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

FORM 10-K

- Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 for the fiscal year ended December 31, 2023 or
 Transition Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

Commission file number 1-8002

THERMO FISHER SCIENTIFIC INC.

(Exact name of Registrant as specified in its charter)

Delaware
(State of incorporation)

04-2209186

(I.R.S. Employer Identification No.)

168 Third Avenue

Waltham, Massachusetts 02451

(Address of principal executive offices) (Zip Code)

Registrant's telephone number, including area code: (781) 622-1000

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, \$1.00 par value	TMO	New York Stock Exchange
0.750% Notes due 2024	TMO 24A	New York Stock Exchange
0.125% Notes due 2025	TMO 25B	New York Stock Exchange
2.000% Notes due 2025	TMO 25	New York Stock Exchange
3.200% Notes due 2026	TMO 26B	New York Stock Exchange
1.400% Notes due 2026	TMO 26A	New York Stock Exchange
1.450% Notes due 2027	TMO 27	New York Stock Exchange
1.750% Notes due 2027	TMO 27B	New York Stock Exchange
0.500% Notes due 2028	TMO 28A	New York Stock Exchange
1.375% Notes due 2028	TMO 28	New York Stock Exchange
1.950% Notes due 2029	TMO 29	New York Stock Exchange
0.875% Notes due 2031	TMO 31	New York Stock Exchange
2.375% Notes due 2032	TMO 32	New York Stock Exchange
3.650% Notes due 2034	TMO 34	New York Stock Exchange
2.875% Notes due 2037	TMO 37	New York Stock Exchange
1.500% Notes due 2039	TMO 39	New York Stock Exchange
1.875% Notes due 2049	TMO 49	New York Stock Exchange

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

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

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

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

Indicate by check mark whether the Registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months. Yes No

Indicate by check mark whether the Registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act. Large accelerated filer Accelerated filer Non-accelerated filer Smaller reporting company Emerging growth company

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report.

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error in previously issued financial statements.

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to § 240.10D-1(b).

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

As of June 30, 2023, the aggregate market value of the voting stock held by nonaffiliates of the Registrant was approximately \$201,176,616,000 (based on the last reported sale of common stock on the New York Stock Exchange Composite Tape reporting system on June 30, 2023).

As of February 3, 2024, the Registrant had 381,312,268 shares of Common Stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Sections of Thermo Fisher's definitive Proxy Statement for the 2024 Annual Meeting of Shareholders (the "Proxy Statement") are incorporated by reference into Part III of this report.

THERMO FISHER SCIENTIFIC INC.
ANNUAL REPORT ON FORM 10-K
FOR THE FISCAL YEAR ENDED DECEMBER 31, 2023

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PART I

Forward-looking Statements

Forward-looking statements, within the meaning of Section 21E of the Securities Exchange Act of 1934 (the Exchange Act), are made throughout this Annual Report on Form 10-K. Any statements contained herein that are not statements of historical fact may be deemed to be forward-looking statements, including without limitation statements regarding: projections of revenues, expenses, earnings, margins, tax rates, tax provisions, cash flows, pension and benefit obligations and funding requirements, and our liquidity position; cost reductions, restructuring activities, new product and service developments, competitive strengths or market position, acquisitions or divestitures; growth, declines and other trends in markets we sell into; new or modified laws, regulations and accounting pronouncements; outstanding claims, legal proceedings, tax audits and assessments and other contingent liabilities; foreign currency exchange rates and fluctuations in those rates; general economic and capital markets conditions; the timing of any of the foregoing; assumptions underlying any of the foregoing; the COVID-19 pandemic; and any other statements that address events or developments that Thermo Fisher intends or believes will or may occur in the future. Without limiting the foregoing, the words "believes," "anticipates," "plans," "expects," "seeks," "estimates," and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements are accompanied by such words. While the company may elect to update forward-looking statements in the future, it specifically disclaims any obligation to do so, even if the company's estimates change, and readers should not rely on those forward-looking statements as representing the company's views as of any date subsequent to the date of the filing of this report. A number of important factors could cause the results of the company to differ materially from those indicated by such forward-looking statements, including those detailed under the heading, "[Risk Factors](#)" in Part I, Item 1A.

Item 1. Business

Description of Business

Thermo Fisher Scientific Inc. (also referred to in this document as "Thermo Fisher," "we," the "company," or the "registrant") is the world leader in serving science. Our Mission is to enable our customers to make the world healthier, cleaner and safer. We serve customers working in pharmaceutical and biotech companies, hospitals and clinical diagnostic labs, universities, research institutions and government agencies, as well as environmental, industrial, research and development, quality and process control settings. Our global team delivers an unrivaled combination of innovative technologies, purchasing convenience and pharmaceutical services through our industry-leading brands, including Thermo Scientific, Applied Biosystems, Invitrogen, Fisher Scientific, Unity Lab Services, Patheon and PPD.

We continuously increase our depth of capabilities across our broad portfolio of innovative products and services and leverage our extensive global channels to address our customers' needs. We do this through organic investments in research and development, capacity and capabilities and through acquisitions. Our goal is to enable our customers to be more productive in an increasingly competitive business environment, enable them to accelerate innovation, solve their challenges and advance their important work.

Business Segments and Products

We report our business in four segments – Life Sciences Solutions, Analytical Instruments, Specialty Diagnostics, and Laboratory Products and Biopharma Services.

Life Sciences Solutions Segment

Through our Life Sciences Solutions segment, we provide an extensive portfolio of reagents, instruments and consumables used in biological and medical research, discovery and production of new drugs and vaccines as well as diagnosis of infection and disease. These products and services are used by customers in pharmaceutical, biotechnology, agricultural, clinical, healthcare, academic, and government markets. Life Sciences Solutions includes three primary businesses – Biosciences, Genetic Sciences, and BioProduction.

Our biosciences business includes reagents, instruments and consumables that help our customers conduct biological and medical research in areas such as molecular biology and protein biology, discover new drugs and vaccines, and enable the diagnosis of infection and disease. Our genetic sciences business combines a wide variety of instruments and related reagents used to provide high-value genomic solutions to assist customer decisions in the research, clinical, healthcare and applied markets. Our bioproduction business supports developers and manufacturers of biological-based therapeutics and vaccines with a portfolio of premium solutions and services focused on upstream cell culture, downstream purification, analytics for detection and quantitation of process/product impurities, and a suite of single-use solutions spanning the biologics workflow.

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Analytical Instruments Segment

Through our Analytical Instruments segment, we provide a broad offering of instruments and the supporting consumables, software and services that are used for a range of applications. These products and services are used by customers in pharmaceutical, biotechnology, academic, government, environmental and other research and industrial markets, as well as the clinical laboratory. This segment includes three primary businesses – Chromatography and Mass Spectrometry, Chemical Analysis, and Electron Microscopy.

Our chromatography and mass spectrometry business develops and provides analytical instrumentation for organic and inorganic sample analysis across both applied technologies and scientific research. Our chemical analysis products fall into three main categories: production, process and analytics; field and safety instruments; and environmental and process instruments. Our electron microscopy business serves customers in the life sciences, materials sciences, and semiconductor markets providing leading research tools; and also, in the semiconductor market provides integrated workflows that power research development and production solutions.

Specialty Diagnostics Segment

Our Specialty Diagnostics segment offers a wide range of diagnostic test kits, reagents, culture media, instruments and associated products to serve customers in healthcare, clinical, pharmaceutical, industrial, and food safety laboratories. Our healthcare products are used to increase the speed and accuracy of diagnoses, which improves patient care in a more cost-efficient manner. This segment has five primary businesses – Clinical Diagnostics, ImmunoDiagnostics, Microbiology, Transplant Diagnostics and our Healthcare Market Channel.

Our clinical diagnostics products include a broad offering of liquid, ready-to-use and lyophilized immunodiagnostic reagent kits, calibrators, controls, protein detection assays, and instruments. Such products are used for, among other things, drugs-of-abuse testing, therapeutic drug monitoring, thyroid hormone testing, sepsis screening, serum toxicity, first trimester screening, tumor markers testing, and the diagnosis and monitoring of multiple myeloma. Our immunodiagnostics offerings include developing, manufacturing and marketing complete blood-test systems to support the clinical diagnosis and monitoring of allergy, asthma and autoimmune diseases. Our microbiology offerings include dehydrated and prepared culture media, collection and transport systems, instrumentation and consumables to detect pathogens in blood, diagnostic and rapid direct specimen tests, quality-control products and associated products for the microbiology laboratory. Our transplant diagnostics products include human leukocyte antigen typing and testing for the organ transplant market. Our healthcare market channel offerings include a broad array of consumables, diagnostic kits and reagents, equipment, instruments, solutions and services for hospitals, clinical laboratories, reference laboratories, physicians' offices and other clinical testing facilities.

Laboratory Products and Biopharma Services Segment

Our Laboratory Products and Biopharma Services segment offers virtually everything needed for the laboratory. Our unique combination of self-manufactured and sourced products and extensive service offering enables our customers to focus on their core activities and helps them to be more innovative, productive and cost-efficient. The segment also includes a comprehensive offering of outsourced services used by the pharmaceutical and biotech industries for drug development, clinical research, clinical trials services and commercial drug manufacturing. We serve the pharmaceutical, biotechnology, academic, government and other research and industrial markets, as well as the clinical laboratory market through four key businesses: Laboratory Products, Research and Safety Market Channel, Pharma Services and Clinical Research.

Our laboratory products include lab consumables, equipment and chemicals that are used for life science research and drug discovery and development to advance the prevention and cure of diseases and enhance quality of life. Our research and safety market channel offers a mix of products that are manufactured by Thermo Fisher, by third parties for us on a private-label basis, and by third parties under their brands but offered for sale through us. Our pharma services business provides the entire spectrum of development, manufacturing and clinical trials services for both small-molecule and large-molecule pharmaceuticals. Our clinical research business offers comprehensive, integrated clinical development and analytical services including all phases of development (i.e., Phases I-IV), peri- and post-approval and site and patient access services.

Sales and Marketing

We market and sell our products and services through a direct sales force, customer-service professionals, electronic commerce and third-party distributors. Our global team delivers a combination of innovative technologies, purchasing convenience and pharmaceutical services through our industry-leading brands, including Thermo Scientific, Applied Biosystems, Invitrogen, Fisher Scientific, Unity Lab Services, Patheon and PPD.

We have approximately 14,000 sales personnel including highly trained technical specialists who enable us to better meet the needs of our more technical end-users. We also provide customers with product standardization and other supply-chain-management services to reduce procurement costs.

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New Products and Research and Development

Our business includes the development and introduction of new products and may include entry into new business segments. We anticipate that we will continue to make significant expenditures for research and development as we seek to provide a continuing flow of innovative products to maintain and improve our competitive position.

Resources

Raw Materials

Our management team believes that we have a readily available supply of raw materials for all of our significant products from various sources. No single supplier is material, although for reasons of quality assurance, regulatory requirements, cost effectiveness, availability or uniqueness of design, certain materials components may be sourced from a single supplier or a limited number of suppliers that can readily provide such materials or components.

Raw material and fuel prices are subject to fluctuations due to market conditions. We employ many strategies, including the use of alternative materials, to mitigate the effect of these fluctuations on our results.

Patents, Licenses and Trademarks

Patents are important in many aspects of our business. No particular patent, or related group of patents, is so important, however, that its loss would significantly affect our operations as a whole. Where appropriate, we seek patent protection for inventions and developments made by our personnel that are incorporated into our products or otherwise fall within our fields of interest. Patent rights resulting from work sponsored by outside parties do not always accrue exclusively to the company and may be limited by agreements or contracts.

We protect some of our technology as trade secrets and, where appropriate, we use trademarks or register trademarks used in connection with products. We also enter into license agreements with others to grant and/or receive rights to intellectual property rights.

All trademarks, trade names, product names, graphics and logos of Thermo Fisher contained herein are trademarks or registered trademarks of Thermo Fisher or its subsidiaries, as applicable, in the United States and/or other countries. Solely for convenience, we may refer to trademarks in this Annual Report on Form 10-K without the™ and® symbols. Such references are not intended to indicate, in any way, that we will not assert, to the fullest extent permitted by law, our rights to our trademarks. To the extent other trademarks appear in this Annual Report on Form 10-K, they are the property of their respective owners.

Seasonal Influences

Revenues in the fourth quarter are historically stronger than in other quarters due to the capital spending patterns of industrial, pharmaceutical and government customers. Sales of seasonal products, such as allergy and flu tests and related diagnostic products, vary quarter to quarter and year to year.

Competition

The company encounters aggressive and able competition in virtually all of the markets we serve. Because of the diversity of our products and services, we face many different types of competitors and competition. Our competitors include a broad range of manufacturers, third-party distributors and service providers. Competitive climates in many of the markets we serve are characterized by changing technology and customer demands that require continuing research and development. Our success primarily depends on the following factors:

- technical performance and advances in technology that result in new products and improved price/performance ratios;
- product differentiation, availability and reliability;
- the depth of our capabilities;
- our reputation among customers as a quality provider of products and services;
- customer service and support;
- active research and application-development programs; and
- relative prices of our products and services.

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Government Regulation

Environmental Regulations

We are subject to various laws and governmental regulations concerning environmental matters and employee safety and health in the United States and other countries. U.S. federal environmental legislation that affects us includes the Toxic Substances Control Act, the Resource Conservation and Recovery Act, the Clean Air Act, the Clean Water Act, the Safe Drinking Water Act, and the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). We are also subject to regulation by the Occupational Safety and Health Administration (OSHA) concerning employee safety and health matters. The United States Environmental Protection Agency (USEPA), OSHA, and other federal agencies have the authority to promulgate regulations that have an effect on our operations.

In addition to these federal laws and regulations, various states have been delegated certain authority under the aforementioned federal statutes and have authority over these matters under state laws. Many state and local governments have adopted environmental and employee safety and health laws and regulations, some of which are similar to federal requirements.

A number of our operations involve the handling, manufacturing, use or sale of substances that are or could be classified as toxic or hazardous materials within the meaning of applicable laws. Consequently, some risk of environmental harm is inherent in our operations and products, as it is with other companies engaged in similar businesses.

Our expenses for environmental requirements are incurred generally for ongoing compliance and historical remediation matters. Based on current information, we believe that these compliance costs are not material. For historical remediation obligations, our expenditures relate primarily to the cost of permitting, installing, and operating and maintaining groundwater-treatment systems and other remedial measures.

Our Fair Lawn and Somerville, New Jersey facilities entered into administrative consent orders with the New Jersey Department of Environmental Protection in 1984 to maintain groundwater-remediation activities at these sites, and are currently under the State's Licensed Site Remediation Professional Program. As the owner of the Fair Lawn facility, we are listed as a potentially responsible party for remediation within an area called the Fair Lawn Wellfields Superfund Site, and, in 2008, the company and certain other parties entered into a consent order with the USEPA to complete a Remedial Investigation/Feasibility Study. In 2018, the USEPA issued a Record of Decision, setting forth the scope of required remediation work at the site, which includes upgrading a water treatment plant to address constituents such as chlorinated organic compounds, 1,4-dioxane, and perfluorooctanoic acid/perfluorooctane sulfonate (PFOA/PFOS). In 2020, the court approved a consent decree that requires the company and another responsible party to finance and perform the required remediation work with USEPA oversight. In 2023, the design of a groundwater treatment plant was fully approved by USEPA. Construction is expected to commence in 2024, and the plant is expected to be fully operating by April 2025.

In 2011, our Life Technologies subsidiary entered into a consent decree with the USEPA and other responsible parties to implement a groundwater remedy at the former Davis Landfill Superfund site in Smithfield, Rhode Island. After years of additional study, in September, 2020, USEPA revised its cleanup plan by selecting an interim remedial approach that includes groundwater treatment followed by additional monitoring of site conditions. Depending on the results of these treatment and monitoring activities over the next several years, USEPA anticipates selecting a final groundwater remedy for the site. In November 2021, the 2011 consent decree was amended to reflect the parties' obligations to implement USEPA's interim remedy, for which pre-design work commenced during 2022 and is ongoing.

We record accruals for environmental liabilities based on current interpretations of environmental laws and regulations when it is probable that a liability has been incurred and the amount of such liability can be reasonably estimated. We calculate estimates based upon several factors, including reports prepared by environmental specialists and management's knowledge and experience with these environmental matters. We include in these estimates potential costs for investigation, remediation and operation and maintenance of cleanup sites. Accrued liabilities for environmental matters totaled \$75 million at December 31, 2023.

These environmental liabilities do not include third-party recoveries to which we may be entitled. We believe that our accrual is adequate for the environmental liabilities we currently expect to incur. As a result we believe that our ultimate liability with respect to environmental matters will not have a material adverse effect on our financial position, results of operations or cash flows. However, we may be subject to remedial or compliance costs due to future events, such as changes in existing laws and regulations, changes in agency direction or enforcement policies, developments in remediation technologies, changes in the conduct of our operations, and the effect of changes in accounting rules, which could have a material adverse effect on our financial position, results of operations or cash flows. For a discussion of the environmental laws and regulations that the Company's operations, products and services are subject to and other environmental contingencies, refer to Note 12 to our Consolidated Financial Statements.

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Other Laws and Regulations

Our operations, and some of the products and services we offer, are subject to a number of complex and stringent laws and regulations governing the development, testing, approval, production, handling, transportation and distribution of chemicals, drugs and other similar products, including the operating and security standards of the Food and Drug Administration, the Drug Enforcement Administration, the Bureau of Alcohol, Tobacco, Firearms and Explosives, and various state boards of pharmacy as well as comparable state and foreign agencies. As Thermo Fisher's businesses also include export and import activities, we are subject to pertinent laws enforced by the U.S. Departments of Commerce, State and Treasury. In addition, our logistics activities must comply with the rules and regulations of the Department of Transportation, the Federal Aviation Administration and similar foreign agencies. While we believe we are in compliance in all material respects with such laws and regulations, any noncompliance could result in substantial fines or otherwise restrict our ability to provide competitive distribution services and thereby have an adverse effect on our financial condition. To date, no such laws or regulations have had a material impact on our operations.

We are subject to laws and regulations governing government contracts, and failure to address these laws and regulations or comply with government contracts could harm our business by leading to a reduction in revenues associated with these customers. We have agreements relating to the sale of our products to government entities and, as a result, we are subject to various statutes and regulations that apply to companies doing business with the government. We are also subject to investigation for compliance with the regulations governing government contracts. A failure to comply with these regulations could also result in suspension of these contracts, criminal, civil and administrative penalties or debarment.

For a discussion of risks related to changes in governmental regulations, refer to "[Risk Factors](#)" in Part I, Item 1A.

Human Capital

The success of Thermo Fisher is fueled by colleagues who are highly engaged and feel empowered to achieve their goals. Everything we do starts with our Mission – to enable our customers to make the world healthier, cleaner and safer. Our colleagues understand the role they play in fulfilling that Mission and that inspires them to bring their best to work each day. Our Mission is not only a differentiator for us externally, but a motivator for us internally.

Our culture is rooted in our 4i Values of Integrity, Intensity, Innovation and Involvement. Within this framework, we strive to create a safe, fair and positive working environment for our colleagues around the world. We want our teams to feel they have a stake in our success, a voice in our direction and to be empowered to make a difference for the key stakeholders we serve.

Every year, we conduct an Employee Involvement Survey to solicit direct feedback from our colleagues on what we're doing well and where we need to improve. We then compile the feedback to measure our progress using three key indices: Leadership, Involvement and Inclusion. Our continued focus on enhancing our culture helps position our company to be an even better place to work.

We are committed to maintaining the strongest team in our industry, focusing on developing and retaining our colleagues, while leveraging our leadership to attract new colleagues to our company. As of December 31, 2023, we employed approximately 122,000 colleagues globally, with an approximate regional distribution as follows: 61,000 based in the Americas, 20,000 in the Asia Pacific region, and nearly 41,000 in Europe, the Middle East and Africa (EMEA).

Culture of Inclusion

We recognize that the future aspirations outlined in our Vision for 2030, which serves as our long-term roadmap, will only be achievable if we have a culture that values diversity of backgrounds, experiences and viewpoints. When differences among colleagues are welcomed and supported, we create an inclusive workplace that unlocks the true benefits of diversity and promotes conditions for sustained success.

Diversity and Inclusion (D&I) is not an initiative at Thermo Fisher. It's woven into the fabric of our culture, and our ways of working, embedded in every stage of our colleague lifecycle - from recruiting to onboarding, training, development and longer-term career planning. Our colleagues are encouraged to openly share the wide range of perspectives they represent. Progress is measured and reviewed on a range of D&I factors to help inform our efforts and initiatives, including those related to diversity within our workforce. We understand the critical role diversity plays in sustained business success, so we strive to have a workforce that represents the customers we serve. Further, to provide additional transparency to our U.S. workforce demographics, following our report submission to the U.S. Equal Employment Opportunity Commission, we disclose our EEO-1 report on our website each year.

Our inclusive culture is a competitive advantage, and we prioritize colleague engagement and empowerment to contribute, collaborate and innovate. For example, in 2023, Thermo Fisher was recognized as a Top Company for Women and Best Employer for Diversity by Forbes, a Best Place to Work for Disability Inclusion, and a top scorer on the Human Rights

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Campaign's Corporate Equality Index for LGBTQ inclusion. Establishing this kind of environment is critical for our colleagues, where they can contribute their best ideas and bring their true selves to work each day.

We are also committed to ensuring our colleagues have access to resources, awareness training and internal networks that offer support and guidance. Our D&I strategy is greatly enabled by our Business Resource Groups (BRGs), which bring together individuals with similar interests to share experiences, learn from each other and collaborate to identify solutions to business challenges. Our BRGs reinforce that all colleagues can make a difference for our customers, for each other and for our company. As of December 31, 2023, we had 9 global BRGs, with more than 230 local BRG chapters.

Talent Development

Our overarching goal from a talent perspective is to create opportunities for our colleagues to achieve their full potential and career aspirations here at Thermo Fisher. We focus on the entire lifecycle of a colleague's career, from their initial recruitment, to onboarding, through ongoing development. We encourage and support colleagues to enhance their skills so they are in the best position to deliver on their goals and achieve their career objectives.

In today's environment, we know talent is a key differentiator, and that building the strongest team in the industry is critical to our future. From our colleague referral program, summer internships, university relations, to our Graduate Leadership Development Program, we continue to build strong internal and external sourcing channels.

Once on board, talent development at Thermo Fisher is a key organizational capability. We continue to make significant investments to support our colleagues along every step of their career journey to help support their success. Our talent development framework incorporates a multi-faceted approach, including formal and self-paced training, networking opportunities, on-the-job stretch learning, coaching, mentoring and manager training utilizing contemporary technology solutions to support the broad needs of our workforce.

We provide multiple programs at all career levels, from online learning for all colleagues through Thermo Fisher University, to focused trainings for managers at various experience levels, to our Global Leadership Program for executives. We also support our colleagues' career advancement through our tuition reimbursement program.

In a company our size, we can also actively manage our talent through rotational opportunities across our businesses, functions and geographies that help our colleagues gain new experiences, share knowledge and broaden their skills. Our executives and leaders participate in frequent talent discussions as well as formal reviews, leveraging workforce data and predictive analytics to better anticipate the talent requirements of our business based on our growth opportunities and market demand.

Thermo Fisher is dedicated to talent development to meet our evolving business needs and to provide our colleagues with opportunities for long and fulfilling careers. Our colleagues are passionate about our company, and their role in our success, and it's our responsibility to help them reach their full potential.

Total Rewards

We offer a comprehensive total rewards package that we regularly evaluate and measure against established benchmarks to ensure its effectiveness in recruiting and retention, and to position Thermo Fisher as an employer of choice.

Our health and wellness programs provide competitive, flexible programs that our global colleagues and their families can count on. For example, for U.S. colleagues, we offer a choice of comprehensive national medical, dental and vision plans; a wellness program, including valuable health incentive opportunities and tax-advantaged savings and spending accounts; as well as commuter benefits, employee assistance programs, optional group legal coverage, and company-paid disability, accident and life insurance. We also offer a company-paid proprietary program for cancer care called the Impact Program, which gives our colleagues and their families access to personalized support and direct lines of communication to experts in cancer genetics and genomics. Similar benefits are available in all countries around the world where we operate.

We also invest in our colleagues' financial health, helping them to grow and protect their savings, plan for the future and share in the success of the company they are helping to build. We deliver comprehensive rewards, including competitive base pay, and also provide a variety of incentive and equity programs that, by design, directly link the impact of colleague contributions to the company's overall success.

Available Information

The company files annual, quarterly and current reports, proxy statements and other documents with the Securities and Exchange Commission (SEC) under the Exchange Act. The SEC maintains a website that contains reports, proxy and information statements and other information that issuers, including the company, file electronically with the SEC. The public can obtain any documents that we file with the SEC at www.sec.gov. We also make available free of charge on or through our own website at www.thermofisher.com our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on

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Form 8-K and, if applicable, amendments to those reports filed or furnished pursuant to Section 13(a) of the Exchange Act as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. In addition, paper copies of these documents may be obtained free of charge by writing to the company care of its Investor Relations Department at our principal executive office located at 168 Third Avenue, Waltham, Massachusetts 02451.

Information about Our Executive Officers

As of February 22, 2024, our executive officers were:

Name	Age	Present Title (Fiscal Year First Became Executive Officer)	Other Positions Held
Marc N. Casper	55	Chairman, President and Chief Executive Officer (2001)	President and Chief Executive Officer (2009-2020) Chief Operating Officer (2008-2009) Executive Vice President (2006-2009)
Stephen Williamson	57	Senior Vice President and Chief Financial Officer (2015)	Vice President, Financial Operations (2008-2015)
Michel Lagarde	50	Executive Vice President and Chief Operating Officer (2017)	Executive Vice President (2019-2021) Senior Vice President and President, Pharma Services (2017-2019) President and Chief Operating Officer, Patheon N.V. (2016-2017)
Gianluca Pettiti	45	Executive Vice President (2021)	Senior Vice President and President, Specialty Diagnostics (2019-2021) President, Biosciences (2018-2019) President, China (2015-2017)
Michael A. Boxer	62	Senior Vice President and General Counsel (2018)	Senior Vice President, General Counsel and Secretary (2021-2022)
Lisa P. Britt	55	Senior Vice President and Chief Human Resources Officer (2017)	
Joseph R. Holmes	45	Vice President and Chief Accounting Officer (2021)	Senior Director, Technical Accounting (2017-2021)

Item 1A. Risk Factors

Set forth below are the risks, some of which have occurred and any of which may occur in the future, that we believe are material to our investors. This section contains forward-looking statements. You should refer to the explanation of the qualifications and limitations on forward-looking statements in [Item 1. Business](#) under the caption "Forward-looking Statements".

Industry and Economic Risks

Our growth would suffer if the markets into which we sell our products and services decline, do not grow as anticipated or experience cyclical. Our growth depends in part on the growth of the markets which we serve. Any decline or lower than expected growth in our served markets would diminish demand for our products and services, which would adversely affect our financial statements. Certain of our businesses operate in industries that may experience periodic, cyclical downturns.

Our business is affected by general economic conditions and related uncertainties affecting markets in which we operate. Our business is affected by general economic conditions, both inside and outside the U.S. Both domestic and international markets experienced significant inflationary pressures in 2023 and inflation rates in the U.S., as well as in other countries in which we operate, continue at elevated levels. If the global economy and financial markets, or economic conditions in Europe, the U.S. or other key markets, continue to be unstable, they could adversely affect the business, results of operations and financial condition of the company and its customers, distributors, and suppliers, having the effect of:

- reducing demand for some of our products;
- increasing the rate of order cancellations or delays;
- increasing the risk of excess and obsolete inventories;
- increasing pressure on the prices for our products and services;
- causing supply interruptions, which could disrupt our ability to produce our products; and
- creating longer sales cycles, and greater difficulty in collecting sales proceeds and slower adoption of new technologies.

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Economic, political, foreign currency and other risks associated with international sales and operations could adversely affect our results of operations. International markets contribute a substantial portion of our revenues, and we intend to continue expanding our presence in these regions. The exposure to fluctuations in currency exchange rates takes on different forms. International revenues and costs are subject to the risk that fluctuations in exchange rates could adversely affect our reported revenues and profitability when translated into U.S. dollars for financial reporting purposes. These fluctuations could also adversely affect the demand for products and services provided by us. As a multinational corporation, our businesses occasionally invoice third-party customers in currencies other than the one in which they primarily do business (which we refer to as the functional currency). Movements in the invoiced currency relative to the functional currency could adversely impact our cash flows and our results of operations. As our international sales grow, exposure to fluctuations in currency exchange rates could have a larger effect on our financial results. In 2023, currency translation had an unfavorable effect of \$0.02 billion on revenues due to the strengthening of the U.S. dollar relative to other currencies in which the company sells products and services.

Some emerging market countries may be particularly vulnerable to periods of global and local political, legal, regulatory and financial instability, including issues of geopolitical relations, the imposition of international sanctions in response to certain state actions and/or sovereign debt issues, and may have a higher incidence of corruption and fraudulent business practices. As a result of these and other factors, our strategy to grow in emerging markets may not be successful, and growth rates in these markets may not be sustainable.

In addition, many of our employees, contract manufacturers, suppliers, job functions, outsourcing activities and manufacturing facilities are located outside the U.S. Accordingly, our future results could be harmed by a variety of factors, including:

- interruption to transportation flows for delivery of parts to us and finished goods to our customers;
- changes in a specific country's or region's political, economic, social or other conditions;
- changes in diplomatic and trade relationships, including new tariffs, trade protection measures, import or export licensing requirements, trade embargoes and sanctions and other trade barriers;
- tariffs imposed by the U.S. on goods from other countries and tariffs imposed by other countries on U.S. goods, including the tariffs adopted by the U.S. government on various imports from China and by the Chinese government on certain U.S. goods;
- the impact of public health emergencies, pandemics, epidemics or other health outbreaks on the global economy, such as the COVID-19 pandemic;
- uncertainties regarding the collectability of accounts receivable;
- the imposition of governmental controls;
- diverse data privacy and protection requirements;
- supply interruptions, which could disrupt our ability to produce our products;
- increases in materials, energy, labor or other manufacturing-related costs or higher supply chain logistics costs;
- negative consequences from changes in or interpretation of laws and regulations, including those related to tax and import/export;
- difficulty in staffing and managing widespread operations;
- differing labor regulations;
- differing protection of intellectual property;
- unexpected changes in regulatory requirements; and
- geopolitical uncertainty or turmoil, including terrorism and war.

Demand for some of our products depends on capital spending policies of our customers and on government funding policies. Our customers include pharmaceutical and chemical companies, laboratories, universities, healthcare providers, government agencies and public and private research institutions. Many factors, including public policy spending priorities, available resources, and product and economic cycles, have a significant effect on the capital spending policies of these entities. Spending by some of these customers fluctuates based on budget allocations and the timely passage of the annual federal budget. An impasse in federal government budget decisions could lead to substantial delays or reductions in federal spending.

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We are subject to risks associated with public health emergencies, pandemics, epidemics, or other health outbreaks. Our global operations expose us to risks associated with public health emergencies, epidemics, pandemics and other health outbreaks, including the COVID-19 pandemic. COVID-19 had an adverse impact on certain of our operations, supply chains and distribution systems, and we may experience unpredictable reductions in supply and demand for certain of our products and services. National, state and local governments have implemented and may continue to implement safety precautions, including quarantines, border closures, increased border controls, travel restrictions, shelter in place orders and shutdowns and other measures. These measures may disrupt normal business operations and may have significant negative impacts on businesses and financial markets worldwide. Our ability to continue to manufacture products is highly dependent on our ability to maintain the safety and health of our factory employees. The ability of our employees to work may be significantly impacted by future epidemics and pandemics. In addition, the duration and extent of future revenues from sales of products related to the COVID-19 response are uncertain and dependent primarily on customer testing demand as well as therapy and vaccine demand.

Business Risks

We must develop new products, adapt to rapid and significant technological change, respond to introductions of new products by competitors and maintain quality to remain competitive. Our growth strategy includes significant investment in and expenditures for product development. We sell our products in several industries that are characterized by rapid and significant technological changes, frequent new product and service introductions and enhancements and evolving industry standards. Competitive factors include technological innovation, price, service and delivery, breadth of product line, customer support, e-business capabilities and the ability to meet the special requirements of customers. Our competitors may adapt more quickly to new technologies and changes in customers' requirements than we can. Without the timely introduction of new products, services and enhancements, our products and services will likely become technologically obsolete over time, in which case our revenues and operating results would suffer.

Many of our existing products and those under development are technologically innovative and require significant planning, design, development and testing at the technological, safety, quality, product and manufacturing-process levels. Our customers use many of our products to develop, test and manufacture their own products. As a result, we must anticipate industry trends and develop products in advance of the commercialization of our customers' products. If we fail to adequately develop products or predict our customers' needs and future activities, we may invest heavily in research and development of products and services that do not lead to significant revenues.

It may be difficult for us to implement our strategies for improving internal growth. Our growth depends in part on the growth of the markets which we serve. Any decline or lower than expected growth in our served markets could diminish demand for our products and services, which would adversely affect our results of operations and financial condition. To address this issue, we are pursuing a number of strategies to improve our internal growth, including:

- strengthening our presence in selected geographic markets;
- allocating research and development funding to products with higher growth prospects;
- developing new applications for our technologies;
- expanding our service offerings;
- continuing key customer initiatives;
- combining sales and marketing operations in appropriate markets to compete more effectively;
- finding new markets for our products; and
- continuing the development of commercial tools and infrastructure to increase and support cross-selling opportunities of products and services to take advantage of our depth in product offerings.

We may not be able to successfully implement these strategies, and these strategies may not result in the expected growth of our business.

Because we compete directly with certain of our larger customers and product suppliers, our results of operations could be adversely affected in the short term if these customers or suppliers abruptly discontinue or significantly modify their relationship with us. Our largest customer in the laboratory products business is also a significant competitor. Our business may be harmed in the short term if our competitive relationship in the marketplace with certain of our large customers results in a discontinuation of their purchases from us. In addition, we manufacture products that compete directly with products that we source from third-party suppliers. We also source competitive products from multiple suppliers. Our business could be adversely affected in the short term if any of our large third-party suppliers abruptly discontinues selling products to us.

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Our inability to complete any pending acquisitions or to successfully integrate any new or previous acquisitions could have a material adverse effect on our business. Our business strategy includes the acquisition of technologies and businesses that complement or augment our existing products and services. Certain acquisitions may be difficult to complete for a number of reasons, including the need for antitrust and/or other regulatory approvals, as well as disputes or litigation. Any acquisition we may complete may be made at a substantial premium over the fair value of the net identifiable assets of the acquired company. Further, we may not be able to integrate acquired businesses successfully into our existing businesses, make such businesses profitable, or realize anticipated cost savings or synergies, if any, from these acquisitions, which could adversely affect our business.

Moreover, we have acquired many companies and businesses. As a result of these acquisitions, we recorded significant goodwill and indefinite-lived intangible assets (primarily tradenames) on our balance sheet, which amount to approximately \$44.02 billion and \$1.24 billion, respectively, as of December 31, 2023. In addition, we have definite-lived intangible assets totaling \$15.44 billion as of December 31, 2023. We assess the realizability of goodwill and indefinite-lived intangible assets annually as well as whenever events or changes in circumstances indicate that these assets may be impaired. We assess the realizability of definite-lived intangible assets whenever events or changes in circumstances indicate that these assets may be impaired. These events or circumstances would generally include operating losses or a significant decline in earnings associated with the acquired business or asset. Our ability to realize the value of the goodwill and intangible assets will depend on the future cash flows of these businesses. These cash flows in turn depend in part on how well we have integrated these businesses. If we are not able to realize the value of the goodwill and intangible assets, we may be required to incur material charges relating to the impairment of those assets.

Operational Risks

Our reliance upon sole or limited sources of supply for certain materials or components could cause production interruptions, delays and inefficiencies. Some of our businesses purchase certain materials from sole or limited source suppliers for reasons of quality assurance, regulatory requirements, cost effectiveness, availability or uniqueness of design. If these or other suppliers encounter financial, operating or other difficulties, or if our relationship with them changes, we might not be able to quickly establish or qualify replacement sources of supply. The supply chains for our businesses could also be disrupted by supplier capacity constraints, bankruptcy or exiting of the business for other reasons, decreased availability or increased cost of key raw materials or commodities, such as energy, and external events such as global economic downturns and macroeconomic trends, natural disasters, pandemic health issues such as COVID-19, war, terrorist actions, governmental actions and legislative or regulatory changes. Any of these factors could result in production interruptions, delays, extended lead times and inefficiencies.

A significant cyber-attack or other disruption in, or breach in security of, our information technology systems could adversely harm our operating results and financial condition, damage our reputation or otherwise materially harm our business. We rely on information technology systems to process, transmit and store electronic information (including sensitive data such as confidential business information, medical information, financial data and personally identifiable data relating to employees, customers and other business partners) and to manage or support a variety of critical business processes and activities (such as interacting with suppliers, selling our products and services, fulfilling orders and billing, collecting and making payments, shipping products, providing services and support to customers, tracking customer activity, fulfilling contractual obligations and otherwise conducting business). We use a risk-based approach to implementing security controls, reviewing the security controls of certain key business partners and third-party service providers and conducting due diligence on companies we propose to acquire. Despite our efforts, any particular system we operate or use may be susceptible to compromise of a vulnerability or a privileged account, damage or interruption from natural disasters, power loss, telecommunication failures, data center failure, third party provider failures (including failures at cloud services), hardware and software failures, human error or sabotage, terrorist attacks, geopolitical events, computer hackers, computer viruses, ransomware, phishing, computer denial-of-service attacks, unauthorized access to customer or employee data or company trade secrets, and other attempts to harm our systems and access our information.

