vote all shares of Common Stock which the undersigned would be entitled to vote if then and there personally present, on the matters set forth on the reverse side, and, in their discretion, upon any other matters which may properly come before the meeting.

Your Internet or telephone vote authorizes the named proxies to vote the shares in the same manner as if you marked, signed, dated and returned your proxy card. If you vote the shares over the Internet or by telephone, please do not return your proxy card.

UNLESS VOTING THE SHARES OVER THE INTERNET OR BY TELEPHONE, PLEASE DATE, SIGN AND MAIL YOUR PROXY CARD IN THE ENVELOPE PROVIDED AS SOON AS POSSIBLE.

Address Change/Comments: _____

(If you noted any address change and/or comments above, please mark corresponding box on the reverse side.)

Continued and to be signed on reverse side



MKS INSTRUMENTS, INC.
 2 TECH DRIVE
 SUITE 201
 ANDOVER, MA 01810

ELECTRONIC DELIVERY OF FUTURE PROXY MATERIALS

If you would like to reduce the costs incurred by our Company in mailing proxy materials, you can consent to receive all future proxy statements, proxy cards and annual reports electronically via e-mail or the Internet. To sign up for electronic delivery, please follow the instructions below to vote using the Internet and, when prompted, indicate that you agree to receive or access proxy materials electronically in future years.

VOTE BY INTERNET - www.proxyvote.com

Use the Internet to transmit your voting instructions and for electronic delivery of information up until 11:59 P.M. Eastern Time on May 11, 2020. Have your proxy card in hand when you access the website and follow the instructions to obtain your records and to create an electronic voting instruction form.

VOTE BY PHONE - 1-800-690-6903

Use any touch-tone telephone to transmit your voting instructions up until 11:59 P.M. Eastern Time on May 11, 2020. Have your proxy card in hand when you call and then follow the instructions.

VOTE BY MAIL

Mark, sign and date your proxy card and return it in the postage-paid envelope we have provided or return it to Vote Processing, c/o Broadridge, 51 Mercedes Way, Edgewood, NY 11717.

TO VOTE, MARK BLOCKS BELOW IN BLUE OR BLACK INK AS FOLLOWS:

E95733-P36517

KEEP THIS PORTION FOR YOUR RECORDS

THIS PROXY CARD IS VALID ONLY WHEN SIGNED AND DATED.

DETACH AND RETURN THIS PORTION ONLY

MKS INSTRUMENTS, INC.	For All	Withhold All	For All Except	To withhold authority to vote for any individual nominee(s), mark "For All Except" and write the number(s) of the nominee(s) on the line below.	
The Board of Directors recommends you vote <u>FOR</u> the following:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	
1. The election of the two nominees listed below as Class III Directors, each to serve for a three-year term:					
Nominees:					
01) Joseph B. Donahue					
02) Janice K. Henry					
The Board of Directors recommends you vote <u>FOR</u> the following proposal:					For Against Abstain
2. The approval, on an advisory basis, of executive compensation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
The Board of Directors recommends you vote <u>FOR</u> the following proposal:					
3. The ratification of the selection of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the year ending December 31, 2020.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
This proxy, when properly executed, will be voted in the manner directed by the undersigned shareholder. If no direction is indicated, this proxy will be voted FOR the election of each of the two (2) nominees listed above as Class III Directors of the Company, FOR proposals 2 and 3, and, as said proxies deem advisable, in their discretion, on such other matters as may properly come before the meeting.					
For address change/comments, mark here (see reverse side for instructions):	<input type="checkbox"/>				
Please indicate if you plan to attend this meeting:	<input type="checkbox"/>	<input type="checkbox"/>			
	Yes	No			
Please sign exactly as your name(s) appear(s) on this card. When signing as attorney, executor, administrator, or other fiduciary, please give your full title. Joint owners should each sign personally. All holders must sign. If a corporation or partnership, please sign in full corporate or partnership name by an authorized officer.					
Signature [PLEASE SIGN WITHIN BOX]	Date				
Signature (Joint Owners)	Date				