We and our third-party providers experience cyber-attacks and other attempts to gain unauthorized access to our products, services, and systems and data on a regular basis, and we anticipate continuing to be subject to such attempts as cyber-attacks become increasingly sophisticated and more difficult to predict and protect against, particularly with the advancement of artificial intelligence. Despite our and our third-party providers' implementation of security measures, our products, services, and systems and data, are vulnerable to cyber-attacks, data breaches, malware, inadvertent error, disruptions, tampering or other theft or misuse, including by employees, contingent workers, malicious actors, or nation-states or their agents. Although most of our systems leverage data backups, our disaster recovery planning is not sufficient for every eventuality. In addition, our customers rely upon our products (i.e. instruments, etc.) within their environments, which may be at risk of compromise. Risks affecting our products may include those associated with remote access solutions, system vulnerabilities, or delay of security updates, which may require customers to take action such as network isolation, password change, or manual update.

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Cyber-attacks, disruptions or other incidents described above, or breaches of security in our networks, in our customers' or third-party providers' networks, in third-party products we use, or in cloud-based services provided to us, regardless of whether the breach is attributable to a vulnerability in our products or services, a privileged account compromise, or a failure to maintain the digital security infrastructure or security tools that protect the integrity of our products, services, and systems and data, could materially interrupt our operations or our customer's operations, delay production and shipments, impact quality, result in theft of our and our customers' intellectual property and trade secrets, damage our reputation or key relationships, result in defective products or services, legal claims and proceedings, liability and penalties under privacy laws and increased cost for security and remediation, in each case resulting in an adverse effect on our business and financial results.

A violation of data privacy laws could adversely harm our operating results and financial condition, damage our reputation or otherwise materially harm our business. If we are unable to maintain reliable information technology systems and appropriate controls with respect to global data privacy and security requirements, we may suffer regulatory consequences in addition to business consequences. As a global organization, we are subject to data privacy and security laws, regulations, and customer-imposed controls in numerous jurisdictions as a result of producing, collecting, processing, storing and transmitting confidential, personal and/or sensitive data in the course of our business. For example, in the U.S., individual states regulate data breach and security requirements and multiple governmental bodies assert authority over aspects of the protection of personal privacy. European laws require us to have an approved legal mechanism to transfer personal data out of Europe, and the EU General Data Protection Regulation imposes significantly stricter requirements in how we collect and process personal data. Several countries, such as China, have passed laws that require personal data relating to their citizens to be maintained on local servers and impose additional data transfer restrictions. Government enforcement actions can be costly and interrupt the regular operation of our business, and data breaches or violations of data privacy laws can result in fines, reputational damage and civil lawsuits, any of which may adversely affect our business, reputation and financial statements.

Our success is largely dependent upon our ability to attract and retain a highly qualified workforce, comprised of scientific, technical, clinical, and management talent. We have in the past, and may in the future, have difficulty in attracting and retaining such talent. Our success in doing so is largely dependent upon various factors, including a highly competitive market, sought-after skills, management changes, competitor recruitment, and maintaining an attractive workplace culture. Macroeconomic shifts such as increased competition for employees and wage inflation, have previously and could in the future affect our talent retention, turnover rates and operational costs. We cannot ensure that we will be able to hire or retain the personnel necessary for our operations or that the departure of any personnel will not have a material impact on our financial condition and results of operations.

We may incur unexpected costs from increases in fuel and raw material prices, which could reduce our earnings and cash flows. Our primary commodity exposures are for fuel, petroleum-based resins and steel. The costs for these commodities, as well as the costs of transportation, construction and services necessary for the production and distribution of our products, continue to increase and be volatile. While we may seek to minimize the impact of price increases through higher prices to customers and various cost-saving measures, our earnings and cash flows could be adversely affected in the event these measures are insufficient to cover our costs.

Because we rely heavily on third-party package-delivery services, a significant disruption in these services or significant increases in prices may disrupt our ability to ship products, increase our costs and lower our profitability. We ship a significant portion of our products to our customers through independent package delivery companies, such as Federal Express in the U.S. and DHL in Europe. We also maintain a small fleet of vehicles dedicated to the delivery of our products and ship our products through other carriers, including national and regional trucking firms, overnight carrier services and the U.S. Postal Service. If one or more of these third-party package-delivery providers were to experience a major work stoppage, preventing our products from being delivered in a timely fashion or causing us to incur additional shipping costs we could not pass on to our customers, our costs could increase and our relationships with certain of our customers could be adversely affected. In addition, if one or more of these third-party package-delivery providers were to increase prices, and we were not able to find comparable alternatives or make adjustments in our delivery network, our profitability could be adversely affected.

Natural disasters, public health crises, political crises, and other catastrophic events or other events outside of our control may disrupt our facilities or the facilities of third parties on which we depend, and could impact customer spending. We have significant operations in California, near major earthquake faults, which make us susceptible to earthquake risk. An earthquake or other natural disaster (including the effects of climate change such as sea level rise, drought, flooding, wildfires and more intense weather events), could disrupt our operations, including the ability to fulfill supply obligations to our customers, or impair our critical systems. Any of these disruptions or other events outside of our control, such as strikes or other labor unrest, could have an adverse effect on our results of operations. In addition, if any of our facilities, including our manufacturing or warehouse facilities, or the facilities of our suppliers, third-party service providers, or customers, is affected by natural disasters, such as earthquakes, tsunamis, power shortages or outages, fires, floods or monsoons, public health crises, such as pandemics and epidemics, political crises, such as terrorism, war, political instability or other conflict, or other events

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outside of our control, such as trade protectionism, strikes or other labor unrest, our results of operations could be adversely affected. Moreover, these types of events could negatively impact customer spending in the impacted regions or depending upon the severity, globally, which could also adversely impact our operating results.

Increasing attention to environmental, social and governance matters may impact our business, financial results, stock price or reputation. We face increasing scrutiny from stakeholders related to our environmental, social and governance (ESG) practices and disclosures, including practices and disclosures related to climate change, diversity and inclusion and governance standards. Investor advocacy groups, certain institutional investors, lenders, investment funds and other influential investors are also increasingly focused on ESG practices and disclosures and in recent years have placed increasing importance on the implications and social cost of their investments. In addition, government organizations are enhancing or advancing legal and regulatory requirements specific to ESG matters. The heightened stakeholder focus on ESG issues related to our business requires the continuous monitoring of various and evolving laws, regulations, standards and expectations and the associated reporting requirements. A failure to adequately meet evolving stakeholder expectations may result in noncompliance, the loss of business, reputational impacts, diluted market valuation, an inability to attract customers and an inability to attract and retain top talent. In addition, if legislation or regulations are enacted or promulgated in the U.S. or in any other jurisdiction in which we do business that impose more stringent restrictions and requirements than our current legal or regulatory obligations, we and companies in our supply chain may experience increased compliance burdens and costs to meet the regulatory obligations, which could cause disruption in the sourcing, manufacturing and distribution of our products and adversely affect our business, financial condition or results of operations. In addition, our adoption of certain standards or mandated compliance to certain requirements could necessitate additional investments that could impact our profitability.

Legal, Quality and Regulatory Risks

New governmental regulations or changes in existing governmental regulations may reduce demand for our products or increase our expenses. We compete in many markets in which we and our customers must comply with federal, state, local and international regulations, such as environmental, health and safety and food and drug regulations. We develop, configure and market our products to meet customer needs created by those regulations. Any significant change in regulations, such as the Inflation Reduction Act of 2022 (IRA), which contains drug price negotiation provisions, or change in the interpretation of existing regulations, could reduce demand for our products or increase our expenses. For example, we manufacture pharmaceuticals and many of our instruments are marketed to the pharmaceutical industry for use in discovering and developing drugs. Changes in the U.S. Food and Drug Administration's (the FDA) regulation of the drug discovery and development process could have an adverse effect on the demand for these products, and increased FDA regulation of laboratory-developed tests could delay and add to the cost of commercialization of these products, as well as subject us to additional regulatory controls.

We are subject to laws and regulations governing government contracts, and failure to address these laws and regulations or comply with government contracts could harm our business by leading to a reduction in revenues associated with these customers. We have agreements relating to the sale of our products to government entities and, as a result, we are subject to various statutes and regulations that apply to companies doing business with the government. The laws governing government contracts differ from the laws governing private contracts and government contracts may contain pricing terms and conditions that are not applicable to private contracts. We are also subject to investigation for compliance with the regulations governing government contracts. A failure to comply with these regulations could result in suspension of these contracts, criminal, civil and administrative penalties or debarment.

Our pharma services offerings are highly complex, and if we are unable to provide quality and timely offerings to our customers, our business could suffer. Our pharma services offerings are highly exacting and complex, due in part to strict quality and regulatory requirements. Our operating results in this business depend on our ability to execute and, when necessary, improve our quality management strategy and systems, and our ability to effectively train and maintain our employee base with respect to quality management. A failure of our quality control systems could result in problems with facility operations or preparation or provision of products. In each case, such problems could arise for a variety of reasons, including equipment malfunction, failure to follow specific protocols and procedures, problems with raw materials or environmental factors and damage to, or loss of, manufacturing operations. Such problems could affect production of a particular batch or series of batches of products, requiring the destruction of such products or a halt of facility production altogether.

In addition, our failure to meet required quality standards may result in our failure to timely deliver products to our customers, which in turn could damage our reputation for quality and service. Any such failure could, among other things, lead to increased costs, lost revenues, reimbursement to customers for lost drug product, registered intermediates, registered starting materials, and active pharmaceutical ingredients, other customer claims, damage to and possibly termination of existing customer relationships, time and expense spent investigating the cause and, depending on the cause, similar losses with respect to other batches or products. Production problems in our drug and biologic manufacturing operations could be particularly

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significant because the cost of raw materials for such manufacturing is often high. If problems in preparation or manufacture of a product or failures to meet required quality standards for that product are not discovered before such product is released to the market, we may be subject to adverse regulatory actions, including product recalls, product seizures, injunctions to halt manufacture and distribution, restrictions on our operations, civil sanctions, including monetary sanctions, and criminal actions. In addition, such problems or failures could subject us to litigation claims, including claims from our customers for reimbursement for the cost of lost or damaged active pharmaceutical ingredients, the cost of which could be significant.

We are subject to product and other liability risks for which we may not have adequate insurance coverage. We may be named as a defendant in product liability or errors and omissions lawsuits, which may allege that products or services we have provided have resulted or could result in an unsafe condition, property damage or injury to end users or financial loss for consumers. Additionally, products currently or previously sold by our environmental and process instruments and radiation measurement and security instruments businesses include fixed and portable instruments used for chemical, radiation and trace explosives detection. These products are used in airports, embassies, cargo facilities, border crossings and other high-threat facilities for the detection and prevention of terrorist acts. If any of these products were to malfunction, it is possible that explosive or radioactive material could fail to be detected by our product, which could lead to product liability claims. In addition, patients involved in our clinical services trials conducted by our clinical development services business or taking drugs approved on the basis of those trials may also bring personal injury claims against us. There are also many other factors beyond our control that could lead to liability claims, such as the reliability and competence of the customers' operators and the training of such operators.

Any such product liability claims brought against us could be significant and any adverse determination may result in liabilities subject to insurance policy exclusions where insurance would not respond or in excess of our insurance coverage. Although we carry product liability and errors and omissions insurance, we cannot be certain that our current insurance will be sufficient to cover these claims or that it can be maintained on acceptable terms, if at all.

We are required to comply with a wide variety of laws and regulations, and are subject to regulation by various federal, state and foreign agencies. We are subject to various local, state, federal, foreign and transnational laws and regulations, which include the operating and security standards of the FDA, the U.S. Drug Enforcement Agency (the DEA), various state boards of pharmacy, state health departments, the U.S. Department of Health and Human Services (the DHHS), the European Medicines Agency (the EMA), the EU member states and other comparable agencies and, in the future, any changes to such laws and regulations could adversely affect us. In particular, we are subject to laws and regulations concerning current good manufacturing practices and drug safety. Our subsidiaries may be required to register for permits and/or licenses with, and may be required to comply with the laws and regulations of, the DEA, the FDA, the DHHS, foreign agencies including the EMA, and other various state boards of pharmacy, state health departments and/or comparable state agencies as well as certain accrediting bodies depending upon the type of operations and location of product distribution, manufacturing and sale.

The manufacture, distribution and marketing of many of our products and services, including medical devices, and our pharma and clinical development services, are subject to extensive ongoing regulation by the FDA, the DEA, the EMA, and other equivalent local, state, federal and non-U.S. regulatory authorities. In addition, we are subject to inspections by these regulatory authorities. Failure by us or by our customers to comply with the requirements of these regulatory authorities, including without limitation, remediating any inspectional observations to the satisfaction of these regulatory authorities, could result in warning letters, product recalls or seizures, monetary sanctions, injunctions to halt manufacture and distribution, restrictions on our operations, civil or criminal sanctions, or withdrawal of existing or denial of pending approvals, including those relating to products or facilities. In addition, such a failure could expose us to contractual or product liability claims, contractual claims from our customers, including claims for reimbursement for lost or damaged active pharmaceutical ingredients or personal injury, as well as ongoing remediation and increased compliance costs, any or all of which could be significant. We are the sole manufacturer of a number of pharmaceuticals for many of our customers and a negative regulatory event could impact our customers' ability to provide products to their customers.

We are also subject to a variety of federal, state, local and international laws and regulations that govern, among other things, the handling, transportation and manufacture of substances that could be classified as hazardous, and we are required to comply with various import laws and export control and economic sanctions laws, which may affect our transactions with certain customers. In certain circumstances, export control and economic sanctions regulations may prohibit the export of certain products, services and technologies. In other circumstances, we may be required to obtain an export license before exporting the controlled item. Compliance with the various import laws that apply to our businesses can restrict our access to, and increase the cost of obtaining, certain products and at times can interrupt our supply of imported inventory. Any noncompliance by us with applicable laws and regulations or the failure to maintain, renew or obtain necessary permits and licenses could result in criminal, civil and administrative penalties and could have an adverse effect on our results of operations.

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Our reputation, ability to do business and financial statements may be impaired by improper conduct by any of our employees, agents, business partners or other third parties. We have internal controls and compliance systems to protect the company against acts committed by employees, agents or businesses that we acquire that would violate U.S. and/or non-U.S. laws, including the laws governing payments to government officials, bribery, fraud, kickbacks and false claims, pricing, sales and marketing practices, conflicts of interest, competition, employment practices and workplace behavior, export and import compliance, money laundering and data privacy, but these controls and systems may not be sufficient to prevent every such wrongful act. In particular, the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act 2010 and similar anti-bribery laws in other jurisdictions generally prohibit companies and their intermediaries from making improper payments to government officials for the purpose of obtaining or retaining business, and we operate in many parts of the world that have experienced governmental corruption to some degree. Any such improper actions or allegations of such acts could damage our reputation and subject us to civil or criminal investigations in the U.S. and in other jurisdictions and related shareholder lawsuits, could lead to substantial civil and criminal, monetary and nonmonetary penalties and could cause us to incur significant legal and investigatory fees. In addition, the government may seek to hold us liable for violations committed by companies which we acquire. We also rely on our suppliers to adhere to our supplier standards of conduct, and material violations of such standards of conduct could occur that could have a material effect on our business, reputation and financial statements. In addition, any allegations of issues resulting from the misuse of our products could, even if untrue, adversely affect our reputation and our customers' willingness to purchase products from us. Any such allegations could cause us to lose customers and divert our resources from other tasks, which could materially and adversely affect our business and operating results.

Our inability to protect our intellectual property could have a material adverse effect on our business. In addition, third parties may claim that we infringe their intellectual property, and we could suffer significant litigation or licensing expense as a result. We place considerable emphasis on obtaining patent and trade secret protection for significant new technologies, products and processes because of the length of time and expense associated with bringing new products through the development process and into the marketplace. Our success depends in part on our ability to develop patentable products and obtain, defend and enforce patent protection for our products both in the U.S. and in other countries. We own numerous U.S. and foreign patents, and we intend to file additional applications, as appropriate, for patents covering our products. Patents may not be issued for any pending or future patent applications owned by or licensed to us, and the claims allowed under any issued patents may not be sufficiently broad to protect our technology. Any issued patents owned by or licensed to us may be challenged, invalidated or circumvented, and the rights under these patents may not provide us with competitive advantages. In addition, competitors may design around our technology or develop competing technologies. Intellectual property rights may also be unavailable or limited in some foreign countries, which could make it easier for competitors to capture increased market position. We could incur substantial costs to defend ourselves in suits brought against us or in suits in which we may assert our patent rights against others. An unfavorable outcome of any such litigation could materially adversely affect our business and results of operations.

We also rely on trade secrets and proprietary know-how with which we seek to protect our products, in part, by confidentiality agreements with our collaborators, employees and consultants. These agreements may not adequately protect our trade secrets and other proprietary rights. These agreements may be breached and we may not have adequate remedies for any breach. In addition, our trade secrets may otherwise become known or be independently developed by our competitors.

We also depend in part on our trademarks and the strength of our proprietary brands, which we consider important to our business. If we are unable to protect or preserve the value of our intellectual property rights for any reason, including our inability to successfully defend against counterfeit, knock offs, grey-market, infringing or otherwise unauthorized products, our brand and reputation could be damaged, and our business may be harmed.

Third parties may assert claims against us to the effect that we are infringing on their intellectual property rights. In the event that a claim relating to intellectual property is asserted against us, or third parties not affiliated with us hold pending or issued patents that relate to our products or technology, we may seek licenses to such intellectual property or challenge those patents. However, we may be unable to obtain these licenses on commercially reasonable terms, if at all, and our challenge of the patents may be unsuccessful. Our failure to obtain the necessary licenses or other rights could prevent the sale, manufacture, or distribution of our products and, therefore, could have a material adverse effect on our business, financial condition and results of operations.

Risks Relating to Financial Profile

Fluctuations in our effective tax rate may adversely affect our results of operations and cash flows. As a global company, we are subject to taxation in numerous countries, states and other jurisdictions. In preparing our financial statements, we record the amount of tax that is payable in each of the countries, states and other jurisdictions in which we operate. Our future effective tax rate, however, may be lower or higher than experienced in the past due to numerous factors, including a change in the mix of our profitability from country to country, changes in accounting for income taxes, the results of examinations and audits of

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our tax filings and recently enacted and future changes in tax laws in jurisdictions in which we operate. Any of these factors could cause us to experience an effective tax rate significantly different from previous periods or our current expectations, which could have an adverse effect on our business, results of operations and cash flows.

In December 2021, the Organization for Economic Cooperation and Development (“OECD”) published a proposal for the establishment of a global minimum tax rate of 15% (the “Pillar Two rule”). The OECD has recommended that the Pillar Two rule become effective for fiscal years beginning after January 1, 2024. To date, member states are in various stages of implementation and the OECD continues to refine technical guidance. We are closely monitoring developments of the Pillar Two rule and are currently evaluating the potential impacts in each of the countries in which we operate; however, we currently do not expect the Pillar Two rule to have a material impact on our effective tax rate.

Our existing and future indebtedness may restrict our investment opportunities or limit our activities and negatively impact our credit ratings. As of December 31, 2023, we had approximately \$34.92 billion in outstanding indebtedness. In addition, we have availability to borrow under a revolving credit facility that provides for up to \$5.00 billion of unsecured multi-currency revolving credit (the Facility). We may also obtain additional long-term debt and lines of credit to meet future financing needs, which would have the effect of increasing our total leverage.

Our leverage could have negative consequences, including increasing our vulnerability to adverse economic and industry conditions, limiting our ability to obtain additional financing and limiting our ability to acquire new products and technologies through strategic acquisitions.

Our ability to make scheduled payments, refinance our obligations or obtain additional financing will depend on our future operating performance and on economic, financial, competitive and other factors beyond our control. Our business may not generate sufficient cash flow to meet our obligations. If we are unable to service our debt, refinance our existing debt or obtain additional financing, we may be forced to delay strategic acquisitions, capital expenditures or research and development expenditures.

Additionally, the agreements governing our debt require that we maintain a financial ratio, and contain affirmative and negative covenants that restrict our activities by, among other limitations, limiting our ability to incur additional indebtedness, merge or consolidate with other entities and create liens. The covenants in the Facility include a Consolidated Net Interest Coverage Ratio (Consolidated EBITDA to Consolidated Net Interest Expense), as such terms are defined in the Facility. Specifically, the company has agreed that, so long as any lender has any commitment under the Facility, any letter of credit is outstanding under the Facility, or any loan or other obligation is outstanding under the Facility, it will maintain a minimum Consolidated Net Interest Coverage Ratio of 3.5:1.0 as of the last day of any fiscal quarter.

Our ability to comply with these financial restrictions and covenants is dependent on our future performance, which is subject to prevailing economic conditions and other factors, including factors that are beyond our control such as the impact of foreign exchange rates and interest rates. Our failure to comply with any of these restrictions or covenants may result in an event of default under the applicable debt instrument, which could permit acceleration of the debt under that instrument and require us to prepay that debt before its scheduled due date. Also, an acceleration of the debt under certain of our debt instruments would trigger an event of default under other of our debt instruments.

Item 1B. Unresolved Staff Comments

None.

Item 1C. Cybersecurity

Cybersecurity Risk Management and Strategy

As is the case for most large global companies, we are regularly subject to cyberattacks and other cybersecurity incidents and, therefore, we incorporate cybersecurity into our overall risk management process. Our commitment to cybersecurity emphasizes using a risk-based, “defense in depth” approach to assess, educate, block, identify, respond to and recover from cybersecurity threats. Recognizing that no single technology, process or control can effectively prevent or mitigate all risks, we employ a strategy of technologies, processes and controls, all working independently but as part of a cohesive strategy to manage or reduce risk.

Our cybersecurity program assists in the management of risks associated with the confidentiality, integrity and availability of data and systems within the company environment to effectively support our business objectives and customer expectations. The program provides guidance to business stakeholders on cybersecurity risks as input into their risk management processes that balance cybersecurity risk with other important risks that may include strategic, regulatory, economic and financial considerations.

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We seek to routinely refine our cybersecurity approach to adapt to changes in the threat landscape and manage emerging security risks. In order to evaluate risks from cybersecurity threats associated with the company's use of certain third-party technology providers, we have incorporated a risk-based assessment into the corporate information technology (IT) procurement process designed to assess the security risk of certain third parties providing new technology solutions to our environment.

We believe cybersecurity is the responsibility of every employee, and regularly educate and share best practices with our employees to raise awareness of cybersecurity threats through a security awareness training program, including regular exercises, periodic cyber-event simulations and annual attestation to our Technology Acceptable Use Policy.

We do not reasonably believe there are currently any cybersecurity incidents that have materially affected or are reasonably likely to materially affect the company or its business strategy, results of operations or financial condition. For more information on the risks related to our IT systems, see "A significant disruption in, or breach in security of, our IT systems or violation of data privacy laws could adversely affect our business or customers that use our products" under the heading "Risk Factors" in Part I, Item 1A.

Cybersecurity Governance and Oversight

The Board of Directors has delegated the oversight of cybersecurity risks to the Audit Committee. Our cybersecurity program is led by the company's senior vice president, chief information officer, along with our vice president, chief information security officer. Management provides an operational update to the Audit Committee each quarter. In addition, the Audit Committee and our full Board of Directors receive an annual overview of the cybersecurity program, cybersecurity threat landscape, investments, and opportunities to enhance the company's systems and security of products and operations.

The company's corporate IT security team leads the company-wide cybersecurity strategy and advocates to protect the company systems, its employees and customers against cybersecurity risks. Through annual internal and external audits, we maintain an ISO/IEC 27001:2013 certification for the management of our cybersecurity program consisting of the following areas:

- cybersecurity program management and governance including risk management;
- cybersecurity operations including security operation centers;
- product security;
- security investigations;
- cybersecurity architecture and engineering; and
- security awareness and training.

Our senior vice president, chief information officer, vice president, chief information security officer (CISO), and vice president, chief product security officer have each served in various roles in IT and information security for over 20 years. These individuals' knowledge and experience along with the culture and talent of the corporate IT security team organization are instrumental in developing and executing our cybersecurity strategies. The CISO meets with senior leadership to review and discuss the cybersecurity program, including emerging cybersecurity risks, threats and industry trends.

Cybersecurity is integrated into the risk management process for the company through various corporate mechanisms, including quarterly business reviews, annual budget planning, and targeted risk-based engagements.

Item 2. Properties

The company owns and leases office, engineering, laboratory, production and warehouse space throughout the world.

Item 3. Legal Proceedings

There are various lawsuits and claims against the company involving product liability, intellectual property, employment and commercial issues. See Note 12 to our Consolidated Financial Statements – "[Commitments and Contingencies](#)".

Item 4. Mine Safety Disclosures

Not applicable.

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PART II

Item 5. Market for the Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Market Price of Common Stock

Our common stock is traded on the New York Stock Exchange under the symbol TMO.

Holders of Common Stock

As of February 3, 2024, the company had 2,337 holders of record of its common stock. This does not include holdings in street or nominee names.

Issuer Purchases of Equity Securities

There was no share repurchase activity for the company's fourth quarter of 2023. On November 14, 2023, the Board of Directors announced that it replaced the existing authorization to repurchase the company's common stock, of which \$1.00 billion was remaining, with a new authorization to repurchase up to \$4.00 billion of the company's common stock. Early in the first quarter of 2024, the company repurchased \$3.00 billion (5.5 million shares) of the company's common stock. At February 22, 2024, \$1.00 billion was available for future repurchases of the company's common stock under this authorization.

Item 6. Reserved

Not applicable.

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

Reference is made throughout this Management's Discussion and Analysis of Financial Condition and Results of Operations to Notes to the [Consolidated Financial Statements](#), which begin on page 29 of this report. Management's Discussion and Analysis of Financial Condition and Results of Operations for 2021 is included in Item 7 of the company's 2022 [Annual Report on Form 10-K](#) filed with the Securities and Exchange Commission.

The company refers to various amounts or measures not prepared in accordance with generally accepted accounting principles (non-GAAP measures). These non-GAAP measures are further described and reconciled to their most directly comparable amount or measure under the section "[Non-GAAP Measures](#)" later in this "Management's Discussion and Analysis of Financial Condition and Results of Operations."

Overview

Thermo Fisher Scientific Inc. enables customers to make the world healthier, cleaner and safer by helping them accelerate life sciences research, solve complex analytical challenges, increase laboratory productivity, and improve patient health through diagnostics and the development and manufacture of life-changing therapies. Markets served include pharmaceutical and biotech, academic and government, industrial and applied, as well as healthcare and diagnostics. The company's operations fall into four segments (Note 4): Life Sciences Solutions, Analytical Instruments, Specialty Diagnostics and Laboratory Products and Biopharma Services.

Consolidated Results

(Dollars in millions except per share amounts)	2023	2022	Change
Revenues	\$ 42,857	\$ 44,915	(5) %
GAAP operating income	\$ 6,859	\$ 8,393	(18) %
GAAP operating income margin	16.0 %	18.7 %	(2.7) pt
Adjusted operating income (<i>non-GAAP measure</i>)	\$ 9,810	\$ 10,985	(11) %
Adjusted operating income margin (<i>non-GAAP measure</i>)	22.9 %	24.5 %	(1.6) pt
GAAP diluted earnings per share attributable to Thermo Fisher Scientific Inc.	\$ 15.45	\$ 17.63	(12) %
Adjusted earnings per share (<i>non-GAAP measure</i>)	\$ 21.55	\$ 23.24	(7) %

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Organic Revenue Growth

Revenue growth	(5)%
Impact of acquisitions	1 %
Impact of currency translation	0 %
Organic revenue growth* (<i>non-GAAP measure</i>)	(5)%

* Results may not sum due to rounding.

Since 2020, the Life Sciences Solutions and Specialty Diagnostics segments as well as the laboratory products business have supported COVID-19 diagnostic testing, scaling and evolving their molecular diagnostics solutions and plastic consumables businesses to respond to the COVID-19 pandemic. The biosciences and bioproduction businesses have expanded their capacity to meet the needs of pharma and biotech customers as they have expanded their own production volumes to meet global vaccine manufacturing requirements. Additionally, our pharma services business has provided our pharma and biotech customers with the services they needed to develop and produce vaccines and therapies globally. Since the company's acquisition of PPD in December 2021, the clinical research business has continued to play a leading role in supporting the clinical trials for COVID-19 vaccines and therapies. These positive impacts continued at much lower levels in 2023 as customer testing as well as therapy and vaccine demand declined. Sales of products related to COVID-19 testing were \$0.33 billion and \$3.11 billion in 2023 and 2022, respectively.

During 2023, growth from pharma and biotech customers slightly declined. Over the past few years, the company has played a meaningful role in the production of COVID-19 vaccines and therapies. In 2023, reduced demand for our products and services that support COVID-19 vaccines and therapies was partially offset through strong commercial execution as a result of our trusted partner status with customers in this market. We saw broad based strength across the academic and government market as we saw the benefits of our accelerated investments into high impact innovation with great customer adoption and strong demand globally. The industrial and applied market was strong, driven by the relevance of our analytical instrument technologies serving our semiconductor and materials science customers. The diagnostics and healthcare market declined due to decreased demand for COVID-19 testing products. During 2023, sales growth in all major regions declined due to decreased demand for COVID-19 related products, as well as a challenging macroeconomic environment and low economic activity in China. Contributions to organic revenue during 2023 from the Analytical Instruments and Laboratory Products and Biopharma Services segments were more than offset by declines in the Life Sciences Solutions and Specialty Diagnostics segments.

The company continues to execute its proven growth strategy which consists of three pillars:

- High-impact innovation,
- Our trusted partner status with customers, and
- Our unparalleled commercial engine.

GAAP operating income margin and adjusted operating income margin decreased in 2023 due primarily to lower COVID-19 related revenue. This was partially offset by strong productivity improvements and strong pricing realization to address higher inflation. GAAP operating income margin in 2023 was also impacted by restructuring and other charges incurred for headcount reductions and facility consolidations in an effort to streamline operations and limit the impact of expected lower revenue (Note 16). We estimate that restructuring actions resulting in charges of approximately \$0.2 billion in 2023 will realize annual cost savings of approximately \$0.5 billion, primarily due to reduced employee expenses.

The company's references to strategic growth investments generally refer to targeted spending for enhancing commercial capabilities, including expansion of geographic sales reach and e-commerce platforms, marketing initiatives, expanded service and operational infrastructure, research and development projects and other expenditures to enhance the customer experience, as well as incentive compensation and recognition for employees. The company's references throughout this discussion to productivity improvements generally refer to improved cost efficiencies from its Practical Process Improvement (PPI) business system including reduced costs resulting from implementing continuous improvement methodologies, global sourcing initiatives, a lower cost structure following restructuring actions including headcount reductions and consolidation of facilities, and low cost region manufacturing.

Notable Recent Acquisitions

On January 3, 2023, the company acquired, within the Specialty Diagnostics segment, The Binding Site Group, a U.K.-based provider of specialty diagnostic assays and instruments to improve the diagnosis and management of blood cancers and immune system disorders. The acquisition expands the segment's portfolio with the addition of pioneering innovation in diagnostics and monitoring for multiple myeloma.

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On August 14, 2023, the company acquired, within the Laboratory Products and Biopharma Services segment, CorEvitas, LLC, a U.S.-based provider of regulatory-grade, real-world evidence for approved medical treatments and therapies. The acquisition expands the segment's portfolio with the addition of highly complementary real-world evidence solutions to enhance decision-making as well as the time and cost of drug development.

Segment Results

The company's management evaluates segment operating performance using operating income before certain charges/credits as defined in Note 4. Accordingly, the following segment data are reported on this basis.

(Dollars in millions)	2023	2022
Revenues		
Life Sciences Solutions	\$ 9,977	\$ 13,532
Analytical Instruments	7,263	6,624
Specialty Diagnostics	4,405	4,763
Laboratory Products and Biopharma Services	23,041	22,511
Eliminations	(1,829)	(2,515)
Consolidated revenues	\$ 42,857	\$ 44,915

Life Sciences Solutions

(Dollars in millions)	2023	2022	Total Change	Currency Translation	Acquisitions/Divestitures	Organic* (non-GAAP measure)
Revenues	\$ 9,977	\$ 13,532	(26) %	0 %	0 %	(26) %
Segment income	3,420	5,582	(39) %			
Segment income margin	34.3 %	41.2 %	(6.9) pt			

The decrease in organic revenues in 2023 was primarily due to moderation in COVID-19 related revenue. The decrease in segment income margin resulted primarily from significantly lower COVID-19 related revenue and unfavorable volume pull-through, partially offset by exceptionally strong productivity improvements and favorable price realization.

Analytical Instruments

(Dollars in millions)	2023	2022	Total Change	Currency Translation	Acquisitions/Divestitures	Organic* (non-GAAP measure)
Revenues	\$ 7,263	\$ 6,624	10 %	(1)%	0 %	10 %
Segment income	1,908	1,507	27 %			
Segment income margin	26.3 %	22.8 %	3.5 pt			

The increase in organic revenues in 2023 was due to increased demand across all the segment's businesses, with particular strength in the electron microscopy and chromatography and mass spectrometry businesses. The increase in segment income margin resulted primarily from strong productivity, strong pricing realization to address higher inflation and strong volume pull-through, offset in part by the effects of currency translation and strategic growth investments.

Specialty Diagnostics

(Dollars in millions)	2023	2022	Total Change	Currency Translation	Acquisitions/Divestitures	Organic* (non-GAAP measure)
Revenues	\$ 4,405	\$ 4,763	(8) %	0 %	5 %	(13) %
Segment income	1,124	1,024	10 %			
Segment income margin	25.5 %	21.5 %	4.0 pt			

The decrease in organic revenues in 2023 was due to decreased demand, primarily driven by products addressing diagnosis of COVID-19, partially offset by underlying growth in the immunodiagnostics, microbiology, and transplant diagnostics businesses. The increase in segment income margin was due to favorable business mix, strong pricing realization to address higher inflation, and strong productivity improvements, partially offset by the impact of lower COVID-19 testing volume.

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Laboratory Products and Biopharma Services

(Dollars in millions)	2023	2022	Total Change	Currency Translation	Acquisitions/Divestitures	Organic* (non-GAAP measure)
Revenues	\$ 23,041	\$ 22,511	2 %	0 %	0 %	2 %
Segment income	3,358	2,872	17 %			
Segment income margin	14.6 %	12.8 %	1.8 pt			

The increase in organic revenues in 2023 was primarily due to higher sales in the clinical research and pharma services businesses. The increase in segment income margin was primarily due to very strong productivity improvements and strong pricing realization to address higher inflation.

* Results may not sum due to rounding

Non-operating Items

(Dollars in millions)	2023	2022
Net interest expense	\$ 496	\$ 454
GAAP other income/(expense)	(65)	(104)
Adjusted other income/(expense) (non-GAAP measure)	(15)	13
GAAP tax rate	4.5 %	9.0 %
Adjusted tax rate (non-GAAP measure)	10.0 %	13.0 %
Weighted average diluted shares	388	394

Net interest expense (interest expense less interest income) increased due primarily to the increase in debt for general corporate purposes and the company's capital deployment initiatives, which included financing stock buybacks, paying dividends and acquiring The Binding Site Group and CorEvitas, LLC (Note 2). These increases were partially offset by higher cash and cash equivalents balances as well as higher interest rates on these balances when compared to 2022. See additional discussion under the caption "Liquidity and Capital Resources" below. In 2023 and 2022 the company's net interest expense was reduced by approximately \$116 million and \$16 million, respectively, as a result of its interest rate swap and cross-currency interest rate swap arrangements (Note 14).

GAAP other income/(expense) and adjusted other income/(expense) includes currency transaction gains/losses on non-operating monetary assets and liabilities, and net periodic pension benefit cost/income, excluding the service cost component. GAAP other income/(expense) in 2023 also includes \$45 million of net losses on investments. GAAP other income/(expense) in 2022 also includes \$160 million of net losses on investments and \$26 million of losses on the early extinguishment of debt (Note 10), partially offset by \$67 million of net gains on derivative instruments to address certain foreign currency risks.

The GAAP and adjusted tax rates in 2023 were impacted by changes in valuation allowances, including a \$183 million release in a jurisdiction where the deferred tax assets are now expected to be realized, and, to a lesser extent, by a decrease in pre-tax earnings compared to 2022. The company's GAAP and adjusted tax rates in 2023 were also impacted by tax planning initiatives, including a tax benefit of \$127 million for U.S. tax credits and the revaluation of net operating loss carryforwards due to higher tax rates as a result of its tax return resubmissions, a tax benefit of \$91 million, net of related tax expenses, from a foreign exchange loss on an intercompany debt refinancing transaction, and \$233 million of tax benefits resulting from intra-entity transactions. The company's GAAP and adjusted tax rates in 2022 were impacted by releases of valuation allowances of \$189 million in jurisdictions where the deferred tax assets are now expected to be realized. The company's 2022 GAAP tax rate was also impacted by a net benefit of \$208 million resulting from tax audit settlements (Note 8). The effective tax rates in both 2023 and 2022 were also affected by relatively significant earnings in lower tax jurisdictions. Due primarily to the non-deductibility of intangible asset amortization for tax purposes, the company's cash payments for income taxes were higher than its income tax expense for financial reporting purposes. See additional discussion under the caption "Liquidity and Capital Resources" below.

The company expects its GAAP effective tax rate in 2024 will be between 4% and 6% based on currently forecasted rates of profitability in the countries in which the company conducts business and expected generation of foreign tax credits. The effective tax rate can vary significantly from period to period as a result of discrete income tax factors and events. The company expects its adjusted tax rate will be approximately 10.5% in 2024.

The company has operations and a taxable presence in approximately 70 countries outside the U.S. Some of these countries have lower tax rates than the U.S. The company's ability to obtain a benefit from lower tax rates outside the U.S. is dependent on its relative levels of income in countries outside the U.S. and on the statutory tax rates in those countries. Based on the

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dispersion of the company's non-U.S. income tax provision among many countries, the company believes that a change in the statutory tax rate in any individual country is not likely to materially affect the company's income tax provision or net income, aside from any resulting one-time adjustment to the company's deferred tax balances to reflect a new rate.

Weighted average diluted shares decreased in 2023 compared to 2022 due to share repurchases, net of option dilution.

Liquidity and Capital Resources

The company's proven growth strategy has enabled it to generate free cash flow as well as access the capital markets. The company deploys its capital primarily via mergers and acquisitions and secondarily via share buybacks and dividends.

(In millions)	December 31, 2023	December 31, 2022
Cash and cash equivalents	\$ 8,077	\$ 8,524
Total debt	34,917	34,488

Approximately half of the company's cash balances and cash flows from operations are from outside the U.S. The company uses its non-U.S. cash for needs outside of the U.S. including acquisitions, capacity expansion, and repayment of third-party foreign debt by foreign subsidiaries. In addition, the company also transfers cash to the U.S. using non-taxable intercompany transactions, including loans and returns of capital, as well as dividends where the related U.S. dividend received deduction or foreign tax credit equals any tax cost arising from the dividends. As a result of using such means of transferring cash to the U.S., the company does not expect any material adverse liquidity effects from its significant non-U.S. cash balances for the foreseeable future.

The company believes that its existing cash and cash equivalents and its future cash flow from operations together with available borrowing capacity under its revolving credit agreement will be sufficient to meet the cash requirements of its existing businesses for the foreseeable future, including at least the next 24 months.

As of December 31, 2023, the company's short-term debt totaled \$3.61 billion. The company has a revolving credit facility with a bank group that provides up to \$5.00 billion of unsecured multi-currency revolving credit (Note 10). If the company borrows under this facility, it intends to leave undrawn an amount equivalent to outstanding commercial paper to provide a source of funds in the event that commercial paper markets are not available. As of December 31, 2023, no borrowings were outstanding under the company's revolving credit facility, although available capacity was reduced by immaterial outstanding letters of credit.

(In millions)	2023	2022
Net cash provided by operating activities	\$ 8,406	\$ 9,154
Net cash used in investing activities	(5,142)	(2,159)
Net cash used in financing activities	(3,622)	(2,810)
Free cash flow (<i>non-GAAP measure</i>)	7,014	6,935

Operating Activities

During 2023, cash provided by income was offset in part by investments in working capital. A decrease in inventories provided cash of \$0.60 billion. A decrease in accounts payable used cash of \$0.50 billion, and changes in other assets and other liabilities used cash of \$0.80 billion primarily due to the timing of payments for compensation and income taxes. Cash payments for income taxes were \$1.48 billion during 2023.

During 2022, cash provided by income was offset in part by investments in working capital. Increases in accounts receivable and inventories used cash of \$0.43 billion and \$0.83 billion, respectively, primarily to support growth in sales. An increase in accounts payable provided cash of \$0.65 billion. Cash payments for income taxes were \$1.23 billion during 2022.

The company is contingently liable with respect to certain legal proceedings and related matters. An unfavorable outcome that differs materially from current accrual estimates, if any, for one or more of the matters described under the heading "*Product Liability, Workers Compensation and Other Personal Injury Matters*" in Note 12 could have a material adverse effect on the company's financial position as well as its results of operations and cash flows.

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Investing Activities

During 2023, acquisitions of The Binding Site Group and CorEvitas, LLC used cash of \$2.70 billion and \$0.91 billion, respectively. The company's investing activities also included purchases of \$1.48 billion of property, plant and equipment for capacity and capability investments.

During 2022 the company's investing activities were principally for the purchase of property, plant and equipment for capacity and capability investments.

The company expects that for all of 2024, expenditures for property, plant and equipment, net of disposals, will be between \$1.3 billion and \$1.5 billion.

Financing Activities

During 2023, issuance of senior notes provided \$5.94 billion of cash. Repayment of senior notes and net commercial paper activity used cash of \$5.78 billion and \$0.32 billion, respectively. The company's financing activities also included the repurchase of \$3.00 billion of the company's common stock (5.2 million shares) and the payment of \$0.52 billion in cash dividends. On November 14, 2023, the Board of Directors announced that it replaced the existing authorization to repurchase the company's common stock, of which \$1.00 billion was remaining, with a new authorization to repurchase up to \$4.00 billion of the company's common stock.

Early in the first quarter of 2024, the company repurchased \$3.00 billion (5.5 million shares) of the company's common stock. At February 22, 2024, \$1.00 billion was available for future repurchases of the company's common stock under this authorization.

During 2022, issuance of senior notes provided \$3.19 billion of cash. Repayment of senior notes and net commercial paper activity used cash of \$0.38 billion and \$2.16 billion, respectively. The company's financing activities also included the repurchase of \$3.00 billion of the company's common stock (5.3 million shares) and the payment of \$0.46 billion in cash dividends.

In addition to the obligations on the balance sheet at December 31, 2023, which include, but are not limited to pension obligations (Note 7), unrecognized tax benefits (Note 8), debt (Note 10), operating leases (Note 11), and contingent consideration (Note 14), the company has also entered into an agreement to acquire Olink (Note 2). The company also has unconditional purchase obligations in the ordinary course of business that include agreements to purchase goods, services or fixed assets, pay royalties, and fund capital commitments pursuant to investments held by the company (Note 12).

Non-GAAP Measures

In addition to the financial measures prepared in accordance with generally accepted accounting principles (GAAP), we use certain non-GAAP financial measures such as organic revenue growth, which is reported revenue growth, excluding the impacts of revenues from acquired/divested businesses and the effects of currency translation. We report organic revenue growth because Thermo Fisher management believes that in order to understand the company's short-term and long-term financial trends, investors may wish to consider the impact of acquisitions/divestitures and foreign currency translation on revenues. Thermo Fisher management uses organic revenue growth to forecast and evaluate the operational performance of the company as well as to compare revenues of current periods to prior periods.

We report adjusted operating income, adjusted operating income margin, adjusted other income/(expense), adjusted tax rate, and adjusted EPS. We believe that the use of these non-GAAP financial measures, in addition to GAAP financial measures, helps investors to gain a better understanding of our core operating results and future prospects, consistent with how management measures and forecasts the company's core operating performance, especially when comparing such results to previous periods, forecasts, and to the performance of our competitors. Such measures are also used by management in their financial and operating decision-making and for compensation purposes. To calculate these measures we exclude, as applicable:

- Certain acquisition-related costs, including charges for the sale of inventories revalued at the date of acquisition, significant transaction/acquisition-related costs, including changes in estimates of contingent acquisition-related consideration, and other costs associated with obtaining short-term financing commitments for pending/recent acquisitions. We exclude these costs because we do not believe they are indicative of our normal operating costs.
- Costs/income associated with restructuring activities and large-scale abandonments of product lines, such as reducing overhead and consolidating facilities. We exclude these costs because we believe that the costs related to restructuring activities and large-scale abandonment of product lines are not indicative of our normal operating costs.
- Equity in earnings/losses of unconsolidated entities; impairments of long-lived assets; and certain other gains and losses that are either isolated or cannot be expected to occur again with any predictability, including gains/losses on

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investments, the sale of businesses, product lines, and real estate, significant litigation-related matters, curtailments/settlements of pension plans, and the early retirement of debt. We exclude these items because they are outside of our normal operations and/or, in certain cases, are difficult to forecast accurately for future periods.

- The expense associated with the amortization of acquisition-related intangible assets because a significant portion of the purchase price for acquisitions may be allocated to intangible assets that have lives of up to 20 years. Exclusion of the amortization expense allows comparisons of operating results that are consistent over time for both our newly acquired and long-held businesses and with both acquisitive and non-acquisitive peer companies.
- The noncontrolling interest and tax impacts of the above items and the impact of significant tax audits or events (such as changes in deferred taxes from enacted tax rate/law changes), the latter of which we exclude because they are outside of our normal operations and difficult to forecast accurately for future periods.

We report free cash flow, which is operating cash flow excluding net capital expenditures, to provide a view of the continuing operations' ability to generate cash for use in acquisitions and other investing and financing activities. The company also uses this measure as an indication of the strength of the company. Free cash flow is not a measure of cash available for discretionary expenditures since we have certain non-discretionary obligations such as debt service that are not deducted from the measure.

The non-GAAP financial measures of the company's results of operations and cash flows included in this Form 10-K are not meant to be considered superior to or a substitute for the company's results of operations prepared in accordance with GAAP. Reconciliations of such non-GAAP financial measures to the most directly comparable GAAP financial measures are set forth within the "Consolidated Results" and "Segment Results" sections and below.

(Dollars in millions except per share amounts)	2023		2022	
Reconciliation of adjusted operating income and adjusted operating income margin				
GAAP operating income	\$ 6,859	16.0 %	\$ 8,393	18.7 %
Cost of revenues adjustments (a)	95	0.2 %	46	0.1 %
Selling, general and administrative expenses adjustments (b)	59	0.1 %	37	0.1 %
Restructuring and other costs (c)	459	1.1 %	114	0.3 %
Amortization of acquisition-related intangible assets	2,338	5.5 %	2,395	5.3 %
Adjusted operating income (<i>non-GAAP measure</i>)	<u><u>\$ 9,810</u></u>	<u><u>22.9 %</u></u>	<u><u>\$ 10,985</u></u>	<u><u>24.5 %</u></u>
Reconciliation of adjusted other income/(expense)				
GAAP other income/(expense)	\$ (65)		\$ (104)	
Adjustments (d)	50		117	
Adjusted other income/(expense) (<i>non-GAAP measure</i>)	<u><u>\$ (15)</u></u>		<u><u>\$ 13</u></u>	
Reconciliation of adjusted tax rate				
GAAP tax rate	4.5 %		9.0 %	
Adjustments (e)	5.5 %		4.0 %	
Adjusted tax rate (<i>non-GAAP measure</i>)	<u><u>10.0 %</u></u>		<u><u>13.0 %</u></u>	
Reconciliation of adjusted earnings per share				
GAAP diluted earnings per share (EPS) attributable to Thermo Fisher Scientific Inc.	\$ 15.45		\$ 17.63	
Cost of revenues adjustments (a)	0.24		0.12	
Selling, general and administrative expenses adjustments (b)	0.15		0.09	
Restructuring and other costs (c)	1.18		0.29	
Amortization of acquisition-related intangible assets	6.03		6.07	
Other income/expense adjustments (d)	0.13		0.30	
Provision for income taxes adjustments (e)	(1.66)		(1.70)	
Equity in earnings/losses of unconsolidated entities	0.15		0.44	
Noncontrolling interests adjustments (f)	(0.12)		—	
Adjusted EPS (<i>non-GAAP measure</i>)	<u><u>\$ 21.55</u></u>		<u><u>\$ 23.24</u></u>	

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(Dollars in millions except per share amounts)	2023	2022
Reconciliation of free cash flow		
GAAP net cash provided by operating activities	\$ 8,406	\$ 9,154
Purchases of property, plant and equipment	(1,479)	(2,243)
Proceeds from sale of property, plant and equipment	87	24
Free cash flow (non-GAAP measure)	\$ 7,014	\$ 6,935

- (a) Adjusted results in 2023 and in 2022 exclude charges for the sale of inventories revalued at the date of acquisition and charges for inventory write-downs associated with large-scale abandonment of product lines. Adjusted results in 2023 also exclude \$13 million of accelerated depreciation on manufacturing assets to be abandoned due to facility consolidations.
- (b) Adjusted results in 2023 and 2022 exclude certain third-party expenses, principally transaction/integration costs related to recent acquisitions, charges/credits for changes in estimates of contingent acquisition consideration, and charges associated with product liability litigation.
- (c) Adjusted results in 2023 and 2022 exclude restructuring and other costs consisting principally of severance, impairments of long-lived assets, charges for environmental-related matters, abandoned facility and other expenses of headcount reductions and real estate consolidations. Adjusted results in 2023 also exclude \$26 million of contract termination costs associated with facility closures, \$19 million of net charges for pre-acquisition litigation and other matters, and \$11 million of gains on the sale of real estate. Adjusted results in 2022 also exclude \$14 million of gain on the sale of intellectual property.
- (d) Adjusted results exclude net gains/losses on investments. Adjusted results in 2022 also exclude \$67 million of net gains on derivative instruments to address certain foreign currency risks and \$26 million of losses on the early extinguishment of debt.
- (e) Adjusted results in 2023 and 2022 exclude incremental tax impacts for the reconciling items between GAAP and adjusted net income, incremental tax impacts as a result of tax rate/law changes and the tax impacts from audit settlements (including a \$658 million benefit from an audit settlement in 2022). Adjusted results in 2023 also exclude \$14 million of charges for pre-acquisition matters. Adjusted results in 2022 also exclude a \$423 million charge for the impact of deferred tax realizability assessments as a result of audit settlements.
- (f) Adjusted results exclude the incremental impacts for the reconciling items between GAAP and adjusted net income attributable to noncontrolling interests.

Critical Accounting Policies and Estimates

The company's discussion and analysis of its financial condition and results of operations is based upon its financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States of America. The preparation of these financial statements requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses and related disclosure of contingent liabilities. On an on-going basis, management evaluates its estimates, including those related to acquisition-related measurements and income taxes. Management believes the most complex and sensitive judgments, because of their significance to the consolidated financial statements, result primarily from the need to make estimates about the effects of matters that are inherently uncertain. Management bases its estimates on historical experience, current market and economic conditions and other assumptions that management believes are reasonable. The results of these estimates form the basis for judgments about the carrying value of assets and liabilities where the values are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

The company believes the following represent its critical accounting policies and estimates used in the preparation of its financial statements:

Acquisition-related Measurements

Business Combinations

The company uses assumptions and estimates in determining the fair value of assets acquired and liabilities assumed in a business combination. The determination of the fair value of intangible assets, which represent a significant portion of the purchase price in many of the company's acquisitions, requires the use of significant judgment with regard to (i) the fair value and (ii) whether such intangibles are amortizable or non-amortizable and, if the former, the period and the method by which the intangible asset will be amortized. The company estimates the fair value of acquisition-related intangible assets principally based on projections of cash flows that will arise from identifiable intangible assets of acquired businesses, which include estimates of customer attrition and technology obsolescence rates. The projected cash flows are discounted to determine the present value of the assets at the dates of acquisition. See Note 2 for additional information about our recent business combinations.

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Goodwill and Indefinite-lived Intangible Assets

The company evaluates goodwill and indefinite-lived intangible assets for impairment annually and when events occur or circumstances change that would more likely than not reduce the fair value of an asset below its carrying amount. Events or circumstances that might require an interim evaluation include unexpected adverse business conditions, economic factors, unanticipated technological changes or competitive activities, loss of key personnel and acts by governments and courts, among others. Goodwill and indefinite-lived intangible assets totaled \$44.02 billion and \$1.24 billion, respectively, at December 31, 2023 (see Note 1 for additional information). Estimates of discounted future cash flows require assumptions related to revenue and operating income growth rates, discount rates and other factors. For the goodwill impairment tests, the company also considers (i) peer revenues and earnings trading multiples from companies that have operational and financial characteristics that are similar to the respective reporting units and (ii) estimated weighted average costs of capital. Different assumptions from those made in the company's analysis could materially affect projected cash flows and the company's evaluation of goodwill and indefinite-lived intangible assets for impairment.

The company performed the quantitative goodwill impairment test for all of its reporting units and indefinite-lived intangible assets. Determinations of fair value based on projections of discounted cash flows, which decreased from the prior year projections primarily due to higher discount rates, and based on peer revenues and earnings trading multiples, which also decreased from the prior year, were sufficient to conclude that no impairments of goodwill or indefinite-lived intangible assets existed at the end of the tenth fiscal month of 2023, the date of the company's annual impairment testing. There were no interim impairments of goodwill or indefinite-lived intangible assets in 2023. There can be no assurance, however, that adverse events or conditions will not cause the fair values of these assets to decline. Should the fair values of the company's reporting units or indefinite-lived intangible assets decline because of reduced operating performance, market declines, or other indicators of impairment, or as a result of changes in the discount rates, charges for impairment may be necessary.

During its annual 2023 goodwill impairment assessments, the company determined that the excess of fair value over carrying value for one of the clinical research business's reporting units had increased to 4%. Despite this favorable increase, given that the fair value of the reporting unit was not substantially in excess of its carrying value as of the annual 2023 assessment date, relatively small decreases in future cash flows versus anticipated results, decreases in peer trading multiples and/or increases in weighted average costs of capital could result in impairment of goodwill. The reporting unit had \$3.95 billion of goodwill, and an overall carrying value of \$5.54 billion as of December 31, 2023.

Definite-lived Intangible Assets

Definite-lived intangible assets totaled \$15.44 billion at December 31, 2023 (see Note 1 for additional information). Certain definite-lived intangible assets have largely independent cash flows. The company reviews these definite-lived intangible assets for impairment individually when indication of potential impairment exists, such as a significant reduction in cash flows associated with the assets. Actual cash flows arising from a particular intangible asset could vary from projected cash flows, which could imply different carrying values from those established at the dates of acquisition and which could result in impairment of such asset. Most of the company's definite-lived intangible assets are used in conjunction with other assets, such as property, plant and equipment and operating lease right-of-use assets. In these situations, the company considers the asset groups to be the units of account for impairment testing. The company recorded definite-lived intangible asset impairments of \$0.01 billion and \$0.12 billion in 2023 and 2021, respectively (Note 16).

Income Taxes

Unrecognized Tax Benefits

In the ordinary course of business there is inherent uncertainty in quantifying the company's income tax positions. The company assesses income tax positions and records tax benefits for all years subject to examination based upon management's evaluation of the facts, circumstances and information available at the reporting date. For those tax positions where it is more likely than not that a tax benefit will be sustained, the company has recorded the largest amount of tax benefit with a greater than 50 percent likelihood of being realized upon ultimate settlement with a taxing authority that has full knowledge of all relevant information. For those income tax positions where it is not more likely than not that a tax benefit will be sustained, no tax benefit has been recognized in the financial statements. Should tax return positions that the company expects are sustainable not be sustained upon audit, the company could be required to record an incremental tax provision for such taxes. The company's liability for these unrecognized tax benefits totaled \$0.54 billion at December 31, 2023, compared to \$0.57 billion at December 31, 2022, primarily as a result of an audit settlement (Note 8).

The company operates in numerous countries under many legal forms and, as a result, is subject to the jurisdiction of numerous domestic and non-U.S. tax authorities, as well as to tax agreements and treaties among these governments. Determination of taxable income in any jurisdiction requires the company to interpret the related tax laws and regulations and the use of estimates and assumptions regarding significant future events, such as the amount, timing and character of deductions, permissible

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revenue recognition methods under the tax law and the sources and character of income and tax credits. Changes in tax laws, regulations, agreements and treaties, currency exchange restrictions or the company's level of operations or profitability in each taxing jurisdiction could have an impact upon the amount of current and deferred tax balances and hence the company's net income.

Valuation Allowances

The company estimates the degree to which tax assets will result in a benefit, after consideration of all positive and negative evidence, and provides a valuation allowance for tax assets that it believes will more likely than not go unused. In situations in which the company has been able to determine that its deferred tax assets will be realized, that determination generally relies on future reversals of taxable temporary differences and expected future taxable income. If it becomes more likely than not that a tax asset will be used, the company reverses the related valuation allowance. Any such reversals are recorded as a reduction of the company's tax provision. The company's tax valuation allowance totaled \$1.32 billion at both December 31, 2023 and December 31, 2022 (Note 8). Should the company's actual future taxable income by tax jurisdiction vary from estimates, additional allowances or reversals thereof may be necessary.

Recent Accounting Pronouncements

A description of recently issued accounting standards is included under the heading "*Recent Accounting Pronouncements*" in Note 1.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

The company is exposed to market risk from changes in interest rates and currency exchange rates, which could affect its future results of operations and financial condition. The company manages its exposure to these risks through its regular operating and financing activities. The company has periodically hedged interest rate risks of fixed-rate instruments with offsetting interest rate swaps. Additionally, the company uses short-term forward and option contracts primarily to hedge certain balance sheet and operational exposures resulting from changes in currency exchange rates. Such exposures result from purchases, sales, cash and intercompany loans that are denominated in currencies other than the functional currencies of the respective operations. The currency-exchange contracts principally hedge transactions denominated in euro, British pounds sterling, Canadian dollars, Singapore dollars, Czech koruna, Hong Kong dollars and Swedish krona. Income and losses arising from these derivative contracts are recognized as offsets to losses and income resulting from the underlying exposure being hedged. The company does not enter into speculative derivative agreements.

Interest Rates

The company is exposed to changes in interest rates while conducting normal business operations as a result of ongoing investing and financing activities, which affect the company's debt as well as cash and cash equivalents. As of December 31, 2023, the company's debt portfolio was comprised primarily of fixed rate borrowings. The fair market value of the company's fixed interest rate debt is subject to interest rate risk. Generally, the fair market value of fixed interest rate debt will increase as interest rates fall and decrease as interest rates rise. The total estimated fair value of the company's debt at December 31, 2023 was \$32.27 billion (Note 14). Fair values were determined from available market prices using current interest rates and terms to maturity. If interest rates were to decrease by 100 basis points, the fair value of the company's debt at December 31, 2023 would increase by approximately \$2.33 billion. If interest rates were to increase by 100 basis points, the fair value of the company's debt at December 31, 2023 would decrease by approximately \$2.05 billion.

In addition, the fair value of the company's cross-currency interest rate swap arrangements is subject to interest rate risk. If interest rates were to decrease by 100 basis points, the fair value of the company's cross-currency interest rate swaps at December 31, 2023 would decrease by approximately \$0.39 billion. If interest rates were to increase by 100 basis points, the fair value of the company's cross-currency interest rate swaps at December 31, 2023 would increase by approximately \$0.53 billion.

Currency Exchange Rates

The company views its investments in international subsidiaries with a functional currency other than the U.S. dollar as permanent. The company's investment in international subsidiaries is sensitive to fluctuations in currency exchange rates. The functional currencies of the company's international subsidiaries are principally denominated in British pounds sterling, euro, Swedish krona, Canadian dollars, Norwegian kroner and Danish kroner. The effect of a change in the period ending currency exchange rates on the company's net investment in international subsidiaries is reflected in the "accumulated other comprehensive items" component of shareholders' equity. The company also uses foreign currency-denominated debt to partially hedge its net investments in foreign operations against adverse movements in exchange rates. A 10% depreciation in year-end 2023 functional currencies, relative to the U.S. dollar, would result in a reduction of shareholders' equity of approximately \$1.26 billion.

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The fair value of forward currency-exchange contracts is sensitive to changes in currency exchange rates. The fair value of forward currency-exchange contracts is the estimated amount that the company would pay or receive upon termination of the contract, taking into account the change in currency exchange rates. A 10% depreciation in year-end 2023 non-functional currency exchange rates related to the company's contracts would result in an unrealized loss on forward currency-exchange contracts of \$43 million. A 10% appreciation in year-end 2023 non-functional currency exchange rates related to the company's contracts would result in an additional unrealized gain on forward currency-exchange contracts of \$49 million. The unrealized gains or losses on forward currency-exchange contracts resulting from changes in currency exchange rates are expected to approximately offset losses or gains on the exposures being hedged.

Certain of the company's cash and cash equivalents are denominated in currencies other than the functional currency of the depositor and are sensitive to changes in currency exchange rates. A 10% depreciation in the related year-end 2023 non-functional currency exchange rates applied to such cash balances would result in a negative impact of \$13 million on the company's net income.

Item 8. Financial Statements and Supplementary Data

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders of Thermo Fisher Scientific Inc.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Thermo Fisher Scientific Inc. and its subsidiaries (the “Company”) as of December 31, 2023 and 2022, and the related consolidated statements of income, of comprehensive income, of redeemable noncontrolling interest and equity and of cash flows for each of the three years in the period ended December 31, 2023, including the related notes (collectively referred to as the “consolidated financial statements”). We also have audited the Company's internal control over financial reporting as of December 31, 2023, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2023 and 2022, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2023 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2023, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Annual Report on Internal Control Over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

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

detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

Critical Audit Matters

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that (i) relates to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Income taxes

As described in Note 8 to the consolidated financial statements, the Company's provision for income taxes for the year ended December 31, 2023 was \$284 million. The Company has deferred tax liabilities, net, of \$1,091 million (including a valuation allowance of \$1,317 million) and unrecognized tax benefits of \$540 million as of December 31, 2023. As disclosed by management, the Company operates in numerous countries under many legal forms and, as a result, is subject to the jurisdiction of numerous domestic and non-U.S. tax authorities, as well as to tax agreements and treaties among these governments.

Determination of taxable income in any jurisdiction requires management to interpret the related tax laws and regulations and to use estimates and assumptions regarding significant future events, such as the amount, timing and character of deductions, permissible revenue recognition methods under the tax law and the sources and character of income and tax credits. Management assesses income tax positions and records tax benefits for all years subject to examination based upon management's evaluation of the facts, circumstances and information available at the reporting date. For those tax positions where it is more likely than not that a tax benefit will be sustained, management has recorded the largest amount of tax benefit with a greater than 50 percent likelihood of being realized upon ultimate settlement with a taxing authority that has full knowledge of all relevant information. For those income tax positions where it is not more likely than not that a tax benefit will be sustained, no tax benefit has been recognized in the financial statements. Management estimates the degree to which tax assets will result in a benefit, after consideration of all positive and negative evidence, and provides a valuation allowance for tax assets that it believes will more likely than not go unused. In situations in which management has been able to determine that the Company's deferred tax assets will be realized, that determination generally relies on future reversals of taxable temporary differences and expected future taxable income. If it becomes more likely than not that a tax asset will be used, management reverses the related valuation allowance.

The principal considerations for our determination that performing procedures relating to income taxes is a critical audit matter are (i) the significant judgment by management when interpreting the numerous and complex tax laws and regulations as it relates to determining the provision for income taxes, deferred tax assets and liabilities, including the valuation allowance, and liabilities for unrecognized tax benefits, (ii) a high degree of auditor judgment, subjectivity, and effort in performing procedures and evaluating audit evidence related to the provision for income taxes, deferred tax assets and liabilities, including the valuation allowance, and liabilities for unrecognized tax benefits, and (iii) the audit effort involved the use of professionals with specialized skill and knowledge.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to the provision for income taxes, deferred tax assets and liabilities, including the valuation allowance, and liabilities for unrecognized tax benefits. These procedures also included, among others (i) testing the accuracy of the provision for income taxes, including the rate reconciliation and permanent and temporary differences, (ii) evaluating whether the data utilized in the calculations of the provision for income taxes, deferred tax assets and liabilities, and liabilities for unrecognized tax benefits were appropriate and consistent with evidence obtained in other areas of the audit, (iii) evaluating management's assessment of the realizability of deferred tax assets on a jurisdictional basis, (iv) evaluating the identification of liabilities for unrecognized tax benefits and the reasonableness of the more likely than not

determination in consideration of court decisions, legislative actions, statutes of limitations, and developments in tax examinations by jurisdiction, (v) testing the calculation of the liability for unrecognized tax benefits by jurisdiction, including estimates of the amount of income tax benefit expected to be sustained, and (vi) evaluating the adequacy of the Company's disclosures. Professionals with specialized skill and knowledge were used to assist in evaluating the reasonableness of management's judgments and estimates related to the application of foreign and domestic tax laws and regulations.

/s/ PricewaterhouseCoopers LLP
Boston, Massachusetts
February 22, 2024

We have served as the Company's auditor since 2002.

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CONSOLIDATED BALANCE SHEETS

(In millions except share and per share amounts)	December 31, 2023	December 31, 2022
Assets		
Current assets:		
Cash and cash equivalents	\$ 8,077	\$ 8,524
Accounts receivable, less allowances of \$193 and \$189	8,221	8,115
Inventories	5,088	5,634
Contract assets, net	1,443	1,312
Other current assets	1,760	1,644
Total current assets	<u>24,589</u>	<u>25,229</u>
Property, plant and equipment, net	9,448	9,280
Acquisition-related intangible assets, net	16,670	17,442
Other assets	3,999	4,007
Goodwill	44,020	41,196
Total assets	<u>\$ 98,726</u>	<u>\$ 97,154</u>
Liabilities, redeemable noncontrolling interest and equity		
Current liabilities:		
Short-term obligations and current maturities of long-term obligations	\$ 3,609	\$ 5,579
Accounts payable	2,872	3,381
Accrued payroll and employee benefits	1,596	2,095
Contract liabilities	2,689	2,601
Other accrued expenses	3,246	3,354
Total current liabilities	<u>14,012</u>	<u>17,010</u>
Deferred income taxes	1,922	2,849
Other long-term liabilities	4,642	4,238
Long-term obligations	31,308	28,909
Commitments and contingencies (Note 12)		
Redeemable noncontrolling interest	118	116
Equity:		
Thermo Fisher Scientific Inc. shareholders' equity:		
Preferred stock, \$100 par value, 50,000 shares authorized; none issued		
Common stock, \$1 par value, 1,200,000,000 shares authorized; 442,188,634 and 440,668,112 shares issued	442	441
Capital in excess of par value	17,286	16,743
Retained earnings	47,364	41,910
Treasury stock at cost, 55,541,290 and 50,157,275 shares	(15,133)	(12,017)
Accumulated other comprehensive income/(loss)	(3,224)	(3,099)
Total Thermo Fisher Scientific Inc. shareholders' equity	<u>46,735</u>	<u>43,978</u>
Noncontrolling interests	(11)	54
Total equity	<u>46,724</u>	<u>44,032</u>
Total liabilities, redeemable noncontrolling interest and equity	<u>\$ 98,726</u>	<u>\$ 97,154</u>

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

THERMO FISHER SCIENTIFIC INC.

CONSOLIDATED STATEMENTS OF INCOME

(In millions except per share amounts)	Year Ended		
	December 31, 2023	December 31, 2022	December 31, 2021
Revenues			
Product revenues	\$ 25,243	\$ 28,548	\$ 30,361
Service revenues	17,614	16,367	8,850
Total revenues	42,857	44,915	39,211
Costs and operating expenses:			
Cost of product revenues	13,168	14,247	13,594
Cost of service revenues	12,589	11,697	5,979
Selling, general and administrative expenses	8,445	8,993	8,007
Research and development expenses	1,337	1,471	1,406
Restructuring and other costs	459	114	197
Total costs and operating expenses	35,998	36,522	29,183
Operating income	6,859	8,393	10,028
Interest income	879	272	43
Interest expense	(1,375)	(726)	(536)
Other income/(expense)	(65)	(104)	(694)
Income before income taxes	6,298	7,835	8,841
Provision for income taxes	(284)	(703)	(1,109)
Equity in earnings/(losses) of unconsolidated entities	(59)	(172)	(4)
Net income	5,955	6,960	7,728
Less: net (losses) income attributable to noncontrolling interests and redeemable noncontrolling interest	(40)	10	3
Net income attributable to Thermo Fisher Scientific Inc.	\$ 5,995	\$ 6,950	\$ 7,725
Earnings per share attributable to Thermo Fisher Scientific Inc.			
Basic	\$ 15.52	\$ 17.75	\$ 19.62
Diluted	\$ 15.45	\$ 17.63	\$ 19.46
Weighted average shares			
Basic	386	392	394
Diluted	388	394	397

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

THERMO FISHER SCIENTIFIC INC.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(In millions)	Year Ended		
	December 31, 2023	December 31, 2022	December 31, 2021
Comprehensive income			
Net income	\$ 5,955	\$ 6,960	\$ 7,728
Other comprehensive income/(loss):			
Currency translation adjustment:			
Currency translation adjustment (net of tax provision (benefit) of \$(134), \$173 and \$231)	(69)	(822)	373
Unrealized gains and losses on hedging instruments:			
Reclassification adjustment for losses included in net income (net of tax benefit of \$2, \$1 and \$17)	5	2	56
Pension and other postretirement benefit liability adjustments:			
Pension and other postretirement benefit liability adjustments arising during the period (net of tax provision (benefit) of \$(22), \$9 and \$11)	(69)	38	36
Amortization of net loss and prior service benefit included in net periodic pension cost (net of tax benefit of \$1, \$3 and \$6)	—	5	13
Total other comprehensive income/(loss)	<u>(133)</u>	<u>(777)</u>	<u>478</u>
Comprehensive income			
Less: comprehensive income/(loss) attributable to noncontrolling interests and redeemable noncontrolling interest	(48)	3	2
Comprehensive income attributable to Thermo Fisher Scientific Inc.			
	<u>\$ 5,870</u>	<u>\$ 6,180</u>	<u>\$ 8,204</u>

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

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CONSOLIDATED STATEMENTS OF CASH FLOWS

(In millions)	Year Ended		
	December 31, 2023	December 31, 2022	December 31, 2021
Operating activities			
Net income	\$ 5,955	\$ 6,960	\$ 7,728
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation of property, plant and equipment	1,068	986	831
Amortization of acquisition-related intangible assets	2,338	2,395	1,761
Change in deferred income taxes	(1,300)	(995)	(647)
Stock-based compensation	278	307	230
Loss on early extinguishment of debt	—	26	767
Other non-cash expenses	604	524	190
Changes in assets and liabilities, excluding the effects of acquisitions:			
Accounts receivable	(43)	(430)	(204)
Inventories	598	(825)	(1,065)
Contract assets/liabilities	252	(354)	221
Accounts payable	(500)	648	479
Contributions to retirement plans	(42)	(41)	(34)
Other	(802)	(47)	(945)
Net cash provided by operating activities	8,406	9,154	9,312
Investing activities			
Acquisitions, net of cash acquired	(3,660)	(39)	(19,395)
Purchase of property, plant and equipment	(1,479)	(2,243)	(2,523)
Proceeds from sale of property, plant and equipment	87	24	20
Proceeds from cross-currency interest rate swap interest settlements	70	15	8
Other investing activities, net	(160)	84	(42)
Net cash used in investing activities	(5,142)	(2,159)	(21,932)
Financing activities			
Net proceeds from issuance of debt	5,942	3,193	18,137
Repayment of debt	(5,782)	(375)	(11,738)
Proceeds from issuance of commercial paper	1,620	1,526	2,512
Repayments of commercial paper	(1,935)	(3,690)	—
Purchases of company common stock	(3,000)	(3,000)	(2,000)
Dividends paid	(523)	(455)	(395)
Other financing activities, net	56	(9)	65
Net cash (used in) provided by financing activities	(3,622)	(2,810)	6,581
Exchange rate effect on cash	(82)	(139)	194
(Decrease) increase in cash, cash equivalents and restricted cash	(440)	4,046	(5,845)
Cash, cash equivalents and restricted cash at beginning of year	8,537	4,491	10,336
Cash, cash equivalents and restricted cash at end of year	\$ 8,097	\$ 8,537	\$ 4,491

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

THERMO FISHER SCIENTIFIC INC.

CONSOLIDATED STATEMENTS OF REDEEMABLE NONCONTROLLING INTEREST AND EQUITY

(In millions)	Redeemable Noncontrolling Interest							Accumulated Other Comprehensive Items	Thermo Fisher Scientific Inc. Shareholders' Equity	Total Noncontrolling Interests	Total Equity
		Common Stock	Capital in Excess of Par Value	Retained Earnings	Treasury Stock	Shares	Amount				
Balance at December 31, 2020	\$ —	437	\$ 437	\$ 15,579	\$ 28,116	40	\$ (6,818)	\$ (2,807)	\$ 34,507	\$ 10	\$ 34,517
Issuance of shares under stock plans	—	2	2	324	—	1	(104)	—	222	—	222
Stock-based compensation	—	—	—	230	—	—	—	—	230	—	230
Purchases of company common stock	—	—	—	—	—	4	(2,000)	—	(2,000)	—	(2,000)
Dividends declared (\$1.04 per share)	—	—	—	—	(410)	—	—	—	(410)	—	(410)
Recognition upon acquisition	122	—	—	—	—	—	—	—	—	—	—
Net income/(loss)	1	—	—	—	7,725	—	—	—	7,725	2	7,727
Other comprehensive income/(loss)	(1)	—	—	—	—	—	—	478	478	—	478
Contributions from (distributions to) noncontrolling interests	—	—	—	—	—	—	—	—	—	50	50
Other	—	—	—	41	—	—	—	—	41	—	41
Balance at December 31, 2021	122	439	439	16,174	35,431	45	(8,922)	(2,329)	40,793	62	40,855
Issuance of shares under stock plans	—	2	2	262	—	—	(95)	—	169	—	169
Stock-based compensation	—	—	—	307	—	—	—	—	307	—	307
Purchases of company common stock	—	—	—	—	—	5	(3,000)	—	(3,000)	—	(3,000)
Dividends declared (\$1.20 per share)	—	—	—	—	(471)	—	—	—	(471)	—	(471)
Net income/(loss)	15	—	—	—	6,950	—	—	—	6,950	(5)	6,945
Other comprehensive income/(loss)	(6)	—	—	—	—	—	—	(770)	(770)	(1)	(771)
Contributions from (distributions to) noncontrolling interests	(15)	—	—	—	—	—	—	—	—	(2)	(2)
Balance at December 31, 2022	116	441	441	16,743	41,910	50	(12,017)	(3,099)	43,978	54	44,032
Issuance of shares under stock plans	—	1	1	265	—	1	(88)	—	178	—	178
Stock-based compensation	—	—	—	278	—	—	—	—	278	—	278
Purchases of company common stock	—	—	—	—	—	5	(3,000)	—	(3,000)	—	(3,000)
Dividends declared (\$1.40 per share)	—	—	—	—	(541)	—	—	—	(541)	—	(541)
Net income/(loss)	19	—	—	—	5,995	—	—	—	5,995	(59)	5,936
Other comprehensive income/(loss)	(3)	—	—	—	—	—	—	(125)	(125)	(5)	(130)
Contributions from (distributions to) noncontrolling interests	(14)	—	—	—	—	—	—	—	—	(1)	(1)
Excise tax from stock repurchases	—	—	—	—	—	—	(28)	—	(28)	—	(28)
Balance at December 31, 2023	\$ 118	442	\$ 442	\$ 17,286	\$ 47,364	56	\$ (15,133)	\$ (3,224)	\$ 46,735	\$ (11)	\$ 46,724

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

THERMO FISHER SCIENTIFIC INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 1. Nature of Operations and Summary of Significant Accounting Policies

Nature of Operations

Thermo Fisher Scientific Inc. (the company or Thermo Fisher) enables customers to make the world healthier, cleaner and safer by helping them accelerate life sciences research, solve complex analytical challenges, increase laboratory productivity, and improve patient health through diagnostics and the development and manufacture of life-changing therapies. Markets served include pharmaceutical and biotech, academic and government, industrial and applied, as well as healthcare and diagnostics.

Principles of Consolidation

The accompanying financial statements include the accounts of the company and its wholly and majority-owned subsidiaries. All material intercompany accounts and transactions have been eliminated. The company accounts for investments in businesses using the equity method when it has the ability to exercise significant influence but not control (generally between 20% and 50% ownership), is not the primary beneficiary and has not elected the fair value option. At December 31, 2023 and 2022, the company had such investments with carrying amounts of \$489 million and \$369 million, respectively. The company has elected the fair value option of accounting for certain of its investments with readily determinable fair values that would otherwise be accounted for under the equity method. At December 31, 2023 and 2022, the fair value of such investments was \$5 million and \$7 million, respectively.

Redeemable Noncontrolling Interest

The company owns 60% of its consolidated subsidiary PPD-SNBL K.K. The 40% ownership interest held by a third party is classified as a redeemable noncontrolling interest on the consolidated balance sheet due to certain put options under which the third party may require the company to purchase the remaining ownership interest at a premium upon the occurrence of certain events.

Presentation

Certain reclassifications of prior year amounts have been made to conform to the current year presentation.

Revenue Recognition

Consumables revenues consist of single-use products and are recognized at a point in time following the transfer of control of such products to the customer, which generally occurs upon shipment. Instruments revenues typically consist of longer-lived assets that, for the substantial majority of sales, are recognized at a point in time in a manner similar to consumables. Service revenues (primarily clinical research, pharmaceutical, and instrument and enterprise services) are recognized over time as customers receive and consume the benefits of such services. For revenues recognized over time, the company generally uses costs accumulated relative to total estimated costs to measure progress as this method approximates satisfaction of the performance obligation. For contracts that contain multiple performance obligations, the company allocates the consideration to which it expects to be entitled (i.e., the transaction price) to each performance obligation based on relative standalone selling prices and recognizes the related revenues when or as control of each individual performance obligation is transferred to customers. The company exercises judgment in determining the timing of revenue by analyzing the point in time or the period over which the customer has the ability to direct the use of and obtain substantially all of the remaining benefits of the asset. The company immediately expenses contract costs that would otherwise be capitalized and amortized over a period of less than one year.

Changes to the scope of services contracts generally also include changes in the transaction price. Typically, these contract modifications are not distinct from existing services provided under the contract, and result in cumulative adjustments to revenue on the modification date. However, some modifications are distinct from existing services provided under the contract and recognized prospectively.

Payments from customers for most instruments and consumables are typically due in a fixed number of days after shipment or delivery of the product. Service arrangements commonly call for payments in advance of performing the work (e.g., extended service contracts), upon completion of the service (e.g., pharmaceutical services) or a mix of both. Some arrangements include variable amounts of consideration that arise from discounts, rebates, and other programs and practices. In such arrangements, the company estimates the amount by which to reduce the stated contract amount to reflect the transaction price. The company records reimbursement for third-party pass-through and out-of-pocket costs as revenues and the related expenses as costs of revenues.

THERMO FISHER SCIENTIFIC INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Contract-related Balances

Accounts receivable include unconditional rights to consideration from customers, which generally represent billings that do not bear interest. The company maintains allowances for doubtful accounts for estimates of expected losses resulting from the inability of its customers to pay amounts due. The allowance for doubtful accounts is the company's best estimate of the amount of probable credit losses in existing accounts receivable. The company determines the allowance based on history of similarly aged receivables, the creditworthiness of the customer, reasons for delinquency, current economic conditions, expectations associated with future events and circumstances where reasonable and supportable forecasts are available and any other information that is relevant to the judgment. Receivables from academic and government customers as well as large, well-capitalized commercial customers have historically experienced less collectability risk. Account balances are charged off against the allowance when the company believes it is probable the receivable will not be recovered. The company does not have any off-balance-sheet credit exposure related to customers.

Contract assets include revenues recognized in advance of billings where the company's right to bill includes something other than the passage of time. Such amounts are recorded net of estimated losses resulting from the inability to invoice customers, which is primarily due to risk associated with the company's performance. Contract assets are classified as current or noncurrent based on the amount of time expected to lapse until the company's right to consideration becomes unconditional.

Contract liabilities include billings in excess of revenues recognized, such as those resulting from customer advances and deposits and unearned revenues on service contracts. Contract liabilities are classified as current or noncurrent based on the periods over which remaining performance obligations are expected to be transferred to customers. Contract assets and liabilities are presented on a net basis in the consolidated balance sheet if they arise from different performance obligations in the same contract.

Warranty Obligations

The company provides for the estimated cost of standard product warranties, primarily from historical information, in cost of product revenues at the time product revenues are recognized. The liability for warranties is included in other accrued expenses in the accompanying balance sheet. Extended warranty agreements are considered service contracts, which are discussed above. Costs of service contracts are recognized as incurred.

Leases

Operating leases that have commenced are included in other assets, other accrued expenses and other long-term liabilities in the consolidated balance sheet. Finance leases that have commenced are included in property, plant and equipment, net, current maturities of long-term obligations and long-term obligations in the consolidated balance sheet. Classification of lease liabilities as either current or noncurrent is based on the expected timing of payments due under the company's obligations.

Right-of-use (ROU) assets represent the company's right to use an underlying asset for the lease term and lease liabilities represent the company's obligation to make lease payments arising from the lease. Lease ROU assets and liabilities are recognized at the lease commencement date based on the present value of lease payments over the lease term. Leases with an initial term of 12 months or less are not recorded on the consolidated balance sheet. The company recognizes operating lease expense on a straight-line basis over the lease term. Finance lease expense includes depreciation, which is recognized on a straight-line basis over the expected life of the leased asset, and an immaterial amount of interest expense.

Because most of the company's leases do not provide an implicit interest rate, the company estimates incremental borrowing rates based on the information available at the commencement date in determining the present value of lease payments. The company uses the implicit rate when readily determinable. Lease terms include the effect of options to extend or terminate the lease when it is reasonably certain that the company will exercise that option.

As a lessee, the company accounts for the lease and non-lease components as a single lease component.

Research and Development

The company conducts research and development activities to increase its depth of capabilities in technologies, software and services. Research and development costs include employee compensation and benefits, consultants, facilities related costs, material costs, depreciation and travel. Research and development costs are expensed as incurred.

Restructuring Costs

Accounting for the timing and amount of termination benefits provided by the company to employees is determined based on whether: (a) the company has a substantive plan to provide such benefits, (b) the company has a written employment contract with the affected employees that includes a provision for such benefits, (c) the termination benefits are due to the occurrence of

THERMO FISHER SCIENTIFIC INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

an event specified in an existing plan or agreement, or (d) the termination benefits are a one-time benefit. In certain circumstances, employee termination benefits may meet more than one of the characteristics listed above and therefore, may have individual elements that are subject to different accounting models.

From time to time when executing a restructuring or exit plan, the company also incurs costs other than termination benefits, such as lease termination costs, that are not associated with or will not be incurred to provide economic benefits to the company. These include costs that represent amounts under contractual obligations that exist prior to the restructuring plan communication date and will either continue after the restructuring plan is completed with no economic benefit or result in a penalty to cancel a contractual obligation. Such costs are recognized when incurred, which generally occurs at the contract termination or over the period from when a plan to abandon a leased facility is approved through the cease-use date but charges may continue over the remainder of the original contractual period.

Income Taxes

The company recognizes deferred income taxes based on the expected future tax consequences of differences between the financial statement basis and the tax basis of assets and liabilities, calculated using enacted tax rates in effect for the year in which the differences are expected to be reflected in the tax return. A valuation allowance is provided for tax assets that will more likely than not go unused.

The financial statements reflect expected future tax consequences of uncertain tax positions that the company has taken or expects to take on a tax return presuming the taxing authorities' full knowledge of the positions and all relevant facts, but without discounting for the time value of money.

Earnings per Share

Basic earnings per share has been computed by dividing net income attributable to Thermo Fisher Scientific Inc. by the weighted average number of shares outstanding during the year. Except where the result would be antidilutive to net income attributable to Thermo Fisher Scientific Inc., diluted earnings per share has been computed using the treasury stock method for outstanding stock options and restricted units.

Cash and Cash Equivalents

Cash equivalents consists principally of money market funds, commercial paper and other marketable securities purchased with an original maturity of three months or less. These investments are carried at cost, which approximates market value.

Inventories

Inventories are valued at the lower of cost or net realizable value, cost being determined by the first-in, first-out (FIFO) method. As discussed below, prior to the third quarter of 2021 certain of the company's businesses utilized the last-in, first-out (LIFO) method. The company periodically reviews quantities of inventories on hand and compares these amounts to the expected use of each product or product line. In addition, the company has certain inventory that is subject to fluctuating market pricing. The company records a charge to cost of sales for the amount required to reduce the carrying value of inventory to net realizable value. Costs associated with the procurement of inventories, such as inbound freight charges, purchasing and receiving costs, and internal transfer costs, are included in cost of revenues in the accompanying statement of income. The components of inventories are as follows:

(In millions)	December 31, 2023	December 31, 2022
Raw materials	\$ 2,057	\$ 2,405
Work in process	705	660
Finished goods	2,326	2,569
Inventories	<u>\$ 5,088</u>	<u>\$ 5,634</u>

Prior to the third quarter of 2021, certain of the company's businesses utilized the LIFO method of accounting for inventories. During the third quarter of 2021, these businesses, which comprised approximately 5% of consolidated inventories, changed from the LIFO method to the FIFO method. The company believes this change is preferable as it will provide a consistent, uniform costing method for all inventories across the company, better reflect the current value of inventories, and improve comparability with peers. Prior financial statements have not been retrospectively adjusted due to immateriality. The cumulative pre-tax effect of this change in accounting principle of \$33 million was recorded as an increase to inventories and a decrease to cost of product revenues in the third quarter of 2021. This change was recorded in the Laboratory Products and Biopharma

THERMO FISHER SCIENTIFIC INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Services (\$20 million) and Specialty Diagnostics (\$13 million) segments. Reductions to cost of revenues as a result of the liquidation of LIFO inventories were nominal during the first half of 2021.

Property, Plant and Equipment

Property, plant and equipment are recorded at cost. The costs of additions and improvements are capitalized, while maintenance and repairs are charged to expense as incurred. The company generally provides for depreciation and amortization using the straight-line method over the estimated useful lives of the property as follows: buildings and improvements, 25 to 40 years; machinery and equipment (including software), 3 to 10 years; and leasehold improvements, the shorter of the term of the lease or the life of the asset. When assets are retired or otherwise disposed of, the assets and related accumulated depreciation are eliminated from the accounts and the resulting gain or loss is reflected in the accompanying statement of income. Property, plant and equipment consists of the following:

(In millions)	December 31, 2023	December 31, 2022
Land	\$ 458	\$ 454
Buildings and improvements	3,593	3,153
Machinery, equipment and leasehold improvements	9,235	7,967
Construction in progress	2,238	2,695
Property, plant and equipment, at cost	15,524	14,269
Less: Accumulated depreciation and amortization	6,076	4,989
Property, plant and equipment, net	<u>\$ 9,448</u>	<u>\$ 9,280</u>

Acquisition-related Intangible Assets

Acquisition-related intangible assets include the costs of acquired customer relationships, product technology, tradenames, backlog and other specifically identifiable intangible assets, and are being amortized using the straight-line method over their estimated useful lives, which range up to 20 years. The company reviews these intangible assets for impairment when indication of potential impairment exists, such as a significant reduction in cash flows associated with the assets. When impairment indicators exist, the company determines whether the carrying value of its intangible assets exceeds the related undiscounted cash flows. In these situations, the carrying value is written down to fair value.

In addition, the company has tradenames that have indefinite lives and which are not amortized. Intangible assets with indefinite lives are reviewed for impairment annually or whenever events or changes in circumstances indicate they may be impaired. The company may perform an optional qualitative assessment. If the company determines that the fair value of the indefinite-lived intangible asset is more likely than not greater than its carrying amount, no additional testing is necessary. If not, or if the company bypasses the optional qualitative assessment, it writes the carrying value down to the fair value, if applicable.

Acquisition-related intangible assets are as follows:

(In millions)	Balance at December 31, 2023			Balance at December 31, 2022		
	Gross	Accumulated Amortization	Net	Gross	Accumulated Amortization	Net
<i>Definite lived:</i>						
Customer relationships	\$ 22,762	\$ (9,410)	\$ 13,352	\$ 21,792	\$ (8,330)	\$ 13,462
Product technology	5,894	(4,591)	1,303	5,882	(4,360)	1,522
Tradenames	1,634	(1,079)	555	1,635	(1,008)	627
Backlog	1,084	(859)	225	1,038	(442)	596
	<u>31,374</u>	<u>(15,939)</u>	<u>15,435</u>	<u>30,347</u>	<u>(14,140)</u>	<u>16,207</u>
<i>Indefinite lived:</i>						
Tradenames	1,235	N/A	1,235	1,235	N/A	1,235
Acquisition-related intangible assets	<u>\$ 32,609</u>	<u>\$ (15,939)</u>	<u>\$ 16,670</u>	<u>\$ 31,582</u>	<u>\$ (14,140)</u>	<u>\$ 17,442</u>

THERMO FISHER SCIENTIFIC INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The estimated future amortization expense of acquisition-related intangible assets with definite lives as of December 31, 2023 is as follows:

(In millions)

2024	\$ 1,931
2025	1,630
2026	1,460
2027	1,430
2028	1,398
2029 and thereafter	7,586
Estimated future amortization expense of definite-lived intangible assets	\$ 15,435

Other Assets

Other assets in the accompanying balance sheet include operating lease right-of-use assets, investments, deferred tax assets, pension assets, insurance recovery receivables related to product liability matters, certain intangible assets and other assets.

At December 31, 2023 and 2022, the company had \$37 million and \$36 million, respectively, of intangible assets not derived from acquisitions, net of accumulated amortization, which are being amortized using the straight-line method over their estimated useful lives, which range up to 20 years.

Equity investments that do not have readily determinable fair values and are not eligible for the net asset value (NAV) practical expedient are measured at cost minus impairment, if any, plus or minus changes resulting from observable price changes in orderly transactions for the identical or similar investments of the same issuer. The company performs qualitative assessments to identify impairments of these investments. At December 31, 2023 and 2022, the company had such investments with carrying amounts of \$12 million and \$55 million, respectively, and investments measured at NAV of \$28 million and \$22 million, respectively, which are included in other assets.

Goodwill

The company assesses goodwill for impairment at the reporting unit level annually and whenever events occur or circumstances change that would more likely than not reduce the fair value of a reporting unit below its carrying amount. Such events or circumstances generally include the occurrence of operating losses or a significant decline in earnings associated with one or more of the company's reporting units. The company is permitted to first assess qualitative factors to determine whether the quantitative goodwill impairment test is necessary. If the qualitative assessment results in a determination that the fair value of a reporting unit is more likely than not less than its carrying amount, the company performs a quantitative goodwill impairment test. The company may bypass the qualitative assessment for the reporting unit in any period and proceed directly to the goodwill impairment test. The company estimates the fair value of its reporting units by using forecasts of discounted future cash flows and peer market multiples. The company would record an impairment charge based on the excess of a reporting unit's carrying amount over its fair value (limited to the amount of goodwill). The company determined that no impairments existed in 2023, 2022 or 2021.

The changes in the carrying amount of goodwill by segment are as follows:

(In millions)	Life Sciences Solutions	Analytical Instruments	Specialty Diagnostics	Laboratory Products and Biopharma Services	Total
Balance at December 31, 2021	\$ 10,143	\$ 5,043	\$ 3,277	\$ 23,461	\$ 41,924
Acquisitions	—	24	—	—	24
Finalization of purchase price allocations for 2021 acquisitions	9	—	—	168	177
Currency translation	(6)	(102)	(186)	(635)	(929)
Balance at December 31, 2022	10,146	4,965	3,091	22,994	41,196
Acquisitions	—	31	1,741	627	2,399
Currency translation	5	55	91	274	425
Balance at December 31, 2023	\$ 10,151	\$ 5,051	\$ 4,923	\$ 23,895	\$ 44,020

THERMO FISHER SCIENTIFIC INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Loss Contingencies

Accruals are recorded for various contingencies, including legal proceedings, environmental, workers' compensation, product, general and auto liabilities, self-insurance and other claims that arise in the normal course of business. The accruals are based on management's judgment, historical claims experience, the probability of losses and, where applicable, the consideration of opinions of internal and/or external legal counsel and actuarial estimates. Additionally, the company records receivables from third-party insurers up to the amount of the loss when recovery has been determined to be probable. Certain liabilities acquired in acquisitions have been recorded at readily determinable fair values and, as such, were discounted to present value at the dates of acquisition.

Currency Translation

All assets and liabilities of the company's subsidiaries operating in non-U.S. dollar currencies are translated at period-end exchange rates. Resulting translation adjustments are reflected in the "accumulated other comprehensive items" component of shareholders' equity. Revenues and expenses are translated at average exchange rates for the period. Currency transaction gains/(losses) are included in the accompanying statement of income and in aggregate were \$(67) million, \$62 million and \$25 million in 2023, 2022 and 2021, respectively.

Derivative Contracts

The company is exposed to certain risks relating to its ongoing business operations including changes to interest rates and currency exchange rates. The company uses derivative instruments primarily to manage currency exchange and interest rate risks. The company recognizes derivative instruments as either assets or liabilities and measures those instruments at fair value. If a derivative is a hedge, depending on the nature of the hedge, changes in the fair value of the derivative are either offset against the change in fair value of the hedged item through earnings or recognized in other comprehensive items until the hedged item is recognized in earnings. Derivatives that are not designated as hedges are recorded at fair value through earnings.

The company uses short-term forward and option currency exchange contracts primarily to hedge certain balance sheet and operational exposures resulting from changes in currency exchange rates, predominantly intercompany loans and cash balances that are denominated in currencies other than the functional currencies of the respective operations. The currency-exchange contracts principally hedge transactions denominated in euro, British pounds sterling, Canadian dollars, Singapore dollars, Czech koruna, Hong Kong dollars and Swedish krona. The company does not hold or engage in transactions involving derivative instruments for purposes other than risk management.

Cash flow hedges. For derivative instruments that are designated and qualify as a cash flow hedge, the gain or loss on the derivative is reported as a component of other comprehensive items and reclassified into earnings in the same period or periods during which the hedged transaction affects earnings and is presented in the same income statement line item as the earnings effect of the hedged item.

Fair value hedges. For derivative instruments that are designated and qualify as a fair value hedge, the gain or loss on the derivative, as well as the offsetting loss or gain on the hedged item attributable to the hedged risk, are recognized in earnings.

Net investment hedges. The company uses foreign currency-denominated debt, certain foreign currency-denominated payables, and cross-currency interest rate swaps to partially hedge its net investments in foreign operations against adverse movements in exchange rates. A portion of the company's euro-denominated senior notes, certain foreign currency-denominated payables, and its cross-currency interest rate swaps have been designated as, and are effective as, economic hedges of part of the net investment in a foreign operation. Accordingly, foreign currency transaction gains or losses due to spot rate fluctuations on the euro-denominated debt instruments and certain foreign currency-denominated payables, and contract fair value changes on the cross-currency interest rate swaps, excluding interest accruals, are included in currency translation adjustment within other comprehensive items and shareholders' equity.

Government Assistance

From time to time, the company receives assistance from various governmental agencies generally in the form of cash or non-income tax credits. These programs help offset the costs of certain research and development activities, facility construction and expansion efforts, or hiring objectives. When the company believes that it is probable that it will meet the conditions tied to the assistance, it offsets the associated expense in the consolidated income statement. Such amounts were not material to the consolidated financial statements as of and for the years ended December 31, 2023 and 2022.

THERMO FISHER SCIENTIFIC INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Use of Estimates

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period.

The company's estimates include, among others, asset reserve requirements as well as the amounts of future cash flows associated with certain assets and businesses that are used in assessing the risk of impairment. Actual results could differ from those estimates.

Recent Accounting Pronouncements

The following table provides a description of recent accounting pronouncements adopted and those standards not yet adopted with potential for a material impact on the company's financial statements or disclosures.

Standard	Description	Effective date for Thermo Fisher and adoption approach	Impact of adoption or other significant matters
Standards recently adopted			
Accounting Standards Update (ASU) No. 2021-05, <i>Leases (Topic 842): Lessors-Certain Leases with Variable Lease Payments</i>	Amended guidance to require lessors to classify leases as operating leases if they have certain variable lease payment structures and would have selling losses if they were classified as sales-type or direct financing leases.	Third quarter of 2021 using a prospective method	Not material
ASU No. 2021-10, <i>Government Assistance (Topic 832): Disclosures by Business Entities about Government Assistance</i>	New guidance to disclose information about certain types of government assistance they receive, including cash grants and tax credits. Among other things, the new guidance requires expanded disclosure regarding the qualitative and quantitative characteristics of the nature, amount, timing, and significant terms and conditions of transactions with a government arising from a grant or other forms of assistance accounted for under a contribution model.	Fourth quarter of 2022 using a prospective method	Not material
ASU No. 2022-04, <i>Liabilities-Supplier Finance Programs (Subtopic 405-50): Disclosure of Supplier Finance Program Obligations</i>	New guidance to disclose information about supplier finance programs. Among other things, the new guidance requires expanded disclosure about key program terms, payment terms, and amounts outstanding for obligations under supplier finance programs for each period presented.	Some aspects adopted in 2023 using a retrospective method and will adopt other aspects in 2024 using a prospective method	Not material
Standards not yet adopted			
ASU No. 2023-07, <i>Segment Reporting (Topic 280): Improving Reportable Segment Disclosures</i>	Among other things, new guidance to disclose significant segment expenses and other items by reportable segment as well as information about the chief operating decision maker.	2024 annual report and interim periods thereafter using a retrospective method	Will increase disclosures in Note 4
ASU No. 2023-09, <i>Income Taxes (Topic 740): Improvements to Income Tax Disclosures</i>	Among other things, new guidance to disclose additional information about the tax rate reconciliation and income taxes paid.	2025 annual report and interim periods thereafter using a prospective or retrospective method	Will increase disclosures in Note 8

Note 2. Acquisitions

The company's acquisitions have historically been made at prices above the determined fair value of the acquired identifiable net assets, resulting in goodwill, primarily due to expectations of the synergies that will be realized by combining the businesses and the benefits that will be gained from the assembled workforces. These synergies include the elimination of redundant facilities, functions and staffing; use of the company's existing commercial infrastructure to expand sales of the acquired businesses' products and services; and use of the commercial infrastructure of the acquired businesses to cost-effectively expand sales of company products and services.

THERMO FISHER SCIENTIFIC INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Acquisitions have been accounted for using the acquisition method of accounting, and the acquired companies' results have been included in the accompanying financial statements from their respective dates of acquisition. Acquisition transaction costs are recorded in selling, general and administrative expenses as incurred.

2023

On January 3, 2023, the company acquired, within the Specialty Diagnostics segment, The Binding Site Group, a U.K.-based provider of specialty diagnostic assays and instruments to improve the diagnosis and management of blood cancers and immune system disorders. The acquisition expands the segment's portfolio with the addition of pioneering innovation in diagnostics and monitoring for multiple myeloma. The goodwill recorded as a result of this business combination is not tax deductible.

On August 14, 2023, the company acquired, within the Laboratory Products and Biopharma Services segment, CorEvitas, LLC, a U.S.-based provider of regulatory-grade, real-world evidence for approved medical treatments and therapies. The acquisition expands the segment's portfolio with the addition of highly complementary real-world evidence solutions to enhance decision-making as well as the time and cost of drug development. The goodwill recorded as a result of this business combination is not tax deductible.

The components of the purchase price and net assets acquired are as follows:

(In millions)	The Binding Site	CorEvitas	
Purchase price			
Cash paid	\$ 2,412	\$ 730	
Debt settled	307	184	
Cash acquired	(20)	(4)	
	<u>\$ 2,699</u>	<u>\$ 910</u>	
Net assets acquired			
Definite-lived intangible assets			
Customer relationships	\$ 868	\$ 260	
Product technology	162	47	
Tradenames	42	—	
Backlog	—	46	
Goodwill	1,741	627	
Net tangible assets	174	(2)	
Deferred tax assets (liabilities)	(288)	(68)	
	<u>\$ 2,699</u>	<u>\$ 910</u>	

In addition, in 2023, the company acquired, within the Analytical Instruments segment, a U.S.-based developer of Raman-based spectroscopy solutions for inline measurement.

The weighted-average amortization periods for definite-lived intangible assets acquired in 2023 are 18 years for customer relationships, 14 years for product technology, 15 years for tradenames, and 13 years for backlog. The weighted-average amortization period for definite-lived intangible assets acquired in 2023 is 17 years.

Proposed Acquisition

On October 17, 2023, the company entered into a purchase agreement to acquire all of the issued and outstanding shares of Olink Holding AB (publ) at a price of \$26.00 per share, or approximately \$3.1 billion. Olink is a leading provider of next-generation proteomics solutions that will expand the company's capabilities in this field. The company has commenced a tender offer to acquire all of the American Depository Shares and common shares of Olink. The transaction is expected to close by mid-year 2024, subject to the satisfaction of customary closing conditions including receipt of applicable regulatory approvals, and completion of the tender offer. Upon completion, Olink will become part of the Life Sciences Solutions segment. The company intends to finance the purchase price with cash on hand and the net proceeds from issuances of debt.

2022

In 2022, the company acquired, within the Analytical Instruments segment, a U.S.-based developer of Fourier-transform infrared gas analysis technologies.

THERMO FISHER SCIENTIFIC INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

2021

On January 15, 2021, the company acquired, within the Laboratory Products and Biopharma Services segment, the Belgium-based European viral vector manufacturing business of Groupe Novasep SAS. The European viral vector manufacturing business provides manufacturing services for vaccines and therapies to biotechnology companies and large biopharma customers. The acquisition expands the segment's capabilities for cell and gene vaccines and therapies. The goodwill recorded as a result of this business combination is not tax deductible.

On February 25, 2021, the company acquired, within the Life Sciences Solutions segment, Mesa Biotech, Inc., a U.S.-based molecular diagnostic company. Mesa Biotech has developed and commercialized a polymerase chain reaction (PCR) based rapid point-of-care testing platform available for detecting infectious diseases including COVID-19. The acquisition enables the company to accelerate the availability of reliable and accurate advanced molecular diagnostics at the point of care. The goodwill recorded as a result of this business combination is not tax deductible.

On September 30, 2021, the company assumed operating responsibility, within the Laboratory Products and Biopharma Services segment, of a new state-of-the-art biologics manufacturing facility in Lengnau, Switzerland from CSL Limited to perform pharma services for CSL with capacity to serve other customers as well. The goodwill recorded as a result of this business combination is not tax deductible.

On December 8, 2021, the company acquired, within the Laboratory Products and Biopharma Services segment, PPD, Inc., a U.S.-based global provider of clinical research services to the pharma and biotech industry. The addition of PPD's clinical research services enhances our offering to biotech and pharma customers by enabling them to accelerate innovation and increase their productivity within the drug development process. The goodwill recorded as a result of this business combination is not tax deductible.

On December 30, 2021, the company acquired, within the Life Sciences Solutions segment, PeproTech, Inc., a U.S.-based developer and manufacturer of recombinant proteins. PeproTech provides bioscience reagents known as recombinant proteins, including cytokines and growth factors. The acquisition expands the segment's bioscience offerings. The goodwill recorded as a result of this business combination is not tax deductible.

In addition, in 2021, the company acquired, within the Life Sciences Solutions segment, cell sorting technology assets, an Ireland-based life sciences distributor and a developer of a digital PCR platform; within the Analytical Instruments segment, a Belgium-based developer of micro-chip based technology for liquid chromatography columns; and within the Specialty Diagnostics segment, a transplant diagnostics information system provider.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The components of the purchase price and net assets acquired for 2021 acquisitions are as follows:

(In millions)	PPD	PeproTech	European Viral Vector Business	Mesa Biotech	Lengnau biologics manufacturing facility	Other
Purchase price						
Cash paid	\$ 17,237	\$ 1,946	\$ 848	\$ 421	\$ 17	\$ 298
Fair value of equity awards exchanged	43	—	—	—	—	—
Fair value of contingent consideration	—	—	—	65	1	117
Cash acquired	(1,244)	(83)	(18)	(14)	—	(12)
	\$ 16,036	\$ 1,863	\$ 830	\$ 472	\$ 18	\$ 403
Net assets acquired						
Current assets	\$ 2,477	\$ 58	\$ 39	\$ 54	\$ —	\$ 12
Property, plant and equipment	527	18	59	2	93	2
Definite-lived intangible assets:						
Customer relationships	6,257	510	302	—	—	2
Product technology	—	282	25	279	—	224
Tradenames	594	—	—	2	—	2
Backlog	1,038	—	—	—	—	—
Goodwill	13,949	1,198	600	237	18	198
Other assets	1,060	11	3	3	364	2
Contract liabilities	(1,539)	—	(59)	—	—	(1)
Deferred tax assets (liabilities)	(1,782)	(192)	(80)	(72)	—	(27)
Finance lease liabilities	(90)	—	(24)	—	(82)	—
Debt assumed	(4,299)	—	—	—	—	—
Other liabilities assumed	(2,034)	(22)	(35)	(33)	(375)	(11)
Redeemable noncontrolling interest	(122)	—	—	—	—	—
	\$ 16,036	\$ 1,863	\$ 830	\$ 472	\$ 18	\$ 403

During 2022, we finalized the allocations of the purchase price for the Lengnau biologics manufacturing facility, PPD, Inc. and PeproTech, Inc., largely with respect to definite-lived intangible assets, property, plant and equipment, contract liabilities, equity method investments, asset retirement obligations, defined benefit pension plans, assumed contingent consideration and the related deferred taxes. The adjustments to the income statement recorded during 2022 were not material.

The weighted-average amortization periods for definite-lived intangible assets acquired in 2021 are 17 years for customer relationships, 11 years for product technology, 7 years for tradenames and 3 years for backlog. The weighted average amortization period for all definite-lived intangible assets acquired in 2021 is 14 years.

Unaudited Pro Forma Information

The following unaudited pro forma information provides the effect of the company's 2021 acquisition of PPD as if the acquisition had occurred on January 1, 2020:

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(In millions)	Year Ended December 31,	
	2021	2021
Revenues	\$ 44,886	
Net income attributable to Thermo Fisher Scientific Inc.	\$ 7,369	

The historical consolidated financial information of the company and PPD has been adjusted in the pro forma information to give effect to pro forma events that are directly attributable to the acquisitions and related financing arrangements and are factually supportable.

To reflect the acquisition of PPD as if it had occurred on January 1, 2020, the unaudited pro forma results include adjustments to reflect, among other things, the incremental intangible asset amortization to be incurred based on the values of each identifiable intangible asset and the interest expense from debt financings obtained to partially fund the cash consideration transferred. Pro forma adjustments were tax effected at the company's historical statutory rates in effect for the respective periods. The unaudited pro forma amounts are not necessarily indicative of the combined results of operations that would have been realized had the acquisitions and related financings occurred on the aforementioned dates nor are they meant to be indicative of any anticipated combined results of operations that the company will experience after the transaction. In addition, the amounts do not include any adjustments for actions that may be taken following the completion of the transaction, such as expected cost savings, operating synergies, or revenue enhancements that may be realized subsequent to the transaction.

Pro forma net income attributable to Thermo Fisher Scientific Inc. for the year ended December 31, 2021, excludes \$312 million of transaction costs, initial restructuring costs, and debt extinguishment costs directly attributable to the PPD acquisition that were included in the determination of net income attributable to Thermo Fisher Scientific Inc. for that period.

The company's results would not have been materially different from its pro forma results had the company's other 2021 acquisitions occurred at the beginning of 2020.

PPD's revenues and losses attributable to Thermo Fisher Scientific Inc. in 2021, subsequent to the acquisition date, were \$378 million and \$(60) million, respectively. The loss includes non-recurring transaction and compensation costs.

Note 3. Revenues and Contract-related Balances

Disaggregated Revenues

Revenues by type are as follows:

(In millions)	2023	2022	2021
Revenues			
Consumables	\$ 17,597	\$ 20,624	\$ 22,608
Instruments	7,646	7,924	7,753
Services	17,614	16,367	8,850
Consolidated revenues	\$ 42,857	\$ 44,915	\$ 39,211

Revenues by geographic region based on customer location are as follows:

(In millions)	2023	2022	2021
Revenues			
North America	\$ 22,764	\$ 24,594	\$ 19,659
Europe	10,741	10,762	11,134
Asia-Pacific	7,873	8,115	7,218
Other regions	1,479	1,444	1,200
Consolidated revenues	\$ 42,857	\$ 44,915	\$ 39,211

Each reportable segment earns revenues from consumables, instruments and services in North America, Europe, Asia-Pacific and other regions. See Note 4 for revenues by reportable segment and other geographic data.

THERMO FISHER SCIENTIFIC INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Remaining Performance Obligations

The aggregate amount of the transaction price allocated to the remaining performance obligations for all open customer contracts as of December 31, 2023 was \$26.92 billion. The company will recognize revenues for these performance obligations as they are satisfied, approximately 53% of which is expected to occur within the next twelve months. Amounts expected to occur thereafter generally relate to contract manufacturing, clinical research and extended warranty service agreements, which typically have durations of three to five years.

Contract-related Balances

Noncurrent contract assets and noncurrent contract liabilities are included within other assets and other long-term liabilities in the accompanying balance sheet, respectively. Contract asset and liability balances are as follows:

(In millions)	December 31, 2023	December 31, 2022
Current contract assets, net	\$ 1,443	\$ 1,312
Noncurrent contract assets, net	4	7
Current contract liabilities	2,689	2,601
Noncurrent contract liabilities	1,499	1,179

Substantially all of the current contract liabilities balance at December 31, 2022 and 2021 was recognized in revenues during 2023 and 2022, respectively. Noncurrent contract liabilities increased during 2023 primarily due to advanced payments from a customer.

Note 4. Business Segment and Geographical Information

The company's financial performance is reported in four segments. A description of each segment follows.

Life Sciences Solutions: provides an extensive portfolio of reagents, instruments and consumables used in biological and medical research, discovery and production of new drugs and vaccines as well as diagnosis of infection and disease. These products and services are used by customers in pharmaceutical, biotechnology, agricultural, clinical, healthcare, academic, and government markets.

Analytical Instruments: provides a broad offering of instruments and the supporting consumables, software and services that are used for a range of applications in the laboratory and in the field. These products and services are used by customers in pharmaceutical, biotechnology, academic, government, environmental and other research and industrial markets, as well as the clinical laboratory.

Specialty Diagnostics: offers a wide range of diagnostic test kits, reagents, culture media, instruments and associated products to serve customers in healthcare, clinical, pharmaceutical, industrial, and food safety laboratories. Our healthcare products are used to increase the speed and accuracy of diagnoses, which improves patient care in a more cost-efficient manner.

Laboratory Products and Biopharma Services: offers virtually everything needed for the laboratory. Our unique combination of self-manufactured and sourced products and extensive service offering enables our customers to focus on their core activities and helps them to be more innovative, productive and cost-efficient. The segment also includes a comprehensive offering of outsourced services used by the pharmaceutical and biotech industries for drug development, clinical research, clinical trials services and commercial drug manufacturing.

The company's management evaluates segment operating performance based on operating income before certain charges/credits to cost of revenues and selling, general and administrative expenses, principally associated with acquisition accounting; restructuring and other costs/income including costs arising from facility consolidations such as severance and abandoned lease expense and gains and losses from the sale of real estate and product lines as well as from significant litigation-related matters; and amortization of acquisition-related intangible assets. The company uses this measure because it helps management understand and evaluate the segments' core operating results and facilitates comparison of performance for determining compensation.

THERMO FISHER SCIENTIFIC INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Business Segment Information

(In millions)

	2023	2022	2021
Revenues			
Life Sciences Solutions	\$ 9,977	\$ 13,532	\$ 15,631
Analytical Instruments	7,263	6,624	6,069
Specialty Diagnostics	4,405	4,763	5,659
Laboratory Products and Biopharma Services	23,041	22,511	14,862
Eliminations	(1,829)	(2,515)	(3,010)
Consolidated revenues	<u>42,857</u>	<u>44,915</u>	<u>39,211</u>
Segment Income			
Life Sciences Solutions	3,420	5,582	7,817
Analytical Instruments	1,908	1,507	1,197
Specialty Diagnostics	1,124	1,024	1,280
Laboratory Products and Biopharma Services	3,358	2,872	1,844
Subtotal reportable segments	<u>9,810</u>	<u>10,985</u>	<u>12,138</u>
Cost of revenues adjustments	(95)	(46)	(8)
Selling, general and administrative expenses adjustments	(59)	(37)	(144)
Restructuring and other costs	(459)	(114)	(197)
Amortization of acquisition-related intangible assets	(2,338)	(2,395)	(1,761)
Consolidated operating income	<u>6,859</u>	<u>8,393</u>	<u>10,028</u>
Interest income	879	272	43
Interest expense	(1,375)	(726)	(536)
Other income/(expense)	(65)	(104)	(694)
Consolidated income before taxes	<u>\$ 6,298</u>	<u>\$ 7,835</u>	<u>\$ 8,841</u>
Depreciation			
Life Sciences Solutions	\$ 220	\$ 214	\$ 197
Analytical Instruments	93	83	83
Specialty Diagnostics	86	75	128
Laboratory Products and Biopharma Services	669	614	423
Consolidated depreciation	<u>\$ 1,068</u>	<u>\$ 986</u>	<u>\$ 831</u>

Cost of revenues charges included in the above table consist of charges for the sale of inventories revalued at the date of acquisition, inventory write-downs associated with large-scale abandonments of product lines, and accelerated depreciation on fixed assets to estimated salvage value in connection with the consolidation of operations. Selling, general and administrative charges/credits included in the above table consist of significant transaction/integration costs (including reimbursement thereof) related to recent/terminated acquisitions, charges/credits for changes in estimates of contingent acquisition consideration, and charges related to product liability litigation.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(In millions)	2023	2022	2021
Total assets			
Life Sciences Solutions	\$ 20,191	\$ 21,848	\$ 22,751
Analytical Instruments	10,247	10,019	9,692
Specialty Diagnostics	8,636	5,542	6,010
Laboratory Products and Biopharma Services	51,091	51,281	52,639
Corporate/other (a)	8,561	8,464	4,031
Consolidated total assets	<u><u>\$ 98,726</u></u>	<u><u>\$ 97,154</u></u>	<u><u>\$ 95,123</u></u>

Capital expenditures	2023	2022	2021
Life Sciences Solutions	\$ 178	\$ 490	\$ 810
Analytical Instruments	87	140	79
Specialty Diagnostics	121	112	167
Laboratory Products and Biopharma Services	1,013	1,403	1,327
Corporate/other	80	98	140
Consolidated capital expenditures	<u><u>\$ 1,479</u></u>	<u><u>\$ 2,243</u></u>	<u><u>\$ 2,523</u></u>

(a) Corporate assets consist primarily of cash and cash equivalents and property and equipment at the company's corporate offices.

Geographical Information

(In millions)	2023	2022	2021
Revenues (b)			
United States	\$ 22,013	\$ 23,820	\$ 18,907
Other	20,844	21,095	20,304
Consolidated revenues	<u><u>\$ 42,857</u></u>	<u><u>\$ 44,915</u></u>	<u><u>\$ 39,211</u></u>
Long-lived Assets (c)			
United States	\$ 6,352	\$ 6,308	\$ 5,578
Other	4,652	4,565	4,286
Consolidated long-lived assets	<u><u>\$ 11,004</u></u>	<u><u>\$ 10,873</u></u>	<u><u>\$ 9,864</u></u>

(b) Revenues are attributed to countries based on customer location.

(c) Includes property, plant and equipment, net, and operating lease ROU assets.

Note 5. Other Income/(Expense)

In all periods, other income/(expense) includes currency transaction gains/losses on non-operating monetary assets and liabilities and net periodic pension benefit cost/income, excluding the service cost component, which is included in operating expenses on the accompanying statements of income. In 2023, other income/(expense) includes \$46 million of net losses on investments.

In 2022, other income/(expense) includes \$161 million of net losses on investments, \$67 million of net gains on derivative instruments to address certain foreign currency risks, and \$26 million of losses on the early extinguishment of debt (Note 10).

In 2021, other income/(expense) includes \$767 million of losses on the early extinguishment of debt (Note 10), \$36 million of financing costs associated with obtaining bridge financing commitments in connection with the agreement to acquire PPD (Note 2), offset in part by \$66 million of net gains on investments. The company had a cash outlay of \$36 million in 2021 associated with obtaining the bridge financing commitments, included in other financing activities, net, in the accompanying statement of cash flows.

Note 6. Stock-based Compensation Expense

The company has stock-based compensation plans for its key employees, directors and others. These plans permit the grant of a variety of stock and stock-based awards, including restricted stock units, stock options or performance-based shares, as determined by the compensation committee of the company's Board of Directors or, for certain non-officer grants, by the company's employee equity committee, which consists of its chief executive officer. The company generally issues new shares of its common stock to satisfy option exercises and restricted unit vesting. Grants of stock options and restricted units generally

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provide that in the event of both a change in control of the company and a qualifying termination of an option or unit holder's employment, all options and service-based restricted unit awards held by the recipient become immediately vested (unless an employment or other agreement with the employee provides for different treatment).

Compensation cost is based on the grant-date fair value and is recognized ratably over the requisite vesting period or to the date based on qualifying retirement eligibility, if earlier, and is primarily included in selling, general and administrative expenses.

Stock Options

The company's practice is to grant stock options at fair market value. Options vest over 3-5 years with terms of 7-10 years, assuming continued employment with certain exceptions. Vesting of the option awards is contingent upon meeting certain service conditions. The fair value of most option grants is estimated using the Black-Scholes option pricing model. For option grants that require the achievement of both service and market conditions, a lattice model is used to estimate fair value. The fair value is then amortized on a straight-line basis over the requisite service periods of the awards, which is generally the vesting period. Use of a valuation model requires management to make certain assumptions with respect to selected model inputs. Expected volatility is calculated based on the historical volatility of the company's stock. Historical data on exercise patterns is the basis for estimating the expected life of an option. The risk-free interest rate is based on U.S. Treasury zero-coupon issues with a remaining term which approximates the expected life assumed at the date of grant. The expected annual dividend rate is calculated by dividing the company's annual dividend, based on the most recent quarterly dividend rate, by the closing stock price on the grant date. The compensation expense recognized for all stock-based awards is net of estimated forfeitures. Forfeitures are estimated based on an analysis of actual option forfeitures.

The weighted average assumptions used in the Black-Scholes option pricing model are as follows:

	2023	2022	2021
Expected stock price volatility	25 %	26 %	26 %
Risk free interest rate	4.2 %	2.0 %	0.8 %
Expected life of options (years)	4.7	4.7	4.3
Expected annual dividend	0.3 %	0.2 %	0.2 %

The weighted average per share grant-date fair values of options granted during 2023, 2022 and 2021 were \$159.32, \$135.07 and \$123.97, respectively. The total intrinsic value of options exercised during the same periods was \$320 million, \$336 million and \$501 million, respectively. The intrinsic value is the difference between the market value of the shares on the exercise date and the exercise price of the option.

A summary of the company's option activity for the year ended December 31, 2023 is presented below:

	Shares (in millions)	Weighted average exercise price	Weighted average remaining contractual term (in years)	Aggregate intrinsic value (in millions)
Outstanding at December 31, 2022	5.6	\$ 359.27		
Granted	0.7	546.94		
Exercised	(1.0)	218.82		
Canceled/expired	(0.3)	543.25		
Outstanding at December 31, 2023	5.0	\$ 401.30	3.9	\$ 714
Vested and unvested expected to vest at December 31, 2023	4.8	\$ 396.20	3.9	\$ 712
Exercisable at December 31, 2023	2.8	\$ 316.88	2.7	\$ 635

As of December 31, 2023, there was \$162 million of total unrecognized compensation cost related to unvested stock options granted. The cost is expected to be recognized through 2027 with a weighted average amortization period of 2.2 years.

Restricted Share/Unit Awards

Awards of restricted units convert into an equivalent number of shares of common stock. The awards generally vest over 3-4 years, assuming continued employment, with some exceptions. Vesting of the awards is contingent upon meeting certain service conditions and may also be contingent upon meeting certain performance and/or market conditions. The fair market value of the award at the time of the grant is amortized to expense over the requisite service period of the award, which is

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generally the vesting period. Recipients of restricted units have no voting rights but are entitled to accrue dividend equivalents. The fair value of service- and performance-based restricted unit awards is determined based on the number of units granted and the market value of the company's shares on the grant date. For awards with market-based vesting conditions, the company uses a lattice model to estimate the grant-date fair value of the award.

A summary of the company's restricted unit activity for the year ended December 31, 2023 is presented below:

	Units (in millions)	Weighted average grant-date fair value
Unvested at December 31, 2022	0.7	\$ 495.39
Granted	0.4	545.73
Vested	(0.4)	480.45
Forfeited	(0.1)	528.59
Unvested at December 31, 2023	0.6	\$ 533.65

The weighted average per share grant-date fair values of restricted units granted during 2022 and 2021 were \$520.83 and \$444.61, respectively. The total fair value of shares vested during 2023, 2022 and 2021 was \$207 million, \$163 million and \$151 million, respectively.

As of December 31, 2023, there was \$179 million of total unrecognized compensation cost related to unvested restricted stock unit awards. The cost is expected to be recognized through 2027 with a weighted average amortization period of 1.9 years.

Employee Stock Purchase Plans

Qualifying employees are eligible to participate in an employee stock purchase plan sponsored by the company. Shares may be purchased under the program at 95% of the fair market value at the end of the purchase period and the shares purchased are not subject to a holding period. Shares are purchased through payroll deductions of up to 10% of each participating employee's qualifying gross wages. The company issued 0.1 million, 0.2 million and 0.1 million shares, respectively, of its common stock in 2023, 2022 and 2021 under the employee stock purchase plan.

Note 7. Pension and Other Postretirement Benefit Plans

401(k) Savings Plan and Other Defined Contribution Plans

The company's 401(k) savings and other defined contribution plans cover the majority of the company's eligible U.S. and certain non-U.S. employees. Contributions to the plans are made by both the employee and the company. Company contributions are based on the level of employee contributions, and are based on formulas determined by the company. In 2023, 2022 and 2021, the company charged to expense \$468 million, \$402 million and \$299 million, respectively, related to its defined contribution plans.

Defined Benefit Pension Plans

Employees of a number of the company's non-U.S. and certain U.S. subsidiaries participate in defined benefit pension plans covering substantially all full-time employees at those subsidiaries. Some of the plans are unfunded, as permitted under the plans and applicable laws. The company also maintains postretirement healthcare programs at several acquired businesses where certain employees are eligible to participate. The liabilities and costs associated with the company's postretirement healthcare programs are generally funded on a self-insured and insured-premium basis and are not material for any period presented.

The company recognizes the funded status of defined benefit pension and other postretirement benefit plans as an asset or liability. This amount is defined as the difference between the fair value of plan assets and the benefit obligation. The company is required to recognize as a component of other comprehensive items, net of tax, the actuarial gains/losses and prior service costs/credits that arise but were not previously required to be recognized as components of net periodic benefit cost. Other comprehensive items are adjusted as these amounts are later recognized in income as components of net periodic benefit cost.

When a company with a pension plan is acquired, any excess of projected benefit obligation over the plan assets is recognized as a liability and any excess of plan assets over the projected benefit obligation is recognized as an asset. The recognition of a new liability or a new asset results in the elimination of (a) previously existing unrecognized net gain or loss and (b) unrecognized prior service cost or credits.

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The company funds annually, at a minimum, the statutorily required minimum amount as actuarially determined. Contributions to the plans included in the following table are estimated at between \$30 million and \$50 million for 2024.

The following table provides a reconciliation of benefit obligations and plan assets of the company's domestic and non-U.S. pension plans:

(In millions)	Domestic pension benefits		Non-U.S. pension benefits		2022
	2023	2022	2023	2022	
Accumulated benefit obligation	\$ 1,005	\$ 995	\$ 1,166	\$ 1,016	
Change in projected benefit obligations					
Projected benefit obligation at beginning of year	\$ 995	\$ 1,260	\$ 1,069	\$ 1,552	
Acquisitions	—	—	15	51	
Service costs	—	—	26	34	
Interest costs	47	27	42	20	
Settlements	—	—	(37)	(31)	
Plan participants' contributions	—	—	9	9	
Actuarial (gains) losses	42	(210)	65	(447)	
Benefits paid	(79)	(82)	(25)	(19)	
Currency translation and other	—	—	57	(100)	
Projected benefit obligation at end of year	<u>\$ 1,005</u>	<u>\$ 995</u>	<u>\$ 1,221</u>	<u>\$ 1,069</u>	
Change in fair value of plan assets					
Fair value of plan assets at beginning of year	\$ 937	\$ 1,226	\$ 868	\$ 1,302	
Acquisitions	—	—	15	14	
Actual return on plan assets	84	(212)	29	(347)	
Employer contributions	5	5	36	36	
Settlements	—	—	(37)	(31)	
Plan participants' contributions	—	—	9	9	
Benefits paid	(79)	(82)	(25)	(19)	
Currency translation and other	—	—	49	(96)	
Fair value of plan assets at end of year	<u>\$ 947</u>	<u>\$ 937</u>	<u>\$ 944</u>	<u>\$ 868</u>	
Funded status	<u><u>\$ (58)</u></u>	<u><u>\$ (58)</u></u>	<u><u>\$ (277)</u></u>	<u><u>\$ (201)</u></u>	
Amounts recognized in balance sheet					
Noncurrent assets	\$ —	\$ —	\$ 65	\$ 81	
Current liability	(6)	(6)	(11)	(11)	
Noncurrent liabilities	(52)	(52)	(331)	(271)	
Net amount recognized	<u><u>\$ (58)</u></u>	<u><u>\$ (58)</u></u>	<u><u>\$ (277)</u></u>	<u><u>\$ (201)</u></u>	
Amounts recognized in accumulated other comprehensive items					
Net actuarial loss	\$ 217	\$ 200	\$ 151	\$ 74	
Prior service credits	—	—	(5)	(4)	
Net amount recognized	<u><u>\$ 217</u></u>	<u><u>\$ 200</u></u>	<u><u>\$ 146</u></u>	<u><u>\$ 70</u></u>	

For domestic pension plans, actuarial losses experienced in 2023 were driven by decreases in the weighted average discount rates used to determine the projected benefit obligation, as well as differences between actual and expected returns on plan assets for certain portions of plan benefits indexed to asset returns. For non-U.S. pension plans, actuarial losses experienced in 2023 were principally driven by decreases in the weighted average discount rates used to determine the projected benefit obligation.

For domestic pension plans, actuarial gains experienced in 2022 were driven by increases in the weighted average discount rates used to determine the projected benefit obligation, as well as differences between actual and expected returns on plan assets for certain portions of plan benefits indexed to asset returns. For non-U.S. pension plans, actuarial gains experienced in 2022 were principally driven by increases in the weighted average discount rates used to determine the projected benefit obligation.

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The actuarial assumptions used to compute the funded status for the plans are based upon information available as of December 31, 2023 and 2022 and are as follows:

	Domestic pension benefits		Non-U.S. pension benefits	
	2023	2022	2023	2022
Weighted average assumptions used to determine projected benefit obligations				
Discount rate for determining benefit obligation	4.82 %	5.01 %	3.47 %	3.91 %
Interest crediting rate for cash balance plans	4.76 %	4.96 %	2.06 %	2.19 %
Average rate of increase in employee compensation	N/A	N/A	2.64 %	2.78 %

The actuarial assumptions used to compute the net periodic pension benefit cost (income) are based upon information available as of the beginning of the year, as presented in the following table:

	Domestic pension benefits			Non-U.S. pension benefits		
	2023	2022	2021	2023	2022	2021
Weighted average assumptions used to determine net benefit cost (income)						
Discount rate - service cost	N/A	N/A	N/A	3.62 %	1.00 %	0.65 %
Discount rate - interest cost	5.01 %	2.70 %	2.33 %	3.95 %	1.36 %	0.80 %
Average rate of increase in employee compensation	N/A	N/A	N/A	2.77 %	2.73 %	2.30 %
Expected long-term rate of return on assets	6.25 %	4.75 %	4.25 %	4.33 %	2.33 %	2.02 %

The discount rate reflects the rate the company would have to pay to purchase high-quality investments that would provide cash sufficient to settle its current pension obligations. The discount rate is determined based on a range of factors, including the rates of return on high-quality, fixed-income corporate bonds and the related expected duration of the obligations or, in certain instances, the company has used a hypothetical portfolio of high quality instruments with maturities that mirror the benefit obligation in order to accurately estimate the discount rate relevant to a particular plan.

The company utilizes a full yield curve approach in the estimation of these components by applying the specific spot-rates along the yield curve used in the determination of the benefit obligation to the relevant projected cash flows.

The expected long-term rate of return on plan assets reflects the average rate of earnings expected on the funds invested, or to be invested, to provide for the benefits included in the projected benefit obligations. In determining the expected long-term rate of return on plan assets, the company considers the relative weighting of plan assets, the historical performance of total plan assets and individual asset classes and economic and other indicators of future performance. In addition, the company may consult with and consider the opinions of financial and other professionals in developing appropriate return benchmarks.

Asset management objectives include maintaining an adequate level of diversification to reduce interest rate and market risk and providing adequate liquidity to meet immediate and future benefit payment requirements.

The expected rate of compensation increase reflects the long-term average rate of salary increases and is based on historic salary increase experience and management's expectations of future salary increases.

The projected benefit obligation and fair value of plan assets for the company's qualified and non-qualified pension plans with projected benefit obligations in excess of plan assets are as follows:

(In millions)	Pension plans	
	2023	2022
Pension plans with projected benefit obligations in excess of plan assets		
Projected benefit obligation	\$ 1,752	\$ 1,636
Fair value of plan assets	1,352	1,296

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The accumulated benefit obligation and fair value of plan assets for the company's qualified and non-qualified pension plans with accumulated benefit obligations in excess of plan assets are as follows:

(In millions)	Pension plans	
	2023	2022
Pension plans with accumulated benefit obligations in excess of plan assets		
Accumulated benefit obligation	\$ 1,695	\$ 1,583
Fair value of plan assets	1,349	1,294

The measurement date used to determine benefit information is December 31 for all plan assets and benefit obligations.

The net periodic pension benefit cost (income) includes the following components:

(In millions)	Domestic pension benefits			Non-U.S. pension benefits		
	2023	2022	2021	2023	2022	2021
Components of net benefit cost (income)						
Service cost	\$ —	\$ —	\$ —	\$ 26	\$ 34	\$ 27
Interest cost on benefit obligation	47	27	23	42	20	11
Expected return on plan assets	(59)	(45)	(40)	(37)	(26)	(19)
Amortization of actuarial net loss	—	4	7	2	7	12
Amortization of prior service cost (benefit)	—	—	—	(1)	(1)	—
Settlement/curtailment loss (gain)	—	—	—	1	(2)	—
Net periodic benefit cost (income)	\$ (12)	\$ (14)	\$ (10)	\$ 33	\$ 32	\$ 31

Expected benefit payments are estimated using the same assumptions used in determining the company's benefit obligation at December 31, 2023. Benefit payments will depend on future employment and compensation levels, average years employed and average life spans, among other factors, and changes in any of these factors could significantly affect these estimated future benefit payments. Estimated future benefit payments during the next five years and in the aggregate for the five fiscal years thereafter, are as follows:

(In millions)	Domestic pension benefits		Non-U.S. pension benefits	
	2023	2022	2021	2023
Expected benefit payments				
2024	\$ —	\$ 81	\$ 52	\$ —
2025	—	79	55	—
2026	—	80	59	—
2027	—	79	60	—
2028	—	79	65	—
2029-2033	374	354	—	—

Domestic Pension Plan Assets

The company's overall objective is to manage the assets in a liability framework where investments are selected that are expected to have similar changes in fair value as the related liabilities will have upon changes in interest rates. The company invests in a portfolio of both return-seeking and liability-hedging assets, primarily through the use of institutional collective funds, to achieve long-term growth and to insulate the funded position from interest rate volatility. The strategic asset allocation uses a combination of risk controlled and index strategies in fixed income and global equities. The target allocations for the investments are approximately 10% to funds investing in U.S. equities, approximately 10% to funds investing in international equities and approximately 80% to funds investing in fixed income securities. The portfolio maintains enough liquidity at all times to meet the near-term benefit payments.

Non-U.S. Pension Plan Assets

The company maintains specific plan assets for many of the individual pension plans outside the U.S. The investment strategy of each plan has been uniquely established based on the country specific standards and characteristics of the plans. Several of the plans have contracts with insurance companies whereby the market risks of the benefit obligations are borne by the insurance companies. When assets are held directly in investments, generally the objective is to invest in a portfolio of diversified assets with a variety of fund managers. The investments may include equity funds, fixed income funds, hedge funds,

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multi-asset funds, alternative investments and derivative funds with the target asset allocations ranging from approximately 0% - 25% for equity funds, 30% - 90% for fixed income funds, 0% - 40% for multi-asset funds, 0% - 4% for alternative investments, 0% - 4% for real estate funds and 0% - 45% for funds holding derivatives. The derivatives held by the funds are primarily interest rate swaps intended to match the movements in the plan liabilities. Each plan maintains enough liquidity at all times to meet the near-term benefit payments.

The fair values of the company's plan assets at December 31, 2023 and 2022, by asset category are as follows:

(In millions)	December 31, 2023	Quoted prices in active markets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	Not subject to leveling (a)
Domestic pension plan assets					
U.S. equity funds	\$ 93	\$ —	\$ —	\$ —	\$ 93
International equity funds	93	—	—	—	93
Fixed income funds	739	—	—	—	739
Money market funds	22	—	—	—	22
Total domestic pension plans	<u>\$ 947</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 947</u>
Non-U.S. pension plan assets					
Equity funds	\$ 7	\$ —	\$ —	\$ —	\$ 7
Fixed income funds	346	9	—	—	337
Multi-asset funds	66	—	—	—	66
Derivative funds	184	—	—	—	184
Alternative investments	1	—	—	—	1
Insurance contracts	333	—	333	—	—
Real estate funds	1	—	—	—	1
Cash / money market funds	6	4	—	—	2
Total non-U.S. pension plans	<u>\$ 944</u>	<u>\$ 13</u>	<u>\$ 333</u>	<u>\$ —</u>	<u>\$ 598</u>

(a) Investments measured at the net asset value per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy.

(In millions)	December 31, 2022	Quoted prices in active markets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	Not subject to leveling (a)
Domestic pension plan assets					
U.S. equity funds	\$ 89	\$ —	\$ —	\$ —	\$ 89
International equity funds	91	—	—	—	91
Fixed income funds	739	—	—	—	739
Money market funds	18	—	—	—	18
Total domestic pension plans	<u>\$ 937</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 937</u>
Non-U.S. pension plan assets					
Equity funds	\$ 8	\$ —	\$ —	\$ —	\$ 8
Fixed income funds	299	—	—	—	299
Multi-asset funds	56	—	—	—	56
Derivative funds	190	—	—	—	190
Insurance contracts	306	—	306	—	—
Cash / money market funds	9	4	—	—	5
Total non-U.S. pension plans	<u>\$ 868</u>	<u>\$ 4</u>	<u>\$ 306</u>	<u>\$ —</u>	<u>\$ 558</u>

(a) Investments measured at the net asset value per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy.

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The tables above present the fair value of the company's plan assets in accordance with the fair value hierarchy (Note 14). Certain investments that are measured at fair value using the net asset value per share practical expedient have not been classified in the fair value hierarchy. The fair value amounts of these investments presented in the above tables are intended to permit reconciliation of the fair value hierarchy to the amounts presented for the total pension plan assets. These investments were also redeemable at the balance sheet date or within limited time restrictions.

Note 8. Income Taxes

The components of income before provision for income taxes are as follows:

(In millions)	2023	2022	2021
U.S.	\$ 2,431	\$ 3,859	\$ 3,340
Non-U.S.	3,867	3,976	5,501
Income before income taxes	<u><u>\$ 6,298</u></u>	<u><u>\$ 7,835</u></u>	<u><u>\$ 8,841</u></u>

The components of the provision for income taxes are as follows:

(In millions)	2023	2022	2021
Current income tax provision			
Federal	\$ 228	\$ 813	\$ 446
Non-U.S.	1,206	633	1,148
State	150	254	160
	<u><u>\$ 1,584</u></u>	<u><u>\$ 1,700</u></u>	<u><u>\$ 1,754</u></u>
Deferred income tax provision (benefit)			
Federal	\$ (551)	\$ (611)	\$ (227)
Non-U.S.	(647)	(314)	(399)
State	(102)	(72)	(19)
	<u><u>(1,300)</u></u>	<u><u>(997)</u></u>	<u><u>(645)</u></u>
Provision for income taxes	<u><u>\$ 284</u></u>	<u><u>\$ 703</u></u>	<u><u>\$ 1,109</u></u>

The provision for income taxes in the accompanying statement of income differs from the provision calculated by applying the statutory federal income tax rate to income before income taxes due to the following:

(In millions)	2023	2022	2021
Statutory federal income tax rate	21 %	21 %	21 %
Provision for income taxes at statutory rate	\$ 1,323	\$ 1,645	\$ 1,857
Increases (decreases) resulting from:			
Foreign rate differential	(223)	(329)	(255)
Income tax credits	(276)	(202)	(315)
Global intangible low-taxed income	113	96	76
Foreign-derived intangible income	(108)	(149)	(119)
Excess tax benefits from stock options and restricted stock units	(69)	(80)	(124)
Provision for (reversal of) tax reserves, net	13	(544)	(17)
Intra-entity transfers	(233)	(18)	(284)
Foreign exchange loss on inter-company debt refinancing	(112)	—	—
Provision for (reversal of) valuation allowances, net	(32)	344	36
Withholding taxes	33	84	164
Tax return reassessments and settlements	(187)	(210)	1
State income taxes, net of federal tax	70	111	82
Other, net	(28)	(45)	7
Provision for income taxes	<u><u>\$ 284</u></u>	<u><u>\$ 703</u></u>	<u><u>\$ 1,109</u></u>

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The company has operations and a taxable presence in approximately 70 countries outside the U.S. The company's effective income tax rate differs from the U.S. federal statutory rate each year due to certain operations that are subject to tax incentives, state and local taxes, and foreign taxes that are different than the U.S. federal statutory rate.

During 2023, the company released valuation allowances of \$32 million in jurisdictions where the deferred tax assets are now expected to be realized. In 2023 the company also recorded a tax benefit of \$127 million for U.S. tax credits and the revaluation of net operating loss carryforwards due to higher tax rates as a result of its tax return resubmissions, a \$91 million tax benefit, net of related tax expenses, from a foreign exchange loss on an intercompany debt refinancing transaction, and \$233 million of tax benefits resulting from intra-entity transactions.

During 2022, the company settled an IRS audit relating to the 2017 and 2018 tax years. The company recorded a \$208 million net tax benefit primarily from this settlement and related impacts, which resulted in a decrease in the company's unrecognized tax benefits of \$658 million. The company recorded \$49 million of charges for expired tax credits and other related components of the settlement. The company recorded a charge of \$395 million to establish a valuation allowance against certain U.S. foreign tax credits which the company believes will more likely than not expire unutilized. The company also recorded \$101 million of additional net unrecognized tax benefit liabilities related to other tax audits.

During 2021, the company recorded a \$188 million income tax benefit related to the deferred tax implications of an intra-entity transfer of assets. Also in 2021, the company recorded a \$96 million income tax benefit related to a capital loss resulting from certain intra-entity transactions.

The company generally receives a tax deduction upon the exercise of non-qualified stock options by employees, or the vesting of restricted stock units held by employees, for the difference between the exercise price and the market price of the underlying common stock on the date of exercise. The company uses the incremental tax benefit approach for utilization of tax attributes. These excess tax benefits reduce the tax provision. In 2023, 2022 and 2021, the company's tax provision was reduced by \$69 million, \$80 million and \$124 million, respectively, of such benefits.

Net deferred tax asset/(liability) in the accompanying balance sheet consists of the following:

(In millions)	2023	2022
Deferred tax asset/(liability)		
Depreciation and amortization	\$ (4,286)	\$ (4,277)
Net operating loss and credit carryforwards	2,385	1,951
Reserves and accruals	157	140
Accrued compensation	299	259
Inventory basis difference	275	364
Deferred interest	753	445
Research and development and other capitalized costs	380	220
Unrealized (gains) losses on hedging instruments	(66)	(199)
Other, net	329	435
Deferred tax assets/(liabilities), net before valuation allowance	226	(662)
Less: Valuation allowance	1,317	1,322
Deferred tax assets/(liabilities), net	\$ (1,091)	\$ (1,984)

The company estimates the degree to which tax assets, losses and credit carryforwards will result in a benefit based on expected profitability by tax jurisdiction and provides a valuation allowance for tax assets and loss and credit carryforwards that it believes will more likely than not expire unutilized. At December 31, 2023, all of the company's valuation allowance relates to deferred tax assets, primarily net operating losses and disallowed interest expense carryforward, for which any subsequently recognized tax benefits will reduce income tax expense.

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The changes in the valuation allowance are as follows:

(In millions)	Year Ended December 31,		
	2023	2022	2021
Beginning balance	\$ 1,322	\$ 968	\$ 933
Additions (reductions) charged to income tax provision, net	(32)	344	24
Additions due to acquisitions	4	14	30
Currency translation and other	23	(4)	(19)
Ending balance	\$ 1,317	\$ 1,322	\$ 968

At December 31, 2023, the company had net federal, state and non-U.S. net operating loss carryforwards of \$70 million, \$93 million and \$1.42 billion, respectively. Use of the carryforwards is limited based on the future income of certain subsidiaries. Of the federal net operating loss carryforwards, \$30 million expire in the years 2024 through 2037, and the remainder do not expire. Of the state net operating loss carryforwards, \$83 million expire in the years 2024 through 2042, and the remainder do not expire. Of the net non-U.S. net operating loss carryforwards, \$435 million expire in the years 2026 through 2043, and the remainder do not expire.

At December 31, 2023, the company had foreign tax credit carryforwards of \$648 million and deferred interest carryforwards of \$753 million. The foreign tax credit carryforwards will expire in the years 2025 through 2032. Of the deferred interest carryforwards, \$149 million expire in the years 2025 through 2033 and the remainder do not expire.

U.S. federal taxes have been recorded on approximately \$34 billion of undistributed foreign earnings as of December 31, 2023. A provision has not been made for certain U.S. state income taxes or additional non-U.S. taxes that would be due when cash is repatriated to the U.S. as the company's undistributed foreign earnings are intended to be reinvested outside of the U.S. indefinitely. The determination of the amount of the unrecognized deferred tax liability related to the undistributed foreign earnings is not practicable due to the uncertainty in the manner in which these earnings will be distributed. The company's intent is to only make distributions from non-U.S. subsidiaries in the future when they can be made at no net tax cost.

Unrecognized Tax Benefits

As of December 31, 2023, the company had \$0.54 billion of unrecognized tax benefits substantially all of which, if recognized, would reduce the effective tax rate.

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

(In millions)	2023	2022	2021
Beginning balance	\$ 572	\$ 1,124	\$ 1,091
Additions due to acquisitions	—	15	26
Additions for tax positions of current year	4	104	32
Additions for tax positions of prior years	34	24	60
Reductions for tax positions of prior years	(43)	(659)	(5)
Closure of tax years	(6)	(4)	(27)
Settlements	(21)	(32)	(53)
Ending balance	\$ 540	\$ 572	\$ 1,124

Substantially all of the unrecognized tax benefits are classified as long-term liabilities. The company does not expect its unrecognized tax benefits to change significantly over the next twelve months.

During 2023, the company's unrecognized tax benefits decreased by \$12 million as a result of uncertain tax positions relating to foreign tax positions and decreased \$19 million relating to U.S. federal and state tax positions.

During 2022, the company's unrecognized tax benefits increased by \$143 million as a result of uncertain tax positions relating to foreign tax positions and decreased \$610 million relating to U.S. federal and state tax positions which included \$658 million from the settlement of the IRS audit of the 2017 and 2018 tax years. The company also assumed \$15 million of uncertain tax benefits as part of the acquisition of PPD.

During 2021, the company's unrecognized tax benefits increased by \$80 million as a result of uncertain tax positions relating to foreign tax positions and decreased \$75 million relating to U.S. federal and state tax positions. The company also assumed \$26 million of uncertain tax benefits as part of the acquisition of PPD.

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The company classified interest and penalties related to unrecognized tax benefits as income tax expense. The total amount of interest and penalties related to uncertain tax positions and recognized in the balance sheet as of December 31, 2023 and 2022 was \$95 million and \$74 million, respectively.

The company conducts business globally and, as a result, Thermo Fisher or one or more of its subsidiaries files income tax returns in the U.S. federal jurisdiction and various state and foreign jurisdictions. In the normal course of business, the company is subject to examination by taxing authorities throughout the world, including such major jurisdictions as Australia, Canada, China, Denmark, Finland, France, Germany, Japan, Singapore, Sweden, the United Kingdom and the United States. With few exceptions, the company is no longer subject to U.S. state and local or non-U.S. income tax examinations for years before 2012 and no longer subject to U.S. federal income tax examinations for years before 2019.

Note 9. Earnings per Share

(In millions except per share amounts)	2023	2022	2021
Net income attributable to Thermo Fisher Scientific Inc.	<u>\$ 5,995</u>	<u>\$ 6,950</u>	<u>\$ 7,725</u>
Basic weighted average shares	386	392	394
Plus effect of: stock options and restricted stock units	2	2	3
Diluted weighted average shares	<u>388</u>	<u>394</u>	<u>397</u>
Basic earnings per share	<u>\$ 15.52</u>	<u>\$ 17.75</u>	<u>\$ 19.62</u>
Diluted earnings per share	<u>\$ 15.45</u>	<u>\$ 17.63</u>	<u>\$ 19.46</u>
Antidilutive stock options excluded from diluted weighted average shares	2	2	1

Note 10. Debt and Other Financing Arrangements

(Dollars in millions)	Effective interest rate at December 31, 2023	December 31,	
		2023	2022
Commercial Paper		\$ —	\$ 310
Floating Rate (SOFR + 0.35%) 1.5-Year Senior Notes, Due 4/18/2023		—	1,000
Floating Rate (SOFR + 0.39%) 2-Year Senior Notes, Due 10/18/2023		—	500
0.797% 2-Year Senior Notes, Due 10/18/2023		—	1,350
Floating Rate (EURIBOR + 0.20%) 2-Year Senior Notes Due 11/18/2023 (euro-denominated)		—	1,819
0.000% 2-Year Senior Notes Due 11/18/2023 (euro-denominated)		—	589
0.75% 8-Year Senior Notes, Due 9/12/2024 (euro-denominated)	0.93 %	1,104	1,071
Floating Rate (SOFR + 0.53%) 3-Year Senior Notes, Due 10/18/2024		—	500
1.215% 3-Year Senior Notes, Due 10/18/2024	1.42 %	2,500	2,500
0.125% 5.5-Year Senior Notes, Due 3/1/2025 (euro-denominated)	0.41 %	883	857
2.00% 10-Year Senior Notes, Due 4/15/2025 (euro-denominated)	2.10 %	706	686
0.853% 3-Year Senior Notes, Due 10/20/2025 (yen-denominated)	1.05 %	158	170
0.000% 4-Year Senior Notes Due 11/18/2025 (euro-denominated)	0.15 %	607	589
3.20% 3-Year Senior Notes, Due 1/21/2026 (euro-denominated)	3.39 %	552	535
1.40% 8.5-Year Senior Notes, Due 1/23/2026 (euro-denominated)	1.53 %	773	749
4.953% 3-Year Senior Notes, Due 8/10/2026	5.19 %	600	—
5.000% 3-Year Senior Notes due 12/5/2026	5.00 %	1,000	—
1.45% 10-Year Senior Notes, Due 3/16/2027 (euro-denominated)	1.65 %	552	535
1.75% 7-Year Senior Notes, Due 4/15/2027 (euro-denominated)	1.97 %	662	642
1.054% 5-Year Senior Notes, Due 10/20/2027 (yen-denominated)	1.18 %	205	221
4.80% 5-Year Senior Notes, Due 11/21/2027	5.00 %	600	600

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(Dollars in millions)	Effective interest rate at December 31, 2023	December 31, 2023	December 31, 2022
0.50% 8.5-Year Senior Notes, Due 3/1/2028 (euro-denominated)	0.77 %	883	857
0.77% 5-Year Senior Notes, Due 9/6/2028 (yen-denominated)	0.90 %	206	—
1.375% 12-Year Senior Notes, Due 9/12/2028 (euro-denominated)	1.46 %	662	642
1.750% 7-Year Senior Notes, Due 10/15/2028	1.89 %	700	700
5.000% 5-Year Senior Notes due 1/31/2029	5.00 %	1,000	—
1.95% 12-Year Senior Notes, Due 7/24/2029 (euro-denominated)	2.08 %	773	749
2.60% 10-Year Senior Notes, Due 10/1/2029	2.74 %	900	900
1.279% 7-Year Senior Notes, Due 10/19/2029 (yen-denominated)	1.44 %	33	36
4.977% 7-Year Senior Notes, Due 8/10/2030	5.12 %	750	—
0.80% 9-Year Senior Notes, Due 10/18/2030 (euro-denominated)	0.89 %	1,932	1,873
0.875% 12-Year Senior Notes, Due 10/1/2031 (euro-denominated)	1.13 %	993	963
2.00% 10-Year Senior Notes, Due 10/15/2031	2.23 %	1,200	1,200
2.375% 12-Year Senior Notes, Due 4/15/2032 (euro-denominated)	2.55 %	662	642
1.49% 10-Year Senior Notes, Due 10/20/2032 (yen-denominated)	1.60 %	45	48
4.95% 10-Year Senior Notes, Due 11/21/2032	5.09 %	600	600
5.086% 10-Year Senior Notes, Due 8/10/2033	5.20 %	1,000	—
1.125% 12-Year Senior Notes, Due 10/18/2033 (euro-denominated)	1.20 %	1,656	1,606
5.200% 10-Year Senior Notes due 1/31/2034	5.20 %	500	—
3.65% 12-Year Senior Notes, Due 11/21/2034 (euro-denominated)	3.76 %	828	803
1.50% 12-Year Senior Notes, due 9/6/2035 (yen-denominated)	1.58 %	152	—
2.875% 20-Year Senior Notes, Due 7/24/2037 (euro-denominated)	2.94 %	773	749
1.50% 20-Year Senior Notes, Due 10/1/2039 (euro-denominated)	1.73 %	993	963
2.80% 20-Year Senior Notes, Due 10/15/2041	2.90 %	1,200	1,200
1.625% 20-Year Senior Notes, Due 10/18/2041 (euro-denominated)	1.77 %	1,380	1,339
2.069% 20-Year Senior Notes, Due 10/20/2042 (yen-denominated)	2.13 %	104	111
5.404% 20-Year Senior Notes, due 8/10/2043	5.50 %	600	—
2.02% 20-Year Senior Notes, due 9/6/2043 (yen-denominated)	2.06 %	206	—
5.30% 30-Year Senior Notes, Due 2/1/2044	5.37 %	400	400
4.10% 30-Year Senior Notes, Due 8/15/2047	4.23 %	750	750
1.875% 30-Year Senior Notes, Due 10/1/2049 (euro-denominated)	1.98 %	1,104	1,071
2.00% 30-Year Senior Notes, Due 10/18/2051 (euro-denominated)	2.07 %	828	803
2.382% 30-Year Senior Notes, Due 10/18/2052 (yen-denominated)	2.43 %	236	254
Other	77	79	—
Total borrowings at par value		35,028	34,561
Unamortized discount		(113)	(112)
Unamortized debt issuance costs		(188)	(171)
Total borrowings at carrying value		34,727	34,278
Finance lease liabilities		190	210
Less: Short-term obligations and current maturities		3,609	5,579
Long-term obligations	<hr/>	<hr/>	<hr/>
	\$ 31,308	\$ 28,909	—

SOFR - Secured Overnight Financing Rate

EURIBOR - Euro Interbank Offered Rate

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The effective interest rates for the fixed-rate debt include the stated interest on the notes, the accretion of any discounts/premiums and the amortization of any debt issuance costs.

See Note 14 for fair value information pertaining to the company's long-term borrowings.

As of December 31, 2023, the annual repayment requirements for debt obligations are as follows:

(In millions)	Borrowings	Finance Lease Liabilities
2024	\$ 3,604	\$ 5
2025	2,356	13
2026	2,925	12
2027	2,020	10
2028	2,451	8
2029 and thereafter	21,672	142
	\$ 35,028	\$ 190

In addition to available borrowings under the company's revolving credit agreements, discussed below, the company had unused lines of credit of \$69 million as of December 31, 2023. These unused lines of credit generally provide for short-term unsecured borrowings at various interest rates.

Credit Facilities

The company has a revolving credit facility (the Facility) with a bank group that provides for up to \$5.00 billion of unsecured multi-currency revolving credit. The Facility expires on January 7, 2027. The revolving credit agreement calls for interest at either a Term SOFR, a EURIBOR-based rate (for funds drawn in euro) or a rate based on the prime lending rate of the agent bank, at the company's option. The agreement contains affirmative, negative and financial covenants, and events of default customary for facilities of this type. The covenants in the Facility include a Consolidated Net Interest Coverage Ratio (Consolidated EBITDA to Consolidated Net Interest Expense), as such terms are defined in the Facility. Specifically, the company has agreed that, so long as any lender has any commitment under the Facility, any letter of credit is outstanding under the Facility, or any loan or other obligation is outstanding under the Facility, it will maintain a minimum Consolidated Net Interest Coverage Ratio of 3.5:1.0 as of the last day of any fiscal quarter. As of December 31, 2023, no borrowings were outstanding under the Facility, although available capacity was reduced by immaterial outstanding letters of credit.

Commercial Paper Programs

The company has commercial paper programs pursuant to which it may issue and sell unsecured, short-term promissory notes (CP Notes). Under the U.S. program, a) maturities may not exceed 397 days from the date of issue and b) the CP Notes are issued on a private placement basis under customary terms in the commercial paper market and are not redeemable prior to maturity nor subject to voluntary prepayment. Under the euro program, maturities may not exceed 183 days and may be denominated in euro, U.S. dollars, Japanese yen, British pounds sterling, Swiss franc, Canadian dollars or other currencies. Under both programs, the CP Notes are issued at a discount from par (or premium to par, in the case of negative interest rates), or, alternatively, are sold at par and bear varying interest rates on a fixed or floating basis.

Senior Notes

Interest is payable quarterly on the floating rate senior notes, annually on the euro-denominated fixed rate senior notes and semi-annually on all other senior notes. Each of the U.S. dollar, euro-denominated fixed rate senior notes and yen-denominated private placement notes may be redeemed at a redemption price of 100% of the principal amount plus a specified make-whole premium and accrued interest, together with swap breakage costs payable to holders of yen-denominated private placement notes who have entered into cross-currency swap agreements. The company is subject to certain affirmative and negative covenants under the indentures and note purchase agreement governing the senior notes, the most restrictive of which limits the ability of the company to pledge certain property and assets as security under borrowing arrangements. The company was in compliance with all covenants at December 31, 2023.

In 2022 the company completed the full allocation of an amount equal to the net proceeds from the 0.000% senior notes due 2025 to finance or refinance, in whole or in part, certain COVID-19 response projects.

In 2022, the company redeemed all of its 3.650% Senior Notes due 2025. In connection with the redemption, the company incurred \$26 million of losses on the early extinguishment of debt included in other income/(expense) on the accompanying statement of income.

THERMO FISHER SCIENTIFIC INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

In 2021, the company redeemed some of its existing senior notes. In connection with these redemptions, the company incurred \$767 million of losses on the early extinguishment of debt included in other income/(expense) on the accompanying statement of income. Upon redemption of the senior notes, the company terminated the related fixed to floating rate interest rate swap arrangements and received \$22 million, included in other financing activities, net, in the accompanying statement of cash flows.

Thermo Fisher Scientific (Finance I) B.V. (Thermo Fisher International), a wholly-owned finance subsidiary of the company, issued each of the following notes outstanding as of December 31, 2023, included in the table above (collectively, the “Euronotes”) in registered public offerings: the 0.00% Senior Notes due 2025, the 0.80% Senior Notes due 2030, the 1.125% Senior Notes due 2033, the 1.625% Senior Notes due 2041, and the 2.00% Senior Notes due 2051. The company has fully and unconditionally guaranteed all of Thermo Fisher International’s obligations under the Euronotes and all of Thermo Fisher International’s other debt securities, and no other subsidiary of the company will guarantee these obligations. Thermo Fisher International is a “finance subsidiary” as defined in Rule 13-01(a)(4)(vi) of the Exchange Act, with no assets or operations other than those related to the issuance, administration and repayment of the Euronotes and other debt securities issued by Thermo Fisher International from time to time. The financial condition, results of operations and cash flows of Thermo Fisher International are consolidated in the financial statements of the company.

Note 11. Leases

As a lessee, the company leases certain logistics, office, and manufacturing facilities, as well as vehicles, copiers, and other equipment. These operating leases generally have remaining lease terms between 1 month and 30 years, and some include options to extend (generally for 1 to 10 years) or have options to terminate the arrangement within 1 year.

The company has guaranteed the residual value of three leased operating facilities with lease terms ending in 2024, 2025 and 2028. The company has agreed with the lessor to comply with certain financial covenants consistent with its other debt arrangements (Note 10). The aggregate maximum guarantee under these three lease arrangements is \$147 million. Operating lease ROU assets and lease liabilities for these lease arrangements are recorded on the consolidated balance sheet as of December 31, 2023, but exclude any amounts for residual value guarantees.

As a lessee, the consolidated financial statements include the following relating to operating leases:

(Dollars in millions)	2023	2022	2021
Statement of income			
Operating lease costs	\$ 355	\$ 351	\$ 254
Variable lease costs	115	109	66
Statement of cash flows			
Cash used in operating activities for payments of amounts included in the measurement of operating lease liabilities	\$ 410	\$ 289	\$ 288
Operating lease ROU assets obtained in exchange for new operating lease liabilities	234	430	293
Balance sheet			
ROU assets - included in other assets	\$ 1,556	\$ 1,593	
Operating lease liabilities - included in other accrued expenses	263	272	
Operating lease liabilities - included in other long-term liabilities	1,244	1,313	
Weighted average at end of year			
Remaining operating lease term	9.2 years	9.4 years	
Discount rate	4.0 %	3.2 %	

Lease costs arising from finance leases, short-term leases, and sublease income are not material. See Note 10 for additional information relating to finance leases.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

As of December 31, 2023, future payments of operating lease liabilities are as follows:

(In millions)

2024	\$ 294
2025	288
2026	242
2027	172
2028	131
2029 and thereafter	723
Total lease payments	1,850
Less: imputed interest	343
Total operating lease liability	\$ 1,507

As a lessor, operating leases, sales-type leases and direct financing leases are not material.

Note 12. Commitments and Contingencies

Purchase Obligations

The company has entered into unconditional purchase obligations, in the ordinary course of business, that include agreements to purchase goods, services or fixed assets and to pay royalties that are enforceable and legally binding and that specify all significant terms including: fixed or minimum quantities to be purchased; fixed, minimum or variable price provisions; and the approximate timing of the transaction. Purchase obligations exclude agreements that are cancelable at any time without penalty. The aggregate amount of the company's unconditional purchase obligations totaled \$2.53 billion at December 31, 2023, the majority of which are expected to be settled during 2024.

Letters of Credit, Guarantees and Other Commitments

Outstanding letters of credit and bank guarantees totaled \$315 million at December 31, 2023. Substantially all of these letters of credit and guarantees expire before 2040.

Outstanding surety bonds and other guarantees totaled \$93 million at December 31, 2023. The expiration of these bonds and guarantees ranges through 2025.

The letters of credit, bank guarantees and surety bonds principally secure performance obligations, and allow the holder to draw funds up to the face amount of the letter of credit, bank guarantee or surety bond if the applicable business unit does not perform as contractually required.

The company has funding commitments totaling \$164 million at December 31, 2023, related to investments.

The company is a guarantor of pension plan obligations of a divested business. The purchaser of the divested business has agreed to pay for the pension benefits, however the company was required to guarantee payment of these pension benefits should the purchaser fail to do so. The amount of the guarantee at December 31, 2023 was \$24 million.

In connection with the sale of businesses of the company, the buyers have assumed certain contractual obligations of such businesses and have agreed to indemnify the company with respect to those assumed liabilities. In the event a third-party to a transferred contract does not recognize the transfer of obligations or a buyer defaults on its obligations under the transferred contract, the company could be liable to the third-party for such obligations. However, in such event, the company would be entitled to seek indemnification from the buyer.

Indemnifications

In conjunction with certain transactions, primarily divestitures, the company has agreed to indemnify the other parties with respect to certain liabilities related to the businesses that were sold or leased properties that were abandoned (e.g., retention of certain environmental, tax, employee and product liabilities). The scope and duration of such indemnity obligations vary from transaction to transaction. Where probable, an obligation for such indemnifications is recorded as a liability. Generally, a maximum obligation cannot be reasonably estimated. Other than obligations recorded as liabilities at the time of divestiture, historically the company has not made significant payments for these indemnifications.

In connection with the company's efforts to reduce the number of facilities that it occupies, the company has vacated some of its leased facilities or sublet them to third parties. When the company sublets a facility to a third-party, it remains the primary obligor under the master lease agreement with the owner of the facility. As a result, if a third-party vacates the sublet facility,

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

the company would be obligated to make lease or other payments under the master lease agreement. The company believes that the financial risk of default by sublessors is individually and in the aggregate not material to the company's financial position or results of operations.

In connection with the sale of products in the ordinary course of business, the company often makes representations affirming, among other things, that its products do not infringe on the intellectual property rights of others and agrees to indemnify customers against third-party claims for such infringement. The company has not been required to make material payments under such provisions.

Environmental Matters

The company is currently involved in various stages of investigation and remediation related to environmental matters. The company cannot predict all potential costs related to environmental remediation matters and the possible impact on future operations given the uncertainties regarding the extent of the required cleanup, the complexity and interpretation of applicable laws and regulations, the varying costs of alternative cleanup methods and the extent of the company's responsibility. Expenses for environmental remediation matters related to the costs of installing, operating and maintaining groundwater-treatment systems and other remedial activities related to historical environmental contamination at the company's domestic and international facilities were not material in any period presented. The company records accruals for environmental remediation liabilities, based on current interpretations of environmental laws and regulations, when it is probable that a liability has been incurred and the amount of such liability can be reasonably estimated. The company calculates estimates based upon several factors, including input from environmental specialists and management's knowledge of and experience with these environmental matters. The company includes in these estimates potential costs for investigation, remediation and operation and maintenance of cleanup sites. At December 31, 2023, the company's total environmental liability was approximately \$75 million. While management believes the accruals for environmental remediation are adequate based on current estimates of remediation costs, the company may be subject to additional remedial or compliance costs due to future events such as changes in existing laws and regulations, changes in agency direction or enforcement policies, developments in remediation technologies or changes in the conduct of the company's operations, which could have a material adverse effect on the company's financial position, results of operations and cash flows.

Litigation and Related Contingencies

The company is involved in various disputes, governmental and/or regulatory inspections, inquiries, investigations and proceedings, and litigation matters that arise from time to time in the ordinary course of business. The disputes and litigation matters include product liability, intellectual property, employment and commercial issues. The company determines the probability and range of possible loss based on the current status of each of these matters. A liability is recorded in the financial statements if it is believed to be probable that a loss has been incurred and the amount of the loss can be reasonably estimated. The company establishes a liability that is an estimate of amounts expected to be paid in the future for events that have already occurred. The company accrues the most likely amount or at least the minimum of the range of probable loss when a range of probable loss can be estimated. The accrued liabilities are based on management's judgment as to the probability of losses for asserted and unasserted claims and, where applicable, actuarially determined estimates. Accrual estimates are adjusted as additional information becomes known or payments are made. The amount of ultimate loss may differ from these estimates. Due to the inherent uncertainties associated with pending litigation or claims, the company cannot predict the outcome, nor, with respect to certain pending litigation or claims where no liability has been accrued, make a meaningful estimate of the reasonably possible loss or range of loss that could result from an unfavorable outcome. The company has no material accruals for pending litigation or claims for which accrual amounts are not disclosed below, nor are material losses deemed probable for such matters. It is reasonably possible, however, that an unfavorable outcome that exceeds the company's current accrual estimate, if any, for one or more of the matters described below could have a material adverse effect on the company's results of operations, financial position and cash flows.

Product Liability, Workers Compensation and Other Personal Injury Matters

The company is involved in various proceedings and litigation that arise from time to time in connection with product liability, workers compensation and other personal injury matters. The range of probable loss for product liability, workers compensation and other personal injury matters of the company's continuing operations at December 31, 2023, was approximately \$222 million to \$379 million. The company's accrual for these matters totaled \$224 million at December 31, 2023. The accrual includes estimated defense costs and is gross of estimated amounts due from insurers of \$88 million at December 31, 2023 that are included in other assets in the accompanying balance sheet. In addition, as of December 31, 2023, the company had a product liability accrual of \$20 million relating to divested businesses.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Although the company believes that the amounts accrued and estimated recoveries are probable and appropriate based on available information, including actuarial studies of loss estimates, the process of estimating losses and insurance recoveries involves a considerable degree of judgment by management and the ultimate amounts could vary, which could have a material adverse effect on the company's results of operations, financial position, and cash flows. Insurance contracts do not relieve the company of its primary obligation with respect to any losses incurred. The collectability of amounts due from its insurers is subject to the solvency and willingness of the insurer to pay, as well as the legal sufficiency of the insurance claims. Management monitors the payment history as well as the financial condition and ratings of its insurers on an ongoing basis.

Note 13. Comprehensive Income/(Loss) and Shareholders' Equity

Comprehensive Income (Loss)

Changes in each component of accumulated other comprehensive items, net of tax are as follows:

(In millions)	Currency translation adjustment	Unrealized losses on hedging instruments	Pension and other postretirement benefit liability adjustment	Total
Balance at December 31, 2022	\$ (2,880)	\$ (33)	\$ (186)	\$ (3,099)
Other comprehensive income/(loss) before reclassifications	(69)	—	(69)	(138)
Amounts reclassified from accumulated other comprehensive income/(loss)	8	5	—	13
Net other comprehensive income/(loss)	(61)	5	(69)	(125)
Balance at December 31, 2023	\$ (2,941)	\$ (28)	\$ (255)	\$ (3,224)

Shareholders' Equity

At December 31, 2023, the company had reserved 39 million unissued shares of its common stock for possible issuance under stock-based compensation plans.

Early in the first quarter of 2024, the company repurchased \$3.00 billion of the company's common stock (5.5 million shares).

Note 14. Fair Value Measurements and Fair Value of Financial Instruments

Fair Value Measurements

The company uses the market approach technique to value its financial instruments and there were no changes in valuation techniques during 2023. The company's financial assets and liabilities carried at fair value are primarily comprised of investments in publicly traded securities, insurance contracts, investments in derivative contracts, mutual funds holding publicly traded securities and other investments in unit trusts held as assets to satisfy outstanding deferred compensation and retirement liabilities; and acquisition-related contingent consideration.

Assets and liabilities carried at fair value are classified and disclosed in one of the following three categories:

Level 1: Quoted market prices in active markets for identical assets or liabilities that the company has the ability to access.

Level 2: Observable market based inputs or unobservable inputs that are corroborated by market data such as quoted prices, interest rates and yield curves.

Level 3: Inputs are unobservable data points that are not corroborated by market data.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The following tables present information about the company's financial assets and liabilities measured at fair value on a recurring basis:

(In millions)	December 31,	Quoted prices in active markets (Level 1)		Significant other observable inputs (Level 2)		Significant unobservable inputs (Level 3)
		2023	(Level 1)	2023	(Level 2)	
Assets						
Cash equivalents	\$ 5,021	\$ 5,021	\$ —	\$ —	\$ —	\$ —
Bank time deposits	3	3	—	—	—	—
Investments	20	20	—	—	—	—
Insurance contracts	210	—	—	210	—	—
Derivative contracts	8	—	—	8	—	—
Total assets	\$ 5,262	\$ 5,044	\$ 218	\$ —	\$ —	\$ —
Liabilities						
Derivative contracts	\$ 290	\$ —	\$ 290	\$ —	\$ —	\$ —
Contingent consideration	87	—	—	—	—	87
Total liabilities	\$ 377	\$ —	\$ 290	\$ —	\$ 87	\$ 87

(In millions)	December 31,	Quoted prices in active markets (Level 1)		Significant other observable inputs (Level 2)		Significant unobservable inputs (Level 3)
		2022	(Level 1)	2022	(Level 2)	
Assets						
Cash equivalents	\$ 5,804	\$ 5,804	\$ —	\$ —	\$ —	\$ —
Investments	25	25	—	—	—	—
Warrants	12	—	—	12	—	—
Insurance contracts	162	—	—	162	—	—
Derivative contracts	79	—	—	79	—	—
Total assets	\$ 6,082	\$ 5,829	\$ 253	\$ —	\$ —	\$ —
Liabilities						
Derivative contracts	\$ 101	\$ —	\$ 101	\$ —	\$ —	\$ —
Contingent consideration	174	—	—	—	—	174
Total liabilities	\$ 275	\$ —	\$ 101	\$ —	\$ 174	\$ 174

The company uses the Black-Scholes model to value its warrants. The company determines the fair value of its insurance contracts by obtaining the cash surrender value of the contracts from the issuer. The fair value of derivative contracts is the estimated amount that the company would receive/pay upon liquidation of the contracts, taking into account the change in interest rates and currency exchange rates. The company initially measures the fair value of acquisition-related contingent consideration based on amounts expected to be transferred (probability-weighted) discounted to present value. Changes to the fair value of contingent consideration are recorded in selling, general and administrative expense.

The following table provides a rollforward of the fair value, as determined by level 3 inputs (such as likelihood of achieving production or revenue milestones, as well as changes in the fair values of the investments underlying a recapitalization investment portfolio), of the contingent consideration.

(In millions)	2023	2022
Contingent consideration		
Beginning balance	\$ 174	\$ 317
Acquisitions (including assumed balances)	1	(18)
Payments	(63)	(66)
Changes in fair value included in earnings	(25)	(59)
Ending balance	\$ 87	\$ 174

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Derivative Contracts

The following table provides the aggregate notional value of outstanding derivative contracts.

(In millions)	December 31, 2023	December 31, 2022
Cross-currency interest rate swaps designated as net investment hedge - euro	\$ 1,000	\$ 900
Cross-currency interest rate swaps designated as net investment hedge - Japanese yen	4,650	1,200
Cross-currency interest rate swaps designated as net investment hedge - Swiss franc	2,500	—
Currency exchange contracts	1,567	2,434

While certain derivatives are subject to netting arrangements with counterparties, the company does not offset derivative assets and liabilities within the balance sheet. The following tables present the fair value of derivative instruments in the accompanying balance sheets and statements of income.

(In millions)	Fair value – assets		Fair value – liabilities	
	December 31, 2023	December 31, 2022	December 31, 2023	December 31, 2022
Derivatives designated as hedging instruments				
Cross-currency interest rate swaps (a)	\$ 5	\$ 77	\$ 287	\$ 85
Derivatives not designated as hedging instruments				
Currency exchange contracts (b)	3	2	3	16
Total derivatives	\$ 8	\$ 79	\$ 290	\$ 101

(a) The fair value of the cross-currency interest rate swaps is included in the accompanying balance sheet under the caption other assets or other long-term liabilities.

(b) The fair value of the currency exchange contracts is included in the accompanying balance sheet under the captions other current assets or other accrued expenses.

(In millions)	Gain (loss) recognized		
	2023	2022	2021
Fair value hedging relationships			
Cross-currency interest rate swaps	\$ —	\$ 77	\$ —
Hedged long-term obligations - included in other income/(expense)	\$ —	\$ —	\$ —
Derivatives designated as hedging instruments - included in other income/(expense)	—	(81)	—
Interest rate swaps	—	—	25
Hedged long-term obligations - included in other income/(expense)	—	—	25
Derivatives designated as hedging instruments - included in other income/(expense)	—	—	(3)
Derivatives designated as cash flow hedges			
Interest rate swaps	—	—	—
Amount reclassified from accumulated other comprehensive items to interest expense	(4)	—	—
Amount reclassified from accumulated other comprehensive items to other income/(expense)	(3)	(3)	(73)
Financial instruments designated as net investment hedges			
Foreign currency-denominated debt and other payables	(356)	695	922
Included in currency translation adjustment within other comprehensive items	(222)	52	71
Cross-currency interest rate swaps	120	19	8
Included in currency translation adjustment within other comprehensive items	—	—	—
Included in interest expense	—	—	—
Derivatives not designated as hedging instruments			
Currency exchange contracts	1	6	12
Included in cost of product revenues	(29)	102	162
Included in other income/(expense)	—	—	—

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Gains and losses recognized on currency exchange contracts and the interest rate swaps designated as fair value hedges are included in the accompanying statements of income together with the corresponding, offsetting losses and gains on the underlying hedged transactions.

The company uses foreign currency-denominated debt, certain foreign currency-denominated payables, and cross-currency interest rate swaps to partially hedge its net investments in foreign operations against adverse movements in exchange rates. A portion of the company's euro-denominated senior notes, certain foreign currency-denominated payables, and its cross-currency interest rate swaps have been designated as, and are effective as, economic hedges of part of the net investment in a foreign operation. Accordingly, foreign currency transaction gains or losses due to spot rate fluctuations on the euro-denominated debt instruments and certain foreign currency-denominated payables, and contract fair value changes on the cross-currency interest rate swaps, excluding interest accruals, are included in currency translation adjustment within other comprehensive items and shareholders' equity.

See Note 1 and Note 10 for additional information on the company's risk management objectives and strategies.

Cash Flow Hedge Arrangements

During 2021, in connection with the extinguishment of debt (Note 10), the company reclassified \$65 million from accumulated other comprehensive income/(loss) to other income/(expense).

Fair Value of Other Financial Instruments

The carrying value and fair value of the company's debt instruments are as follows:

(In millions)	December 31, 2023		December 31, 2022	
	Carrying value	Fair value	Carrying value	Fair value
Senior notes	\$ 34,650	\$ 32,191	\$ 33,889	\$ 29,901
Commercial paper	—	—	310	310
Other	77	77	79	79
	\$ 34,727	\$ 32,268	\$ 34,278	\$ 30,290

The fair value of debt instruments, excluding private placement notes, was determined based on quoted market prices and on borrowing rates available to the company at the respective period ends, which represent level 2 measurements. The fair value of private placement notes was determined based on internally developed pricing models and unobservable inputs, which represent level 3 measurements.

Note 15. Supplemental Cash Flow Information

(In millions)	2023	2022	2021
Cash paid for:			
Interest	\$ 1,385	\$ 667	\$ 555
Income taxes	1,482	1,234	2,182
Non-cash investing and financing activities			
Acquired but unpaid property, plant and equipment	296	393	379
Fair value of equity awards exchanged	—	—	43
Fair value of acquisition contingent consideration	—	—	183
Finance lease ROU assets obtained in exchange for new finance lease liabilities	2	33	15
Declared but unpaid dividends	137	119	104
Issuance of stock upon vesting of restricted stock units	234	241	265
Excise tax from stock repurchases	28	—	—

THERMO FISHER SCIENTIFIC INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Cash, cash equivalents and restricted cash is included in the consolidated balance sheet as follows:

(In millions)	December 31, 2023	December 31, 2022
Cash and cash equivalents	\$ 8,077	\$ 8,524
Restricted cash included in other current assets	6	12
Restricted cash included in other assets	14	1
Cash, cash equivalents and restricted cash	\$ 8,097	\$ 8,537

Amounts included in restricted cash primarily represent funds held as collateral for bank guarantees and incoming cash in China awaiting government administrative clearance.

Note 16. Restructuring and Other Costs

Restructuring and other costs in 2023 primarily included continuing charges for headcount reductions and facility consolidations in an effort to streamline operations, impairment of long-lived assets, and, to a lesser extent, net charges for pre-acquisition litigation and other matters. In 2023, severance actions associated with facility consolidations and cost reduction measures affected approximately 5% of the company's workforce.

Restructuring and other costs in 2022 primarily included impairment of long-lived assets and continuing charges for headcount reductions and facility consolidations in an effort to streamline operations. In 2022, severance actions associated with facility consolidations and cost reduction measures affected less than 2% of the company's workforce.

Restructuring and other costs in 2021 primarily included charges for impairments of an acquired technology asset and a tradename asset, and, to a lesser extent, compensation due to employees at acquired businesses on the date of acquisition. In 2021, severance actions associated with facility consolidations and cost reduction measures affected less than 1% of the company's workforce.

As of February 22, 2024, the company has identified restructuring actions that will result in additional charges of approximately \$70 million, primarily in 2024, and expects to identify additional actions in future periods which will be recorded when specified criteria are met, such as communication of benefit arrangements or when the costs have been incurred.

Restructuring and other costs by segment are as follows:

(In millions)	2023	2022	2021
Life Sciences Solutions	\$ 105	\$ 30	\$ 129
Analytical Instruments	33	1	6
Specialty Diagnostics	11	68	18
Laboratory Products and Biopharma Services	295	12	35
Corporate	15	3	9
Total	\$ 459	\$ 114	\$ 197

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The following table summarizes the changes in the company's accrued restructuring balance. Other amounts reported as restructuring and other costs in the accompanying statement of income have been summarized in the notes to the table. Accrued restructuring costs are included in other accrued expenses in the accompanying balance sheet.

(In millions)	Total (a)
Balance at December 31, 2020	\$ 21
Net restructuring charges incurred in 2021 (b)	37
Payments	(40)
Currency translation	(1)
Balance at December 31, 2021	17
Net restructuring charges incurred in 2022 (c)	68
Payments	(44)
Balance at December 31, 2022	41
Net restructuring charges incurred in 2023 (d) (e)	194
Payments	(175)
Balance at December 31, 2023	\$ 60

- (a) The movements in the restructuring liability principally consist of severance and other costs associated with facility consolidations.
- (b) Excludes \$160 million of charges, principally \$122 million for impairments of an acquired technology asset and a tradename asset in the Life Sciences Solutions and Laboratory Products and Biopharma Services segments, principally resulting from a reduction in expected cash flows, and \$35 million of charges for compensation contractually due to employees of acquired businesses at the date of acquisition in the Life Sciences Solutions and Laboratory Products and Biopharma Services segments.
- (c) Excludes \$46 million of net charges, primarily charges for impairment of long-lived assets in the Specialty Diagnostic segment.
- (d) Excludes \$264 million of net charges, principally \$126 million of charges for impairment of long-lived assets in the Laboratory Products and Biopharma Services and Life Sciences Solutions segments, \$26 million of contract termination costs associated with facility closures in the Laboratory Products and Biopharma Services segment, and \$19 million of net charges for pre-acquisition litigation and other matters in the Laboratory Products and Biopharma Services segment.
- (e) Excludes \$93 million of charges in the Laboratory Products and Biopharma Services segment for impairments of a disposal group that was held for sale beginning in the third quarter of 2023. The loss attributable to Thermo Fisher Scientific Inc. was reduced by \$46 million attributable to a noncontrolling interest.

The company expects to pay accrued restructuring costs primarily through 2024.

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

Not applicable.

Item 9A. Controls and Procedures

Management's Evaluation of Disclosure Controls and Procedures

The company's management, with the participation of the company's chief executive officer and chief financial officer, has evaluated the effectiveness of the company's disclosure controls and procedures (as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) as of the end of the period covered by this report. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives, and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on such evaluation, the company's chief executive officer and chief financial officer concluded that, as of the end of such period, the company's disclosure controls and procedures were effective at the reasonable assurance level.

Changes in Internal Control over Financial Reporting

There have been no changes in the company's internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) during the fiscal quarter ended December 31, 2023, that have materially affected or are reasonably likely to materially affect the company's internal control over financial reporting.

Management's Annual Report on Internal Control Over Financial Reporting

The company's management, including the company's chief executive officer and chief financial officer, is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the company. Internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. The company's management conducted an assessment of the effectiveness of the company's internal control over financial reporting as of December 31, 2023 based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this assessment, the company's management concluded that, as of December 31, 2023, the company's internal control over financial reporting was effective.

The company's independent registered public accounting firm, PricewaterhouseCoopers LLP, has audited the effectiveness of the company's internal control over financial reporting as of December 31, 2023, as stated in their report that appears on page 30 of this Annual Report on Form 10-K.

Item 9B. Other Information

Amendment and Restatement of By-Laws

On February 21, 2024, the Board of Directors of the company amended and restated the company's By-Laws, effective immediately, to remove the supermajority voting requirement for amending Article II or Article VI of the By-laws. Specifically, the amendments to the By-laws eliminate Article VI, Section 3 to remove the supermajority voting requirement, and update Article VI, Section 2 to remove the reference to Article VI, Section 3. The foregoing description of the amendments to the By-laws does not purport to be complete and is qualified in its entirety by reference to the full text of the By-laws, as amended and restated, a copy of which is attached as Exhibit 3.4 and incorporated by reference herein.

Director and Officer Trading Arrangements

On December 13, 2023, Michael A. Boxer, our senior vice president, general counsel, adopted a trading plan intended to satisfy the conditions under Rule 10b5-1(c) of the Exchange Act. Mr. Boxer's plan is for the exercise of vested stock options and the associated sale of up to 20,566 shares of company common stock through December 13, 2024. The foregoing exercises or sales will be made in accordance with the prices and formulas set forth in the plan and such plan terminates on the earlier of the date all the shares under the plan are sold and December 13, 2024.

On December 12, 2023, Lisa P. Britt, our senior vice president, chief human resources officer, adopted a trading plan intended to satisfy the conditions under Rule 10b5-1(c) of the Exchange Act. Ms. Britt's plan is for the exercise of vested stock options and the associated sale of up to 14,345 shares of company common stock through November 11, 2024. The foregoing exercises or sales will be made in accordance with the prices and formulas set forth in the plan and such plan terminates on the earlier of the date all the shares under the plan are sold and November 12, 2024.

On November 10, 2023, Marc N. Casper, our chairman, president and chief executive officer, adopted a trading plan intended to satisfy the conditions under Rule 10b5-1(c) of the Exchange Act. Mr. Casper's plan is for the exercise of vested stock options

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and the associated sale of up to 202,150 shares of company common stock through November 1, 2024. The foregoing exercises or sales will be made in accordance with the prices and formulas set forth in the plan and such plan terminates on the earlier of the date all the shares under the plan are sold and November 4, 2024.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information with respect to directors required by this Item will be contained in our Proxy Statement to be filed with the SEC not later than 120 days after the close of business of the fiscal year including under “Corporate governance,” and is incorporated in this report by reference.

The information with respect to executive officers required by this Item is included in [Item 1 of Part I](#) of this report.

The other information required by this Item will be contained in our Proxy Statement including under “Corporate governance,” and is incorporated in this report by reference.

Item 11. Executive Compensation

The information required by this Item will be contained in our Proxy Statement including under “Corporate governance,” and “Executive compensation,” and is incorporated in this report by reference.

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

The information required by this Item will be contained in our Proxy Statement including under “Information about stock ownership,” and is incorporated in this report by reference.

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

The information required by this Item will be contained in our Proxy Statement including under “Corporate governance,” and is incorporated in this report by reference.

Item 14. Principal Accountant Fees and Services

The information required by this Item will be contained in our Proxy Statement including under “Audit matters,” and is incorporated in this report by reference.

PART IV

Item 15. Exhibits and Financial Statement Schedules

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

- (1) Consolidated Financial Statements (see Index on page 29 of this report)
- (2) All schedules are omitted because they are not applicable or not required, or because the required information is included either in the consolidated financial statements or in the notes thereto.

(b) Exhibits

Exhibit Number	Description of Exhibit
2.1	Agreement and Plan of Merger, dated as of April 15, 2021, by and among Thermo Fisher Scientific Inc., Powder Acquisition Corp. and PPD, Inc. (filed as Exhibit 2.1 to the Registrant’s Current Report on Form 8-K filed April 16, 2021 [File No. 1-8002] and incorporated in this document by reference).
3.1	Amended and Restated Certificate of Incorporation of the Registrant (filed as Exhibit 3.1 to the Registrant’s Annual Report on Form 10-K for the year ended December 31, 2005 [File No. 1-8002] and incorporated in this document by reference).
3.2	Amendment to Thermo Fisher Scientific Inc.’s Third Amended and Restated Certificate of Incorporation (filed as Exhibit 3.1 to the Registrant’s Current Report on Form 8-K filed November 14, 2006 [File No. 1-8002] and incorporated in this document by reference).
3.3	Certificate of Elimination of the Series B Junior Participating Preferred Stock of the Company, dated November 13, 2015 (filed as Exhibit 3.1 to the Registrant’s Current Report on Form 8-K filed November 16, 2015 [File No. 1-8002] and incorporated in this document by reference).

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Exhibit Number	Description of Exhibit
3.4	<u>Amended and Restated By-Laws of the Registrant, as amended and effective as of February 21, 2024</u> <i>The Registrant agrees, pursuant to Item 601(b)(4)(iii)(A) of Regulation S-K, to furnish to the Commission, upon request, a copy of each instrument with respect to long-term debt of the Registrant or its consolidated subsidiaries.</i>
4.1	<u>Indenture dated as of November 20, 2009 between the Company and The Bank of New York Mellon Trust Company, N.A.</u> (filed as Exhibit 99.1 to the Registrant's Current Report on Form 8-K filed November 20, 2009 [File No. 1-8002] and incorporated in this document by reference).
4.2	<u>Sixth Supplemental Indenture, dated as of December 11, 2013, between the Company and The Bank of New York Mellon Trust Company, N.A.</u> (filed as Exhibit 99.2 to the Registrant's Current Report on Form 8-K filed December 11, 2013 [File No. 1-8002] and incorporated in this document by reference).
4.3	<u>Eighth Supplemental Indenture, dated as of November 24, 2014, among the Company, The Bank of New York Mellon Trust Company, N.A., as trustee, and The Bank of New York Mellon, London Branch, as paying agent</u> (filed as Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed November 24, 2014 [File No. 1-8002] and incorporated in this document by reference).
4.4	<u>Thirteenth Supplemental Indenture, dated as of September 12, 2016, between the Company and The Bank of New York Mellon Trust Company, N.A., as trustee</u> (filed as Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed September 12, 2016 [File No. 1-8002] and incorporated in this document by reference).
4.5	<u>Fifteenth Supplemental Indenture, dated as of March 16, 2017, between the Company and The Bank of New York Mellon Trust Company, N.A., as trustee</u> (filed as Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed March 16, 2017 [File No. 1-8002] and incorporated in this document by reference).
4.6	<u>Sixteenth Supplemental Indenture, dated as of July 24, 2017, between the Company and The Bank of New York Mellon Trust Company, N.A., as trustee</u> (filed as Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed July 24, 2017 [File No. 1-8002] and incorporated in this document by reference).
4.7	<u>Seventeenth Supplemental Indenture, dated as of August 14, 2017, between the Company and The Bank of New York Mellon Trust Company, N.A., as trustee</u> (filed as Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed August 14, 2017 [File No. 1-8002] and incorporated in this document by reference).
4.8	<u>Eighteenth Supplemental Indenture, dated as of September 30, 2019, between the Company, and The Bank of New York Mellon Trust Company, N.A., as trustee</u> (filed as Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed September 30, 2019 [File No. 1-8002] and incorporated in this document by reference).
4.9	<u>Nineteenth Supplemental Indenture, dated as of October 8, 2019, between the Company, and the Bank of New York Mellon Trust Company, N.A., as trustee</u> (filed as Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed October 8, 2019 [File No. 1-8002] and incorporated in this document by reference).
4.10	<u>Twenty-First Supplemental Indenture, dated as of April 2, 2020, between the Company, and The Bank of New York Mellon Trust Company, N.A., as trustee</u> (filed as Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed April 2, 2020 [File No. 1-8002] and incorporated in this document by reference).
4.11	<u>Twenty-Second Supplemental Indenture, dated as of August 23, 2021, between the Company, and The Bank of New York Mellon Trust Company, N.A., as trustee</u> (filed as Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed August 23, 2021 [File No. 1-8002] and incorporated in this document by reference).
4.12	<u>Twenty-Third Supplemental Indenture, dated as of October 22, 2021, between the Company, and The Bank of New York Mellon Trust Company, N.A., as trustee</u> (filed as Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed October 22, 2021 [File No. 1-8002] and incorporated in this document by reference).
4.13	<u>Twenty-Fourth Supplemental Indenture, dated as of October 20, 2022, between the Company, as issuer, and The Bank of New York Mellon Trust Company, N.A., as trustee</u> (filed as Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed October 20, 2022 [File No. 1-8002] and incorporated in this document by reference).
4.14	<u>Twenty-Fifth Supplemental Indenture, dated as of November 21, 2022, between the Company, as issuer, and The Bank of New York Mellon Trust Company, N.A., as trustee</u> (filed as Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed November 21, 2022 [File No. 1-8002] and incorporated in this document by reference).
4.15	<u>Twenty-Sixth Supplemental Indenture, dated as of November 21, 2022, between the Company, as issuer, and The Bank of New York Mellon Trust Company, N.A., as trustee</u> (filed as Exhibit 4.3 to the Registrant's Current Report on Form 8-K filed November 21, 2022 [File No. 1-8002] and incorporated in this document by reference).
4.16	<u>Twenty-Seventh Supplemental Indenture, dated as of August 10, 2023, between the Company, as issuer, and The Bank of New York Mellon Trust Company, N.A., as trustee</u> (filed as Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed August 10, 2023 [File No. 1-8002] and incorporated in this document by reference).
4.17	<u>Twenty-Eighth Supplemental Indenture, dated as of December 5, 2023, between the Company, as issuer, and The Bank of New York Mellon Trust Company, N.A., as trustee</u> (filed as Exhibit 4.2 to the Registrant's Current Report on Form 8-K December 5, 2023 [File No. 1-8002] and incorporated in this document by reference).
4.18	<u>Indenture, dated as of August 9, 2016, among Thermo Fisher Scientific (Finance I) B.V. (Thermo Fisher International), as issuer, the Company, as guarantor, and The Bank of New York Mellon Trust Company, N.A., as trustee</u> (filed as Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed August 9, 2016 [File No. 1-8002] and incorporated in this document by reference).

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Exhibit Number	Description of Exhibit
4.19	Third Supplemental Indenture, dated as of October 18, 2021, among Thermo Fisher International, as issuer, the Company, as guarantor, and The Bank of New York Mellon Trust Company, N.A., as trustee (filed as Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed October 18, 2021 [File No. 1-8002] and incorporated in this document by reference).
4.20	Fourth Supplemental Indenture, dated as of November 18, 2021, among Thermo Fisher International, as issuer, the Company, as guarantor, and The Bank of New York Mellon Trust Company, N.A., as trustee (filed as Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed November 18, 2021 [File No. 1-8002] and incorporated in this document by reference).
4.21	Description of the Registrant's Securities (filed as Exhibit 4.19 to the Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2022 [File No. 1-8002] and incorporated in this document by reference).
10.1	Thermo Fisher Scientific Inc. Deferred Compensation Plan for Directors of the Registrant, as amended and restated effective February 21, 2024.*
10.2	Thermo Electron Corporation Deferred Compensation Plan, effective November 1, 2001 (filed as Exhibit 10.13 to the Registrant's Annual Report on Form 10-K for the fiscal year ended December 29, 2001 [File No. 1-8002] and incorporated in this document by reference).*
10.3	Form of Amended and Restated Indemnification Agreement between the Registrant and its directors and officers (filed as Exhibit 10.2 to the Registrant's Registration Statement on Form S-4 [Reg. No. 333-90661] and incorporated in this document by reference).*
10.4	Summary of Thermo Fisher Scientific Inc. Annual Non-Management Director Compensation (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed February 24, 2022 [File No. 1-8002] and incorporated in this document by reference).*
10.5	Form of Noncompetition Agreement between the Registrant and certain key employees and executive officers, effective as of January 1, 2009 (filed as Exhibit 10.25 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2009 [File No. 1-8002] and incorporated in this document by reference).*
10.6	Retirement Plan for Non-Employee Directors of Fisher Scientific International Inc. (filed as Exhibit 10.12 to Fisher Scientific International Inc.'s Annual Report on Form 10-K for the year ended December 31, 1992 [File No. 1-10920] and incorporated in this document by reference).*
10.7	First Amendment to the Fisher Scientific International Inc. Retirement Plan for Non-Employee Directors (filed as Exhibit 10.04 to Fisher Scientific International Inc.'s Quarterly Report on Form 10-Q for the quarter ended March 31, 2005 [File No. 1-10920] and incorporated in this document by reference).*
10.8	Amendment to Retirement Plan for Non-Employee Directors of Fisher Scientific International Inc. (filed as Exhibit 10.02 to Fisher Scientific International Inc.'s Current Report on Form 8-K filed March 7, 2006 [File No. 1-10920] and incorporated in this document by reference).*
10.9	Thermo Fisher Scientific Inc. Amended and Restated 2005 Deferred Compensation Plan, effective January 1, 2020 (filed as Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 27, 2020 [File No. 1-8002] and incorporated in this document by reference).*
10.10	2009 Restatement of Executive Severance Agreement, between Marc N. Casper and the Registrant, dated November 21, 2009 (filed as Exhibit 10.5 to the Registrant's Current Report on Form 8-K filed November 25, 2009 [File No. 1-8002] and incorporated in this document by reference).*
10.11	Executive Change In Control Retention Agreement, between Marc N. Casper and the Registrant, dated November 21, 2009 (filed as Exhibit 10.6 to the Registrant's Current Report on Form 8-K filed November 25, 2009 [File No. 1-8002] and incorporated in this document by reference).*
10.12	Noncompetition Agreement, between Marc N. Casper and the Registrant, dated November 21, 2009 (filed as Exhibit 10.7 to the Registrant's Current Report on Form 8-K filed November 25, 2009 [File No. 1-8002] and incorporated in this document by reference).*
10.13	Amendment No. 1 to 2009 Restatement of Executive Severance Agreement, dated February 25, 2010, between the Registrant and Marc N. Casper (filed as Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed February 25, 2010 [File No. 1-8002] and incorporated in this document by reference).*
10.14	Amendment No. 2 to 2009 Restatement of Executive Severance Agreement, dated November 30, 2010, between the Registrant and Marc N. Casper (filed as Exhibit 10.55 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2010 [File No. 1-8002] and incorporated in this document by reference).*
10.15	Amendment No. 1 to Executive Change In Control Retention Agreement, dated November 30, 2010, between Marc N. Casper and the Registrant (filed as Exhibit 10.56 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2010 [File No. 1-8002] and incorporated in this document by reference).*
10.16	Amendment No. 2 to Executive Change in Control Retention Agreement, dated March 16, 2018, between Marc N. Casper and the Registrant (filed as Exhibit 10.3 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2018 [File No. 1-8002] and incorporated in this document by reference).*
10.17	Form of Executive Change in Control Retention Agreement for Officers (other than Marc N. Casper) (filed as Exhibit 10.7 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended April 1, 2023 [File No. 1-8002] and incorporated in this document by reference).*
10.18	Form of Thermo Fisher Scientific Inc.'s Restricted Stock Unit Agreement for Directors (filed as Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended April 2, 2011 [File No. 1-8002] and incorporated in this document by reference).*

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Exhibit Number	Description of Exhibit
10.19	Thermo Fisher Scientific Inc. Amended and Restated 2013 Stock Incentive Plan (filed as Exhibit 99.1 to the Registrant's Form S-8 filed on May 24, 2023 [File No. 333-272173] and incorporated in this document by reference).*
10.20	Form of Thermo Fisher Scientific Inc.'s Nonstatutory Stock Option Agreement for Officers (filed as Exhibit 10.44 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2016 [File No. 1-8002] and incorporated in this document by reference).*
10.21	Patheon N.V. 2016 Omnibus Incentive Plan (filed as Exhibit 10.2 to the Current Report on Form 8-K filed by Patheon N.V. on July 26, 2016 [File No. 001-37837] and incorporated in this document by reference).*
10.22	Amendment to Patheon N.V. 2016 Omnibus Incentive Plan, dated March 7, 2017 (filed as Exhibit 4.5 to the Registrant's Registration Statement on Form S-8 filed August 29, 2017 [File No. 1-8002] and incorporated in this document by reference).*
10.23	Amendment to Patheon N.V. 2016 Omnibus Incentive Plan, dated August 23, 2017 (filed as Exhibit 4.6 to the Registrant's Registration Statement on Form S-8 filed August 29, 2017 [File No. 1-8002] and incorporated in this document by reference).*
10.24	Credit Agreement, dated January 7, 2022, among Thermo Fisher Scientific Inc., certain Subsidiaries of Thermo Fisher Scientific Inc. from time to time party thereto, Bank of America, N.A., as Administrative Agent and each lender from time to time party thereto (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed January 7, 2022 [File No. 1-8002] and incorporated in this document by reference).
10.25	Letter Agreement between the Registrant and Michel Lagarde dated August 28, 2017 (filed as Exhibit 10.39 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2019 [File No. 1-8002] and incorporated in this document by reference).*
10.26	Option Agreement Under the Patheon N.V. 2016 Omnibus Incentive Plan between Patheon N.V. and Michel Lagarde dated July 20, 2016 (filed as Exhibit 10.40 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2019 [File No. 1-8002] and incorporated in this document by reference).*
10.27	Option Agreement Under the Patheon N.V. 2016 Omnibus Incentive Plan between Patheon N.V. and Michel Lagarde dated March 23, 2017 (filed as Exhibit 10.42 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2019 [File No. 1-8002] and incorporated in this document by reference).*
10.28	Thermo Fisher Scientific Inc. Executive Severance Policy (filed as Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 29, 2019 [File No. 1-8002] and incorporated in this document by reference).*
10.29	Form of Noncompetition Agreement between the Registrant and certain key employees and executive officers (filed as Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 29, 2019 [File No. 1-8002] and incorporated in this document by reference).*
10.30	Form of Thermo Fisher Scientific Inc.'s Performance Restricted Stock Unit Agreement effective as of February 25, 2020 (filed as Exhibit 10.45 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2019 [File No. 1-8002] and incorporated in this document by reference).*
10.31	Form of Thermo Fisher Scientific Inc.'s Restricted Stock Unit Agreement effective as of February 25, 2020 (filed as Exhibit 10.46 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2019 [File No. 1-8002] and incorporated in this document by reference).*
10.32	Form of Thermo Fisher Scientific Inc.'s Nonstatutory Stock Option Agreement for Officers effective as of February 25, 2020 (filed as Exhibit 10.47 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2019 [File No. 1-8002] and incorporated in this document by reference).*
10.33	Form of Performance Restricted Stock Unit Agreement between Thermo Fisher Scientific Inc. and Marc N. Casper effective as of February 25, 2020 (filed as Exhibit 10.48 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2019 [File No. 1-8002] and incorporated in this document by reference).*
10.34	Form of Restricted Stock Unit Agreement between Thermo Fisher Scientific Inc. and Marc N. Casper effective as of February 25, 2020 (filed as Exhibit 10.49 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2019 [File No. 1-8002] and incorporated in this document by reference).*
10.35	Form of Nonstatutory Stock Option Agreement between Thermo Fisher Scientific Inc. and Marc N. Casper effective as of February 25, 2020 (filed as Exhibit 10.50 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2019 [File No. 1-8002] and incorporated in this document by reference).*
10.36	Form of Restricted Stock Unit Agreement between Thermo Fisher Scientific Inc. and Marc N. Casper (filed as Exhibit 10.47 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2020 [File No. 1-8002] and incorporated in this document by reference).*
10.37	Form of Performance Restricted Stock Unit Agreement between Thermo Fisher Scientific Inc. and Marc N. Casper (filed as Exhibit 10.48 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2020 [File No. 1-8002] and incorporated in this document by reference).*
10.38	Form of Thermo Fisher Scientific Inc.'s Performance Restricted Stock Unit Agreement (filed as Exhibit 10.49 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2020 [File No. 1-8002] and incorporated in this document by reference).*
10.39	PPD, Inc. 2020 Omnibus Incentive Plan (filed as Exhibit 10.38 to PPD Inc.'s Form S-1/A filed January 27, 2020 [File No. 333-235860] and incorporated in this document by reference).*

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Exhibit Number	Description of Exhibit
10.40	Amendment to Nonstatutory Stock Option Agreements between Thermo Fisher Scientific Inc. and Marc N. Casper (filed as Exhibit 10.45 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2022 [File No. 1-8002] and incorporated in this document by reference).*
10.41	Amendment to Restricted Stock Unit Agreements between Thermo Fisher Scientific Inc. and Marc N. Casper (filed as Exhibit 10.46 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2022 [File No. 1-8002] and incorporated in this document by reference).*
10.42	Amendment to Performance Restricted Stock Unit Agreements between Thermo Fisher Scientific Inc. and Marc N. Casper (filed as Exhibit 10.47 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2022 [File No. 1-8002] and incorporated in this document by reference).*
10.43	Form of Thermo Fisher Scientific Inc.'s Nonstatutory Stock Option Agreement effective as of February 22, 2023 (filed as Exhibit 10.3 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended April 1, 2023 [File No. 1-8002] and incorporated in this document by reference).*
10.44	Form of Thermo Fisher Scientific Inc.'s Restricted Stock Unit Agreement (filed as Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended April 1, 2023 [File No. 1-8002] and incorporated in this document by reference).*
10.45	Form of Thermo Fisher Scientific Inc.'s Performance Restricted Stock Unit Agreement (filed as Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended April 1, 2023 [File No. 1-8002] and incorporated in this document by reference).*
10.46	Form of Nonstatutory Stock Option Agreement between Thermo Fisher Scientific Inc. and Marc N. Casper effective as of February 22, 2023 (filed as Exhibit 10.6 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended April 1, 2023 [File No. 1-8002] and incorporated in this document by reference).*
10.47	Form of Restricted Stock Unit Agreement between Thermo Fisher Scientific Inc. and Marc N. Casper (filed as Exhibit 10.5 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended April 1, 2023 [File No. 1-8002] and incorporated in this document by reference).*
10.48	Form of Performance Restricted Stock Unit Agreement between Thermo Fisher Scientific Inc. and Marc N. Casper (filed as Exhibit 10.4 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended April 1, 2023 [File No. 1-8002] and incorporated in this document by reference).*
10.49	Thermo Fisher Scientific Inc. Deferred Compensation Plan, as amended and restated January 1, 2024.*
21	Subsidiaries of the Registrant.
22	Subsidiary Issuer of Guaranteed Securities.
23.1	Consent of PricewaterhouseCoopers LLP, an Independent Registered Public Accounting Firm.
31.1	Certification of Chief Executive Officer required by Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of Chief Financial Officer required by Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification of Chief Executive Officer required by Exchange Act Rules 13a-14(b) and 15d-14(b), as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.**
32.2	Certification of Chief Financial Officer required by Exchange Act Rules 13a-14(b) and 15d-14(b), as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.**
97	Clawback Policy
101.INS	XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.
101.SCH	XBRL Taxonomy Extension Schema Document.
101.CAL	XBRL Taxonomy Calculation Linkbase Document.
101.DEF	XBRL Taxonomy Definition Linkbase Document.
101.LAB	XBRL Taxonomy Label Linkbase Document.
101.PRE	XBRL Taxonomy Presentation Linkbase Document.
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101).

*Indicates management contract or compensatory plan, contract or arrangement.

** Certification is not deemed "filed" for purposes of Section 18 of the Exchange Act or otherwise subject to the liability of that section. Such certification is not deemed to be incorporated by reference into any filing under the Securities Act or the Exchange Act except to the extent that the registrant specifically incorporates it by reference.

Item 16. Form 10-K Summary

None.

SIGNATURES

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

Date: February 22, 2024

THERMO FISHER SCIENTIFIC INC.

By: /s/ Marc N. Casper

Marc N. Casper
Chairman, President and Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant and in the capacities indicated, as of February 22, 2024.

By: /s/ Marc N. Casper
Marc N. Casper
Chairman, President and Chief Executive Officer
(Principal Executive Officer)

By: /s/ Jennifer M. Johnson
Jennifer M. Johnson
Director

By: /s/ Stephen Williamson
Stephen Williamson
Senior Vice President and Chief Financial Officer
(Principal Financial Officer)

By: /s/ R. Alexandra Keith
R. Alexandra Keith
Director

By: /s/ Joseph R. Holmes
Joseph R. Holmes
Vice President and Chief Accounting Officer
(Principal Accounting Officer)

By: /s/ James C. Mullen
James C. Mullen
Director

By: /s/ Nelson J. Chai
Nelson J. Chai
Director

By: /s/ Lars R. Sørensen
Lars R. Sørensen
Director

By: /s/ Ruby R. Chandy
Ruby R. Chandy
Director

By: /s/ Debora L. Spar
Debora L. Spar
Director

By: /s/ C. Martin Harris
C. Martin Harris
Director

By: /s/ Scott M. Sperling
Scott M. Sperling
Director

By: /s/ Tyler E. Jacks
Tyler E. Jacks
Director

By: /s/ Dion J. Weisler
Dion J. Weisler
Director

As amended and restated effective as of February 21, 2024

Thermo Fisher Scientific Inc.

BY-LAWS

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THERMO FISHER SCIENTIFIC INC.

BY-LAWS

ARTICLE I - STOCKHOLDERS

Section 1. Annual Meeting. The annual meeting of the stockholders, for the election of directors to succeed those whose terms expire and for the transaction of such other business as may properly come before the meeting, shall be held at such place, if any, on such date, and at such time as the Board of Directors may each year fix. The Board of Directors may postpone, reschedule or cancel any previously scheduled annual meeting.

Section 2. Special Meetings.

1. Except as otherwise provided in paragraph 2 of Section 2 of this Article I, special meetings of stockholders may be called only by the Board of Directors, the Chairman of the Board of Directors, or the Chief Executive Officer. Business transacted at any special meeting of stockholders called pursuant to this paragraph 1 of Section 2 of Article I shall be limited to matters relating to the purpose or purposes stated in the notice of meeting.

2. A special meeting of stockholders shall be called by the Secretary upon written request (a “Special Meeting Request”) of one or more holders of record representing not less than 15% of the outstanding shares of Common Stock of the Corporation (the “Requisite Percentage”), provided that such shares have been “Owned” (as defined in paragraphs 7 and 8 of Section 10 of this Article I) continuously by such holders for at least one year prior to the date of the Special Meeting Request (the “One Year Period”), who have complied in full with the requirements set forth in these By-laws.

(i) A Special Meeting Request must be delivered to the attention of the Secretary at the principal executive offices of the Corporation. A Special Meeting Request shall be valid only if it is signed and dated by each stockholder of record submitting the Special Meeting Request and the beneficial owners, if any, on whose behalf the Special Meeting Request is being made, or such stockholder’s or beneficial owner’s duly authorized agent (each, a “Requesting Stockholder”) collectively representing the Requisite Percentage, and includes (A) a statement of the specific purpose(s) of the special meeting and the reasons for conducting such business at the special meeting; (B) as to any director nominations proposed to be presented at the special meeting and any matter (other than a director nomination) proposed to be conducted at the special meeting and as to each Requesting Stockholder, the information, statements, representations, agreements and other documents that would be required to be set forth in or included with a stockholder’s notice of a nomination pursuant to Section 9 of this Article I (including any nominee’s written consent to being named in the Corporation’s proxy statement as a nominee and to serving as a director if elected) and/or a stockholder’s notice of business proposed to be brought before a meeting pursuant to Section 9 of this Article I, as applicable; (C) a representation that a Requesting Stockholder or a qualified representative (as defined in Section 9 of this Article I) thereof intends to appear in person or by proxy at the special meeting to present the nomination(s) or business to be brought before the special meeting; (D) an agreement by each Requesting Stockholder to notify the Corporation promptly

in the event of any disposition prior to the date of the special meeting of shares of the Corporation owned beneficially or of record and an acknowledgement that any such disposition shall be deemed to be a revocation of such Special Meeting Request with respect to such disposed shares; and (E) documentary evidence that each Requesting Stockholder has Owned continuously for the One Year Period the Requisite Percentage; provided, however, that if the Requesting Stockholders are not the beneficial owners of the shares representing the Requisite Percentage, then to be valid, the Special Meeting Request must also include documentary evidence (or, if not simultaneously provided with the Special Meeting Request, such documentary evidence must be delivered to the Secretary within 10 days after the date on which the Special Meeting Request is delivered to the Secretary) that the beneficial owners on whose behalf the Special Meeting Request is made beneficially have Owned the Requisite Percentage continuously for the One Year Period. In addition, each Requesting Stockholder shall (x) further update and supplement the information provided in the Special Meeting Request, if necessary, so that the information provided or required to be provided therein shall be true and correct as of the record date for the special meeting and as of the date that is 10 business days prior to the special meeting or any adjournment or postponement thereof, and such update and supplement shall be delivered to the Secretary at the principal executive offices of the Corporation not later than five business days after the later of the record date for the meeting or the date notice of the record date is first publicly disclosed in the case of the update and supplement required to be made as of the record date and not later than 10 business days prior to the date of the special meeting or any adjournment or postponement thereof in the case of the update and supplement required to be made as of 10 business days prior to the special meeting or any adjournment or postponement thereof and (y) promptly provide any other information reasonably requested by the Corporation.

(ii) A Special Meeting Request shall not be valid, and a special meeting requested by stockholders shall not be held, if (A) the Special Meeting Request does not comply with this Section 2; (B) the Special Meeting Request relates to an item of business that is not a proper subject for stockholder action under applicable law (as determined in good faith by the Board of Directors); (C) the Special Meeting Request is delivered during the period commencing 90 days prior to the first anniversary of the date of the immediately preceding annual meeting of stockholders and ending on the earlier of the date of the next annual meeting of stockholders and the date that is 90 days after the first anniversary of the date of the immediately preceding annual meeting of stockholders; (D) an identical or substantially similar item (as determined in good faith by the Board of Directors, a “Similar Item”), other than the election of directors, was presented at an annual or special meeting of stockholders held not more than 12 months before the Special Meeting Request is delivered; (E) a Similar Item was presented at an annual or special meeting of stockholders held not more than 120 days before the Special Meeting Request is delivered (and, for purposes of this clause (E), the election of directors shall be deemed to be a “Similar Item” with respect to all items of business involving the election or removal of directors, changing the size of the Board of Directors and the filling of vacancies and/or newly created directorships resulting from any increase in the authorized number of directors); (F) a Similar Item is included in the Corporation’s notice of meeting as an item of business to be brought before an annual or special meeting of stockholders that has been called but not yet held or that is called for a date within 90 days of the receipt by the Corporation of a Special Meeting Request; or (G) the Special Meeting Request was made in a manner that involved a violation of Regulation 14A under the Exchange Act or other applicable law.

(iii) Special meetings of stockholders called pursuant to this Section 2 shall be held at such place, if any, on such date, and at such time as the Board of Directors shall fix; provided, however, that the special meeting shall not be held more than 90 days after receipt by the Corporation of a valid Special Meeting Request.

(iv) The Requesting Stockholders may revoke a Special Meeting Request by written revocation delivered to the Secretary at the principal executive offices of the Corporation at any time prior to the special meeting. If, at any point after 60 days of the first date on which a Special Meeting Request is delivered to the Corporation the unrevoked requests from Requesting Stockholders (whether by specific written revocation or deemed revocation pursuant to clause (D) of paragraph 2(i) of this Section 2) represent in the aggregate less than the Requisite Percentage, the Board of Directors, in its discretion, may cancel the special meeting.

(v) In determining whether a special meeting of stockholders has been requested by the Requesting Stockholders representing in the aggregate at least the Requisite Percentage, multiple Special Meeting Requests delivered to the Secretary of the Corporation will be considered together only if (A) each Special Meeting Request identifies substantially the same purpose or purposes of the special meeting and substantially the same matters proposed to be acted on at the special meeting, in each case as determined by the Board of Directors (which, if such purpose is the election or removal of directors, changing the size of the Board of Directors and/or the filling of vacancies and/or newly created directorships resulting from any increase in the authorized number of directors, will mean that the exact same person or persons are proposed for election or removal in each relevant Stockholder Meeting Request), and (B) such Special Meeting Requests have been dated and delivered to the Secretary of the Corporation within 60 days of the first date on which a Special Meeting Request is delivered to the Corporation.

(vi) If none of the Requesting Stockholders appear or send a qualified representative (as defined in Section 9 of this Article I) to present the nomination and/or business to be presented for consideration as specified in the Special Meeting Request, the Corporation need not present such nomination and/or business for a vote at the special meeting, notwithstanding that proxies in respect of such nomination and/or business may have been received by the Corporation.

(vii) Business transacted at any special meeting called pursuant to this paragraph 2 of Section 2 shall be limited to (A) the purpose(s) stated in the valid Special Meeting Request received from the Requisite Percentage of record holders and (B) any additional matters that the Board of Directors determines to include in the Corporation's notice of the special meeting.

3. The Board of Directors may postpone, reschedule or cancel any previously scheduled special meeting.

Section 3. Notice of Meetings. Notice of the place, date, and time of all meetings of the stockholders and the means of remote communications, if any, by which stockholders and proxy holders may be deemed to be present in person and vote at such meeting shall be given, not less than ten (10) nor more than sixty (60) days before the date on which the meeting is to be held, to each stockholder entitled to vote at such meeting, except as otherwise required by the Delaware General Corporation Law (meaning, here and hereinafter, the General Corporation Law of the State of Delaware, as amended and in effect from time to time, the "Delaware General Corporation Law").

Section 4. Quorum; Adjournments. At any meeting of the stockholders, the holders of a majority in voting power of all of the shares of the stock entitled to vote at the meeting, present in person, present by means of remote communication in a manner, if any, authorized by the Board of Directors in its sole discretion, or represented by proxy, shall constitute a quorum for all purposes, unless or except to the extent that the presence of a larger number may be required by the Certificate of Incorporation or the Delaware General Corporation Law. Where a separate vote by a class or classes or series is required, a majority of the shares of such class or classes or series present in person, present by means of remote communication in a manner, if any, authorized by the Board of Directors in its sole discretion, or represented by proxy shall constitute a quorum entitled to take action with respect to that vote on that matter. A quorum, once established at a meeting, shall not be broken by the withdrawal of enough votes to leave less than a quorum.

Any meeting of stockholders may be adjourned from time to time to reconvene at any other time and to any other place at which a meeting of stockholders may be held under these Bylaws by the presiding officer. When a meeting is adjourned to another place or time (including an adjournment taken to address a technical failure to convene or continue a meeting using remote communication), notice need not be given of the adjourned meeting if the place, if any, and time thereof and the means of remote communications, if any, by which stockholders and proxy holders may be deemed to be present in person and vote at such meeting are (i) announced at the meeting at which the adjournment is taken, (ii) displayed, during the time scheduled for the meeting, on the same electronic network used to enable stockholders and proxy holders to participate in the meeting by means of remote communication or (iii) set forth in the notice of meeting given in accordance with Section 3 hereof; provided, however, that if the date of any adjourned meeting is more than thirty (30) days after the date for which the meeting was originally noticed, or if a new record date is fixed for the adjourned meeting, notice of the place, if any, date, and time of the adjourned meeting and the means of remote communications, if any, by which stockholders and proxy holders may be deemed to be present in person and vote at such meeting shall be given in conformity herewith. At any adjourned meeting, any business may be transacted that could have been transacted at the original meeting.

Section 5. Voting; Proxies. Each stockholder shall have one vote for each share of stock entitled to vote held of record by such stockholder unless otherwise provided by the Delaware General Corporation Law or the Certificate of Incorporation. Each stockholder of record entitled to vote at a meeting of stockholders, or to express consent or dissent to corporate action in writing without a meeting, may vote or express such consent or dissent in person or may authorize another person or persons to vote or act for the stockholder by proxy authorized by an instrument in writing or by a transmission permitted by law, delivered in accordance with the procedure established for the meeting. No such proxy shall be voted or acted upon after three years from the date of its execution, unless the proxy expressly provides for a longer period.

When a quorum is present at any meeting, the affirmative vote of holders of a majority in voting power of the stock present or represented and entitled to vote and voting affirmatively or negatively on a matter (or if there are two or more classes or series of stock entitled to vote as separate classes, then in the case of each such class or series, the holders of a majority of the stock of that class present or represented and voting affirmatively or negatively on a matter) shall constitute stockholder action on any matter to be voted upon by the stockholders at such meeting, except when a different or minimum vote is required by the Delaware General Corporation Law, the Certificate of Incorporation, these By-laws, the rules and regulations of any stock exchange applicable to the Corporation, or any law or regulation application to the Corporation or its securities, in which case, such different or minimum vote shall be the applicable vote on the matter. Except as may be otherwise required by the Certificate of Incorporation, a nominee for director shall be elected to the Board of Directors if the votes cast for such nominee's election exceed the votes cast against such nominee's election (with "abstentions" and "broker nonvotes" not counted as a vote cast either "for" or "against" that director's election), provided that if, on the tenth business day before the Corporation first mails its notice of meeting for such meeting to the stockholders, the number of nominees exceeds the number of directors to be elected, the directors shall be elected by the vote of a plurality of the shares represented in person or by proxy at any such meeting and entitled to vote on the election of directors. If directors are to be elected by a plurality of the votes cast, stockholders shall not be permitted to vote against a nominee.

Section 6. Inspectors of Elections. The Corporation shall, in advance of any meeting of the stockholders, appoint one or more inspectors to act at the meeting and make a written report thereof and perform the other duties of inspectors at meetings of stockholders as set forth in the Delaware General Corporation Law. The Corporation may designate one or more persons as alternate inspectors to replace any inspector who fails to act. If no inspector or alternate is able to act at a meeting of stockholders, the person presiding at the meeting shall appoint one or more persons to act as inspector at the meeting. Each inspector, before entering the discharge of the inspector's duties, shall take and sign an oath faithfully to execute the duties of inspector with strict impartiality and according to the best of the inspector's ability.

Section 7. Presiding Officer and Secretary. The Chairman of the Board, or in the Chairman's absence, the Chief Executive Officer, or in the Chief Executive Officer's absence, the President, or in the President's absence, the Chief Financial Officer, in such order, or, in the absence of all of them, any person designated by the Board of the Directors, shall call meetings of the stockholders to order, and shall act as presiding officer of such meeting. The Board of Directors may adopt by resolution such rules and regulations for the conduct of the meeting of stockholders as it shall deem appropriate. Except to the extent inconsistent with such rules and regulations as adopted by the Board of Directors, the presiding officer shall have the power to convene and (for any or no reason) to recess or adjourn meetings to another place, if any, or time, to prescribe such rules, regulations and procedures and to do all such acts as, in the judgment of such presiding officer, are appropriate for the proper conduct of the meeting. Such rules, regulations or procedures, whether adopted by the Board of Directors or prescribed by the presiding officer, may include, without limitation, the following: (i) the establishment of an agenda or order of business for the meeting; (ii) rules and procedures for maintaining order at the meeting and the safety of those present; (iii) limitations on attendance at or participation in the meeting to stockholders entitled to vote at the meeting, their duly authorized and constituted

proxies or such other persons as the presiding officer shall determine; (iv) restrictions on entry to the meeting after the time fixed for the commencement thereof; and (v) limitations on the time allotted to questions or comments by participants. The presiding officer, in addition to making any other determinations that may be appropriate to the conduct of the meeting, shall, if the facts warrant, determine and declare to the meeting that a matter or business was not properly brought before the meeting and if such presiding officer should so determine, such presiding officer shall so declare to the meeting and any such matter or business not properly brought before the meeting shall not be transacted or considered. Unless and to the extent determined by the Board of Directors or the presiding officer, meetings of stockholders shall not be required to be held in accordance with the rules of parliamentary procedure. The date and time of the opening and closing of the polls for each matter upon which the stockholders will vote at a meeting shall be announced at the meeting. The Secretary of the Corporation, or in the Secretary's absence, any Assistant Secretary, shall act as the secretary at all meetings of the stockholders, but in the absence of the Secretary and any Assistant Secretary, the presiding officer may appoint any person to act as secretary of the meeting.

Section 8. List of Stockholders. The Corporation shall prepare, at least 10 days before every meeting of stockholders, a complete list of the stockholders entitled to vote at the meeting, arranged in alphabetical order, and showing the address of each stockholder and the number of shares registered in the name of each stockholder. Such list shall be open to the examination of any stockholder, for any purpose germane to the meeting for a period of 10 days ending on the day before the meeting date (i) on a reasonably accessible electronic network, provided that the information required to gain access to such list is provided with the notice of meeting or (ii) during ordinary business hours at the principal place of business of the Corporation.

Section 9. Advance Notice of Stockholder Nominations and Proposals.

1. Nominations of persons for election to the Board of Directors and the proposal of business to be transacted by the stockholders may be made at an annual meeting of stockholders only (a) pursuant to the Corporation's notice with respect to such meeting, (b) by or at the direction of the Board, (c) by any stockholder of record of the Corporation who was a stockholder of record at the time of the giving of the notice provided for in the following paragraph, who is entitled to vote at the meeting and who has complied with the notice procedures set forth in this Section 9 or (d) by an Eligible Stockholder (as defined in Section 10 of this Article I) whose Stockholder Nominee (as defined in Section 10 of this Article I) is included in the Corporation's proxy materials for the relevant annual meeting of stockholders pursuant to Section 10 of this Article I.

2. For nominations or other business to be properly brought before an annual meeting by a stockholder pursuant to clause (c) of the foregoing paragraph, (1) the stockholder must have given timely notice thereof in writing to the Secretary of the Corporation, (2) such business must be a proper matter for stockholder action under the Delaware General Corporation Law, (3) if the stockholder, or the beneficial owner on whose behalf any such proposal or nomination is made, and/or the respective affiliates and associates of, or others acting in concert with, such stockholder and such beneficial owner (each, a "*Stockholder Associated Person*"), has provided the Corporation with a Solicitation Notice, as that term is defined in subclause (c)(iii) of this paragraph, such stockholder, beneficial owner and/or Stockholder Associated Person must, in the case of a proposal, have delivered a proxy statement and form of proxy to holders of at least the percentage of the Corporation's voting shares required under the Delaware General Corporation Law to carry any such proposal, or, in the case of a

nomination or nominations, have delivered a proxy statement and form of proxy to holders of a percentage of the Corporation's voting shares reasonably believed by such stockholder, beneficial owner and/or Stockholder Associated Person to be sufficient to elect the nominee or nominees proposed to be nominated by such stockholder or such beneficial owner, and must, in either case, have included in such materials the Solicitation Notice, and (4) if no Solicitation Notice relating thereto has been timely provided pursuant to this Section 9, the stockholder or beneficial owner proposing such business or nomination must not have solicited a number of proxies or votes sufficient to have required the delivery of such a Solicitation Notice under this Section 9. To be timely, a stockholder's notice shall be delivered to the Secretary at the principal executive offices of the Corporation not less than 60 or more than 75 days prior to the first anniversary (the "*Anniversary*") of the date on which the Corporation first mailed its proxy materials for the preceding year's annual meeting of stockholders; *provided, however,* that if the date of the annual meeting is advanced more than 30 days prior to or delayed (other than as a result of adjournment) by more than 30 days after the anniversary of the preceding year's annual meeting, notice by the stockholder to be timely must be so delivered not later than the close of business on the later of (i) the 90th day prior to such annual meeting or (ii) the 10th day following the day on which public announcement of the date of such meeting is first made. In no event shall the adjournment or postponement of an annual meeting (or the public announcement thereof) commence a new time period (or extend any time period) for the giving of a stockholder's notice as described above. The number of nominees a stockholder may nominate for election at the annual meeting (or in the case of a stockholder giving the notice on behalf of a beneficial owner, the number of nominees a stockholder may nominate for election at the annual meeting on behalf of such beneficial owner) shall not exceed the number of directors to be elected at such annual meeting. Such stockholder's notice shall set forth (a) as to each person whom the stockholder proposes to nominate for election or reelection as a director all information relating to such person as would be required to be disclosed in solicitations of proxies for the election of such nominees as directors pursuant to Regulation 14A under the Securities Exchange Act of 1934, as amended (the "*Exchange Act*"), and such person's written consent to being named in the Corporation's proxy statement as a nominee of the stockholder and to serve as a director if elected; (b) as to any other business that the stockholder proposes to bring before the meeting, a brief description of such business, the text of the proposal or business (including the exact text of any resolutions proposed for consideration and in the event that such business includes a proposal to amend the By-laws, the exact text of the proposed amendment), the reasons for conducting such business at the meeting and any material interest in such business of such stockholder, such beneficial owner, and/or any Stockholder Associated Person; (c) as to the stockholder giving the notice and the beneficial owner, if any, on whose behalf the nomination is made (i) the name and address of such stockholder, as they appear on the Corporation's books, and of such beneficial owner, (ii) the class, series and number of shares of the Corporation that are, directly or indirectly, owned beneficially and of record by such stockholder and such beneficial owner, (iii) whether either such stockholder, beneficial owner and/or Stockholder Associated Person intends to deliver a proxy statement and form of proxy to holders of, in the case of a proposal, at least the percentage of the Corporation's voting shares required under the Delaware General Corporation Law to carry the proposal or, in the case of a nomination or nominations, a sufficient number of holders of the Corporation's voting shares to elect such nominee or nominees (an affirmative statement of such intent, a "*Solicitation Notice*"), (iv) a representation as to whether or not such stockholder, such beneficial owner and/or any Stockholder Associated Person intends to solicit proxies in support of any director nominees other than the Corporation's nominees in accordance with Rule 14a-19 promulgated under the Exchange Act, and, where such stockholder, beneficial owner, and/or Stockholder

Associated Person intends to so solicit proxies, the notice and information required by Rule 14a-19(b) under the Exchange Act, and a statement that such stockholder, beneficial owner, and/or Stockholder Associated Person has otherwise complied or will otherwise comply with the requirements of Rule 14a-19 under the Exchange Act, (v) a description of any agreement, arrangement or understanding with respect to the nomination or proposal between or among such stockholder, such beneficial owner, and/or any Stockholder Associated Person, including, in the case of a nomination, the nominee, (vi) a description of any agreement, arrangement or understanding (including any derivative or short positions, profit interests, options, warrants, convertible securities, stock appreciation or similar rights, hedging transactions, and borrowed or loaned shares) that has been entered into as of the date of the stockholder's notice by, or on behalf of, such stockholder, such beneficial owners, and/or any Stockholder Associated Person, whether or not such instrument or right shall be subject to settlement in underlying shares of capital stock of the Corporation, the effect or intent of which is to mitigate loss to, manage risk or benefit of share price changes for, or increase or decrease the voting power of, such stockholder, such beneficial owner, and/or any Stockholder Associated Person, with respect to securities of the Corporation, (vii) a representation that the stockholder is a holder of record of stock of the Corporation entitled to vote at such meeting and intends to appear in person or by proxy at the meeting to propose such business or nomination, (viii) a representation that such stockholder, such beneficial owner, and/or any Stockholder Associated Person has complied, and will comply, with all applicable requirements of state law and the Exchange Act with respect to matters set forth in this Section 9 and (ix) any other information relating to such stockholder, beneficial owner, and/or Stockholder Associated Person required to be disclosed in a proxy statement or other filings required to be made in connection with solicitations of proxies for, as applicable, the proposal and/or for the election of directors in an election contest pursuant to and in accordance with Section 14(a) of the Exchange Act and the rules and regulations promulgated thereunder. The foregoing notice requirements of this paragraph 2 of Section 9 shall be deemed satisfied by a stockholder with respect to business other than a nomination if the stockholder has notified the Corporation of his, her or its intention to present a proposal at an annual meeting in compliance with applicable rules and regulations promulgated under the Exchange Act and such stockholder's proposal has been included in a proxy statement that has been prepared by the Corporation to solicit proxies for such annual meeting. The Corporation may require any proposed nominee to furnish such other information as the Corporation may reasonably require, to determine the eligibility of such proposed nominee to serve as a director of the Corporation.

3. Notwithstanding anything in the second sentence of the second paragraph of this Section 9 to the contrary, in the event that the number of directors to be elected to the Board at the annual meeting is increased effective after the time period for which nominations would otherwise be due under the second paragraph of this Section 9 and there is no public announcement naming the nominees for additional directorships at least 70 days prior to the Anniversary, a stockholder's notice required by this By-law shall also be considered timely, but only with respect to nominees for the additional directorships, if it shall be delivered to the Secretary at the principal executive offices of the Corporation not later than the close of business on the 10th day following the day on which such public announcement is first made by the Corporation.

4. Only persons nominated in accordance with the procedures set forth in this Section 9 or Section 10, as applicable, shall be eligible to serve as directors and only such business shall be conducted at an annual meeting of stockholders as shall have been brought before the meeting in accordance with the procedures set forth in this Section 9. The presiding officer of the meeting (and, in advance of the meeting, the Board of Directors) shall have the power and the duty to determine whether a nomination or any business proposed to be brought before the meeting has been made in accordance with the procedures set forth in these By-laws (including whether the stockholder, beneficial owner and/or any Stockholder Associated Person did or did not solicit, as the case may be, proxies or votes in support of such stockholder's nominee in compliance with the representations with respect thereto required by this Section 9), and, if any proposed nomination or business is not in compliance with these By-laws, to declare that such defective proposed business or nomination shall not be presented for stockholder action at the meeting and shall be disregarded. Notwithstanding the foregoing provisions of this Section 9, unless otherwise required by law, if the stockholder (or a qualified representative of the stockholder) does not appear at the annual or special meeting of stockholders of the Corporation to present a nomination or proposed business, such nomination shall be disregarded and such proposed business shall not be transacted, notwithstanding that proxies in respect of such vote may have been received by the Corporation. For purposes of this Section 9 and Section 10 of these By-laws, to be considered a qualified representative of the stockholder, a person must be a duly authorized officer, manager or partner of such stockholder or must be authorized by a writing executed by such stockholder or an electronic transmission delivered by such stockholder to act for such stockholder as proxy at the meeting of stockholders and such person must produce such writing or electronic transmission, or a reliable reproduction of the writing or electronic transmission, at the meeting of stockholders.

5. Only such business shall be conducted at a special meeting of stockholders as shall have been brought before the meeting pursuant to the Corporation's notice of meeting. Nominations of persons for election to the Board may be made at a special meeting of stockholders at which directors are to be elected pursuant to the Corporation's notice of meeting (a) by or at the direction of the Board or stockholders pursuant to Section 2 of this Article I or (b) provided that the Board or stockholders pursuant to Section 2 of this Article I have determined that directors shall be elected at such meeting, by any stockholder of record of the Corporation who is a stockholder of record at the time of giving of notice provided for in this paragraph, who shall be entitled to vote at the meeting and who complies with the procedures set forth in this Section 9, including, without limitation, the procedures regarding Solicitation Notices. The proposal by stockholders of other business to be conducted at a special meeting of stockholders may be made only in accordance with Section 2 of this Article I. The number of nominees a stockholder may nominate for election at the special meeting (or in the case of a stockholder giving the notice on behalf of a beneficial owner, the number of nominees a stockholder may nominate for election at the special meeting on behalf of such beneficial owner) shall not exceed the number of directors to be elected at such special meeting. In the event the Corporation calls a special meeting of stockholders for the purpose of electing one or more directors to the Board, nominations by stockholders of persons for election to such positions as specified in the Corporation's notice of meeting may be made at such a special meeting of stockholders if the stockholder's notice required by Section 9 shall be delivered to the Secretary at the principal executive offices of the Corporation not later than the close of business on the later of the 90th day prior to such special

meeting or the 10th day following the day on which the Corporation first makes a public announcement of the date of the special meeting at which directors are to be elected. In no event shall the adjournment or postponement of a special meeting (or the public announcement thereof) commence a new time period (or extend any time period) for the giving of a stockholder's notice as described above.

6. For purposes of this Section 9 and Section 10 of this Article I, "*public announcement*" shall mean disclosure in a press release reported by the Dow Jones News Service, Associated Press or a comparable national news service or in a document publicly filed by the Corporation with the Securities and Exchange Commission pursuant to Section 13, 14 or 15(d) of the Exchange Act.

7. Notwithstanding the foregoing provisions of this Section 9, a stockholder shall also comply with all applicable requirements of the Exchange Act and the rules and regulations thereunder with respect to matters set forth in this Section 9. Nothing in this Section 9 shall be deemed to affect any rights of stockholders to request inclusion of proposals in the Corporation's proxy statement pursuant to Rule 14a-8 under the Exchange Act.

8. Notwithstanding anything to the contrary in these By-laws, unless otherwise required by law, (1) no stockholder, beneficial owner, and/or any Stockholder Associated Person shall solicit proxies in support of director nominees, other than the Corporation's nominees, unless such stockholder, beneficial owner, and/or Stockholder Associated Person has complied with Rule 14a-19(b) promulgated under the Exchange Act in connection with the solicitation of such proxies, including the requirement to provide the Corporation with the notices required thereunder in a timely manner and (2) if any stockholder, beneficial owner, and/or Stockholder Associated Person (A) provides notice pursuant to Rule 14a-19(b) promulgated under the Exchange Act and (B) subsequently fails to comply with the requirements of Rule 14a-19(a)(2) or Rule 14a-19(a)(3) promulgated under the Exchange Act or fails to timely provide reasonable evidence sufficient to satisfy the Corporation that such stockholder, beneficial owner, or Stockholder Associated Person has met the requirements of Rule 14a-19(a)(3) promulgated under the Exchange Act in accordance with the following sentence, then the nomination of each such director nominee shall be disregarded notwithstanding that proxies or votes in respect of the election of such proposed nominees may have been received by the Corporation (which proxies and votes shall be disregarded). If any stockholder, beneficial owner, and/or Stockholder Associated Person provides notice pursuant to Rule 14a-19(b) promulgated under the Exchange Act, such stockholder, beneficial owner, or Stockholder Associated Person shall deliver to the Corporation, no later than five (5) business days prior to the applicable meeting, reasonable documentary evidence that such person has met the requirements of Rule 14a-19 promulgated under the Exchange Act, including clause (a)(3) thereof, together with a representation that such person has complied with the requirements of Rule 14a-19 promulgated under the Exchange Act.

9. Any person directly or indirectly soliciting proxies from stockholders of the Corporation must use a proxy card color other than white, which shall be reserved for exclusive use by the Board of Directors.

10. Unless the Corporation elects otherwise, a stockholder's notice to the Corporation shall be in writing exclusively (and not in an electronic transmission) and shall be delivered exclusively by hand (including, without limitation, overnight courier service) or by certified or registered mail, return receipt requested, and the Corporation shall not be required to accept delivery of any document not in such written form or so delivered.

Section 10. Proxy Access.

1. Subject to the provisions of this Section 10, the Corporation shall include in its proxy statement (including its form of proxy) for an annual meeting of stockholders the name of any stockholder nominee for election to the Board of Directors submitted pursuant to this Section 10 (each a "*Stockholder Nominee*") *provided* (a) timely written notice of such Stockholder Nominee satisfying this Section 10 ("*Notice*") is delivered to the Corporation by or on behalf of a stockholder or stockholders that, at the time the Notice is delivered, satisfy the ownership and other requirements of this Section 10 (such stockholder or stockholders, and any person on whose behalf they are acting, the "*Eligible Stockholder*"), (b) the Eligible Stockholder expressly elects in writing at the time of providing the Notice to have its nominee included in the Corporation's proxy statement pursuant to this Section 10, and (c) the Eligible Stockholder and the Stockholder Nominee otherwise satisfy the requirements of this Section 10 and the director qualifications requirements set forth in the Corporation's Corporate Governance Guidelines and any other document(s) setting forth qualifications for directors.

2. To be timely, an Eligible Stockholder's notice must be received in writing by the Secretary of the Corporation at the principal executive offices of the Corporation not less than 120 days nor more than 150 days prior to the first anniversary of the preceding year's annual meeting; *provided, however*, that in the event that the date of the annual meeting is advanced by more than 30 days, or delayed (other than as a result of adjournment) by more than 60 days, from the first anniversary of the preceding year's annual meeting, or if no annual meeting was held in the preceding year, a stockholder's notice must be so received not earlier than the 150th day prior to such annual meeting and not later than the close of business on the later of (a) the 120th day prior to such annual meeting and (b) the tenth day following the day on which notice of the date of such annual meeting was mailed or public announcement (as defined in Section 9 of this Article I) of the date of such annual meeting was made, whichever first occurs. In no event shall the adjournment or postponement of an annual meeting (or the public announcement thereof) commence a new time period (or extend any time period) for the giving of an Eligible Stockholder's notice as described above.

3. In addition to including the name of the Stockholder Nominee in the Corporation's proxy statement for the annual meeting, the Corporation also shall include (a) the information concerning the Stockholder Nominee and the Eligible Stockholder that is required to be disclosed in the Corporation's proxy statement pursuant to Section 14 of the Exchange Act and the rules and regulations promulgated thereunder and (b) if the Eligible Stockholder so elects, a Statement (defined below) (collectively, the "*Required Information*"). Nothing in this Section 10 shall limit the Corporation's ability to solicit against and include in its proxy statement its own statements relating to any Stockholder Nominee.

4. The number of Stockholder Nominees (including Stockholder Nominees that were submitted by an Eligible Stockholder for inclusion in the Corporation's proxy statement pursuant to this Section 10 but either are subsequently withdrawn or that the Board of Directors decides to nominate (the latter a "*Board Nominee*") appearing in the Corporation's proxy statement with respect to an annual meeting of stockholders shall not exceed the greater of (a) two or (b) 20% of the number of directors in office as of the last day on which notice of a nomination may be received pursuant to this Section 10 (the "*Final Proxy Access Nomination Date*") or, if such amount is not a whole number, the closest whole number below 20% (such greater number the "*Permitted Number*"); *provided, however*, that the Permitted Number shall be reduced by (i) the number of director candidates for which the Corporation shall have received one or more valid notices that a stockholder intends to nominate director candidates at the annual meeting of stockholders pursuant to Section 9 of this Article I; *provided further*, that in no event shall the Permitted Number be less than one, (ii) any number of director candidates who will be included in the Corporation's proxy materials with respect to the annual meeting as an unopposed (by the Corporation) nominee pursuant to any agreement, arrangement or other understanding with any stockholder or group of stockholders (other than any such agreement, arrangement or understanding entered into in connection with an acquisition of shares of capital stock of the Corporation, by such stockholder or group of stockholders, from the Corporation); *provided*, that in no event shall the Permitted Number be less than one, and (iii) any number of directors in office as of the nomination deadline who were included in the Corporation's proxy statement as a Stockholder Nominee for any of the two preceding annual meetings and whom the Board of Directors decides to nominate for election to the Board of Directors. In the event that one or more vacancies for any reason occurs on the Board of Directors at any time after the Final Proxy Access Nomination Date and before the date of the applicable annual meeting of stockholders and the Board of Directors resolves to reduce the size of the Board of Directors in connection therewith, the Permitted Number shall be calculated based on the number of directors in office as so reduced.

5. In the event that the number of Stockholder Nominees submitted by Eligible Stockholders pursuant to this Section 10 exceeds the Permitted Number, each Eligible Stockholder shall select one Stockholder Nominee for inclusion in the Corporation's proxy statement until the Permitted Number is reached, going in order of the amount (greatest to least) of the Corporation's capital stock entitled to vote on the election of directors as disclosed in the Notice. If the Permitted Number is not reached after each Eligible Stockholder has selected one Stockholder Nominee, this selection process shall continue as many times as necessary, following the same order each time, until the Permitted Number is reached.

6. An Eligible Stockholder must have owned (as defined below) continuously for at least three years a number of shares that represents 3% or more of the Corporation's outstanding shares of capital stock entitled to vote in the election of directors (the "*Required Shares*") as of both the date the Notice is received by the Corporation in accordance with this Section 10 and the record date for determining stockholders entitled to vote at the annual meeting and must continue to own the Required Shares through the annual meeting date. For purposes of satisfying the ownership requirement under this Section 10, the shares of the Corporation's capital stock owned by one or more stockholders, or by the person or persons who own shares of the Corporation's capital stock and on whose behalf any stockholder is acting, may be aggregated, *provided that* (a) the number of stockholders and other persons whose ownership of shares is aggregated for such purpose shall not exceed 20, (b) each

stockholder or other person whose shares are aggregated shall have held such shares continuously for at least three years, and (c) a group of two or more funds that are (i) under common management and investment control, (ii) under common management and funded primarily by the same employer (or by a group of related employers that are under common control), or (iii) a “group of investment companies,” as such term is defined in Section 12(d)(1)(G)(ii) of the Investment Company Act of 1940, as amended, shall be treated as one stockholder or person for this purpose. Whenever an Eligible Stockholder consists of a group of stockholders and/or other persons, any and all requirements and obligations for an Eligible Stockholder set forth in this Section 10 must be satisfied by and as to each such stockholder or other person, except that shares may be aggregated to meet the Required Shares as provided in this Section 10. With respect to any one particular annual meeting, no stockholder or other person may be a member of more than one group of persons constituting an Eligible Stockholder under this Section 10.

7. For purposes of this Section 10, an Eligible Stockholder shall be deemed to “own” only those outstanding shares of the Corporation’s capital stock as to which the person possesses both (a) the full voting and investment rights pertaining to the shares and (b) the full economic interest in (including the opportunity for profit and risk of loss on) such shares; *provided that* the number of shares calculated in accordance with clauses (a) and (b) shall not include any shares (x) sold by such person or any of its affiliates in any transaction that has not been settled or closed, (y) borrowed by such person or any of its affiliates for any purposes or purchased by such person or any of its affiliates pursuant to an agreement to resell, or (z) subject to any option, warrant, forward contract, swap, contract of sale, other derivative or similar agreement entered into by such person or any of its affiliates, whether any such instrument or agreement is to be settled with shares or with cash based on the notional amount or value of outstanding shares of the Corporation’s capital stock, in any such case which instrument or agreement has, or is intended to have, the purpose or effect of (A) reducing in any manner, to any extent or at any time in the future, such person’s or affiliates’ full right to vote or direct the voting of any such shares, and/or (B) hedging, offsetting or altering to any degree gain or loss arising from the full economic ownership of such shares by such person or affiliate. A person shall “own” shares held in the name of a nominee or other intermediary so long as the person retains the right to instruct how the shares are voted with respect to the election of directors and possesses the full economic interest in the shares.

8. A person’s ownership of shares shall be deemed to continue during any period in which (a) the person has loaned such shares, *provided that* the person has the power to recall such loaned shares on five business days’ notice and provides a representation that it will promptly recall, and promptly recalls, such loaned shares upon being notified that any of its Stockholder Nominees will be included in the Corporation’s proxy statement, or (b) the person has delegated any voting power by means of a proxy, power of attorney or other instrument or arrangement that is revocable at any time by the person. The terms “owned,” “owning” and other variations of the word “own” shall have correlative meanings. For purposes of this Section 10, the term “affiliate” shall have the meaning ascribed thereto in the regulations promulgated under the Exchange Act.

9. An Eligible Stockholder must provide with its Notice the following in writing to the Secretary: (a) one or more written statements from the record holder of the shares (and from each intermediary through which the shares are or have been held during the requisite three-year holding period) verifying that, as of a date within seven calendar days prior to the date the Notice is received

by the Corporation, the Eligible Stockholder owns, and has owned continuously for the preceding three years, the Required Shares, and the Eligible Stockholder's agreement to provide (i) within five business days after the record date for the annual meeting, written statements from the record holder and intermediaries verifying the Eligible Stockholder's continuous ownership of the Required Shares through the record date and (ii) immediate notice if the Eligible Stockholder ceases to own any of the Required Shares prior to the date of the applicable annual meeting of stockholders; (b) documentation satisfactory to the Corporation demonstrating that a group of funds qualifies to be treated as one stockholder or person for purposes of this Section 10, if applicable; (c) a representation that the Eligible Stockholder (including each member of any group of stockholders and/or persons that together is an Eligible Stockholder hereunder) (i) intends to continue to own the Required Shares through the date of the annual meeting, (ii) acquired the Required Shares in the ordinary course of business and not with the intent to change or influence control of the Corporation, and does not presently have such intent, (iii) has not nominated and will not nominate for election to the Board of Directors at the annual meeting any person other than the Stockholder Nominee(s) being nominated pursuant to this Section 10, (iv) has not engaged and will not engage in, and has not and will not be, a "participant" in another person's "solicitation" within the meaning of Rule 14a-1(l) under the Exchange Act in support of the election of any individual as a director at the annual meeting other than its Stockholder Nominee(s) or a Board Nominee, (v) will not distribute to any stockholder any form of proxy for the annual meeting other than the form distributed by the Corporation, and (vi) has provided and will provide facts, statements and other information in all communications with the Corporation and its stockholders that are or will be true and correct in all material respects and do not and will not omit to state a material fact necessary in order to make the statements made, in light of the circumstances under which they were made, not misleading; (d) the written consent of each Stockholder Nominee to be named in the Corporation's proxy statement as a nominee and to serve as a director if elected; (e) a copy of the Schedule 14N that has been filed with the Securities and Exchange Commission as required by Rule 14a-18 under the Exchange Act; (f) the information required to be provided by Section 9 of this Article I, as applicable; (g) in the case of a nomination by a group of stockholders that together is an Eligible Stockholder, the designation by all group members of one group member that is authorized to act on behalf of all members of the nominating stockholder group with respect to the nomination and matters related thereto, including withdrawal of the nomination; and (h) an undertaking that the Eligible Stockholder agrees to (i) assume all liability stemming from any legal or regulatory violation arising out of the Eligible Stockholder's communications with the Corporation's stockholders or out of the information that the Eligible Stockholder provides to the Corporation, (ii) indemnify and hold harmless the Corporation and each of its directors, officers and employees individually against any liability, loss or damages in connection with any threatened or pending action, suit or proceeding, whether legal, administrative or investigative, against the Corporation or any of its directors, officers or employees in connection with the Eligible Stockholder's nomination and/or efforts to elect its Stockholder Nominee(s) pursuant to this Section 10, (iii) file with the Securities and Exchange Commission any solicitation or other communication with the Corporation's stockholders relating to the annual meeting at which the Stockholder Nominee will be nominated, regardless of whether any such filing is required under Section 14 of the Exchange Act and the rules and regulations promulgated thereunder or whether any exemption from filing is available for such solicitation or other communication under Section 14 of the Exchange Act and the rules and regulations promulgated thereunder, and (iv) comply with all other applicable laws, rules, regulations and listing standards with respect to any solicitation in connection with the annual meeting.

10. The Eligible Stockholder may include with its Notice, a written statement for inclusion in the Corporation's proxy statement for the annual meeting, not to exceed 500 words per Stockholder Nominee, in support of each Stockholder Nominee's candidacy (the "*Statement*"). Notwithstanding anything to the contrary contained in this Section 10, the Corporation may omit from its proxy statement any information or Statement that it believes would violate any applicable law, rule, regulation or listing standard.

11. Each Stockholder Nominee must (a) provide within five business days of the Corporation's request an executed agreement, in a form deemed satisfactory to the Corporation, that (i) the Stockholder Nominee has read and agrees to adhere to the Corporation's Corporate Governance Guidelines and all other Corporation policies and guidelines applicable to directors, including with regard to securities trading, (ii) the Stockholder Nominee is not and will not become a party to (A) any agreement, arrangement or understanding with, and has not given any commitment or assurance to, any person or entity as to how such person, if elected as a director of the Corporation, will act or vote on any issue or question (a "*Voting Commitment*") that has not been disclosed to the Corporation or (B) any Voting Commitment that could limit or interfere with such person's ability to comply, if elected as a director of the Corporation, with such person's fiduciary duties under applicable law, and (iii) the Stockholder Nominee is not and will not become a party to any agreement, arrangement or understanding with any person or entity other than the Corporation with respect to any direct or indirect compensation, reimbursement or indemnification (a "*Compensation Arrangement*") in connection with such person's nomination or candidacy for director and/or service as a director that has not been disclosed to the Corporation; (b) complete, sign and submit all questionnaires required of the Corporation's Board of Directors within five business days of receipt of each such questionnaire from the Corporation; and (c) provide within five business days of the Corporation's request such additional information as the Corporation determines may be necessary to permit the Board of Directors to determine whether such Stockholder Nominee meets the requirements of this Section 10 and/or the Corporation's requirements with regard to director qualifications and policies and guidelines applicable to directors, including whether (i) such Stockholder Nominee is independent under the listing standards of any U.S. exchange upon which the Corporation's capital stock is listed, any applicable rules of the Securities and Exchange Commission, and any publicly disclosed standards used by the Board of Directors in determining and disclosing the independence of the directors (collectively, the "*Independence Standards*"), (ii) such Stockholder Nominee has any direct or indirect relationship with the Corporation, and (iii) such Stockholder Nominee has been subject to (A) any event specified in Item 401(f) of Regulation S-K under the Securities Act of 1933, as amended (the "*Securities Act*") or (B) any order of the type specified in Rule 506(d) of Regulation D under the Securities Act.

12. In the event that any information or communications provided by the Eligible Stockholder or Stockholder Nominee to the Corporation or its stockholders ceases to be true and correct in any respect or omits a fact necessary to make the statements made, in light of the circumstances under which they were made, not misleading, each Eligible Stockholder or Stockholder Nominee, as the case may be, shall promptly notify the Secretary of any such inaccuracy or omission in such previously provided information and of the information that is required to make such information or communication true and correct; it being understood that

providing any such notification shall not be deemed to cure any defect or limit the Corporation's right to omit a Stockholder Nominee from its proxy materials as provided in this Section 10.

13. The Corporation shall not be required to include, pursuant to this Section 10, a Stockholder Nominee in its proxy statement (or, if the proxy statement has already been filed, to allow the nomination of a Stockholder Nominee, notwithstanding that proxies in respect of such vote may have been received by the Corporation) (a) if the Eligible Stockholder who has nominated such Stockholder Nominee has nominated for election to the Board of Directors at the annual meeting any person other than pursuant to this Section 10, or has or is engaged in, or has been or is a "participant" in another person's, "solicitation" within the meaning of Rule 14a-1(l) under the Exchange Act in support of the election of any individual as a director at the annual meeting other than its Stockholder Nominee(s) or a Board Nominee, (b) who is not independent under the Independence Standards, (c) whose election as a member of the Board of Directors would violate or cause the Corporation to be in violation of these By-laws, the Corporation's certificate of incorporation, the Corporation's Corporate Governance Guidelines or other document setting forth qualifications for directors, the listing standards of any U.S. exchange upon which the Corporation's capital stock is listed, or any applicable state or federal law, rule or regulation, (d) if the Stockholder Nominee is or becomes a party to any undisclosed or prohibited Voting Commitment, (e) if the Stockholder Nominee is or becomes a party to any undisclosed Compensation Arrangement, (f) who is or has been, within the past three years, an officer or director of a competitor, as defined in Section 8 of the Clayton Antitrust Act of 1914, (g) whose then-current or prior business or personal interests place such Stockholder Nominee in a conflict of interest with the Corporation or any of its subsidiaries that would cause such Stockholder Nominee to violate any fiduciary duties of directors established pursuant to Delaware law, including but not limited to the duty of loyalty and duty of care, (h) who is a named subject of a pending criminal proceeding (excluding traffic violations and other minor offenses) or has been convicted in such a criminal proceeding within the past ten years, (i) who is subject to any order of the type specified in Rule 506(d) of Regulation D under the Securities Act, or (j) if such Stockholder Nominee or the applicable Eligible Stockholder shall have provided information to the Corporation in respect of such nomination that was untrue in any material respect or omitted to state a material fact necessary in order to make the statement made, in light of the circumstances under which they were made, not misleading or shall have breached any of its or their agreements, representations, undertakings and/or obligations pursuant to this Section 10.

14. Notwithstanding anything to the contrary set forth herein, if (a) the Stockholder Nominee and/or the applicable Eligible Stockholder shall have breached its or their agreements, representations, undertakings and/or obligations pursuant to this Section 10, as determined by the Board of Directors or the person presiding at the annual meeting, or (b) the Eligible Stockholder (or a qualified representative thereof) does not appear at the annual meeting to present any nomination pursuant to this Section 10, (x) the Board of Directors or the person presiding at the annual meeting shall be entitled to declare a nomination by an Eligible Stockholder to be invalid, and such nomination shall be disregarded notwithstanding that proxies in respect of such vote may have been received by the Corporation and (y) the Corporation shall not be required to include in its proxy statement any successor or replacement nominee proposed by the applicable Eligible Stockholder or any other Eligible Stockholder.

15. Any Stockholder Nominee who is included in the Corporation's proxy statement for a particular annual meeting of stockholders but either (a) withdraws from or becomes ineligible or unavailable for election at the annual meeting or (b) does not receive a number of votes cast in favor of his or her election at least equal to 25% of the shares present in person or represented by proxy at the annual meeting and entitled to vote on the Stockholder Nominee's election, shall be ineligible to be included in the Corporation's proxy statement as a Stockholder Nominee pursuant to this Section 10 for the next two annual meetings of stockholders following the annual meeting for which the Stockholder Nominee has been nominated for election. This Section 10 shall be the exclusive method for stockholders to include nominees for director election in the Corporation's proxy materials, except to the extent required by Rule 14a-19 under the Exchange Act.

Section 11. Action Without Meeting. Unless otherwise provided in the Certificate of Incorporation, any action required or permitted to be taken by stockholders for or in connection with any corporate action may be taken without a meeting, without prior notice and without a vote, if a consent or consents, setting forth the action so taken, shall be signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted and shall be delivered to the Corporation in accordance with Section 228 of the Delaware General Corporation Law. No consent shall be effective to take the corporate action referred to therein unless consents signed by a number of stockholders sufficient to take such action are delivered to the Corporation in the manner specified in this paragraph within sixty (60) days of the first date on which a consent is so delivered to the Corporation.

If action is taken by consent of stockholders and in accordance with the foregoing, there shall be filed with the records of the meetings of stockholders such consent or consents.

If action is taken by less than unanimous consent of stockholders, prompt notice of the taking of such action without a meeting shall be given to those who have not consented and a certificate signed and attested to by the Secretary of the Corporation that such notice was given shall be filed with the records of the meetings of stockholders.

In the event that the action consented to is such as would have required the filing of a certificate under any provision of the Delaware General Corporation Law, if such action had been voted upon by the stockholders at a meeting thereof, the certificate filed under such provision shall state, in lieu of any statement required by such provision concerning a vote of stockholders, that consent has been given under Section 228 of the Delaware General Corporation Law.

Section 12. Meetings by Remote Communication. If authorized by the Board of Directors, in its sole discretion, and subject to such guidelines and procedures as the Board of Directors may adopt, stockholders and proxy holders not physically present at a meeting of stockholders may by means of remote communication, to the fullest extent permitted by law: (a) participate in a meeting of stockholders, and (b) be deemed present in person and vote at a meeting of stockholders whether such meeting is to be held at a designated place or solely by means of remote communication.

Section 13. Delivery to the Corporation. Whenever Section 2, 9 or 10 of this Article I of these By-laws requires one or more persons (including a record or beneficial owner of stock of the Corporation) to deliver a document or information to the Corporation or any officer, employee or agent thereof (including any notice, request, questionnaire, revocation, representation or other document or agreement), such document or information shall be in writing exclusively (and not in an electronic transmission) and shall be delivered exclusively by hand (including, without limitation, overnight courier service) or by certified or registered mail, return receipt requested and the Corporation shall not be required to accept delivery of any document not in such written form or so delivered. For the avoidance of doubt, with respect to any notice from any stockholder of record or beneficial owner of the Corporation's capital stock under the Certificate of Incorporation, these By-laws or the Delaware General Corporation Law, to the fullest extent permitted by law, the Corporation expressly opts out of Section 116 of the Delaware General Corporation Law.

ARTICLE II - DIRECTORS

Section 1. General Powers. The business and affairs of the Corporation shall be managed by or under the direction of a Board of Directors, who may exercise all of the powers of the Corporation except as otherwise provided by the Certificate of Incorporation or the Delaware General Corporation Law. In the event of a vacancy in the Board of Directors, the remaining directors, except as otherwise provided by the Certificate of Incorporation or the Delaware General Corporation Law, may exercise the powers of the full Board of Directors until the vacancy is filled. The Board of Directors may appoint a Chairman of the Board. The Chairman of the Board shall preside at all meetings of the Board of Directors and shall perform such duties and possess such powers as are assigned to the Chairman by the Board of Directors.

Section 2. Number and Qualification. Except as otherwise required by the Certificate of Incorporation, the number of directors that shall constitute the whole Board of Directors shall be determined by resolution of the Board of Directors, but in no event shall be less than three (3). The number of directors may be increased at any time by resolution of the Board of Directors. The number of directors may be decreased at any time and from time to time by a majority of the directors then in office (so long as a quorum is present), but only to eliminate vacancies existing by reason of the death, resignation, removal or expiration of the term of one or more directors. The Board of Directors shall be comprised of a majority of directors who are determined by the Board of Directors to be independent directors as such term is defined by Section 303A(2) of the New York Stock Exchange Listed Company Manual.

Section 3. Terms of Office. Each director shall be elected for a term expiring at the next annual meeting of stockholders following such director's election and shall remain in office until a successor is elected and qualified, or until such director's earlier death, resignation or removal; provided, however, that the foregoing shall not shorten the term of any incumbent director as of such date.

Section 4. Removal. Except as otherwise provided by the Certificate of Incorporation or the Delaware General Corporation Law, any one or more or all of the directors of the Corporation may be

removed, with or without cause, by the holders of a majority of the voting power of the shares entitled to vote thereon.

Section 5. Vacancies. Except as otherwise required by the Certificate of Incorporation or the Delaware General Corporation Law, any vacancy in the Board of Directors, however occurring, or any newly-created directorship resulting from an enlargement of the size of the Board of Directors, shall be filled only by vote of a majority of the directors then in office, even if less than a quorum, or by the sole remaining director and not by the stockholders. A director elected to fill a vacancy or a newly-created directorship shall serve for a term expiring at the next annual meeting of stockholders following such director's election, and shall remain in office until the election and qualification of the director's successor or the director's earlier death, resignation or removal.

Section 6. Resignations. Any director may resign by delivering a resignation to the Corporation at its principal office or to the Chief Executive Officer or Secretary. Such resignation shall be effective upon receipt unless it is specified to be effective at some other time or upon the happening of some other event.

Section 7. Meetings. Regular meetings of the Board of Directors may be held without notice at such time and place, either within or without the State of Delaware, as shall be determined from time to time by the Board of Directors. A regular meeting of the Board of Directors may be held without notice immediately after and at the same place as the annual meeting of stockholders. Special meetings of the Board of Directors may be called by the Chairman of the Board, the Chief Executive Officer, a majority of the total number of the whole Board of Directors, or by one director in the event that there is only a single director in office and may be held at any time and place, within or without the State of Delaware, as specified by the person(s) calling the meeting.

Section 8. Notice of Meetings. No notice of the annual or other regular meetings of the Board of Directors need be given. Notice of any special meeting of directors shall be given to each director by the Secretary. Notice to each director shall be duly given by mailing the same not later than the second business day before the meeting, or by giving notice in person, by fax, by telephone, or by any other electronic means not later than four hours before the meeting. No notice of a meeting need be given if all directors are present in person. Any business may be transacted at any meeting of the Board of Directors, whether or not specified in a notice of the meeting.

Section 9. Quorum. A majority of the total number of the whole Board of Directors shall constitute a quorum at all meetings of the Board of Directors. In the absence of a quorum at any such meeting, a majority of the directors present may adjourn the meeting from time to time to a different date, place, or time without further notice (or waiver of notice) other than announcement at the meeting, until a quorum shall be present.

Section 10. Action at Meeting. At any meeting of the Board of Directors at which a quorum is present, the vote of a majority of the directors present shall be sufficient to take any action, unless a different vote is specified by the Delaware General Corporation Law, the Certificate of Incorporation or these By-laws.

Section 11. Action by Consent. Any action required or permitted to be taken at any meeting of the Board of Directors or of any committee of the Board of Directors may be taken without a meeting, if all members of the Board of Directors or committee, as the case may be, consent to the action in writing or by electronic transmission. After an action is taken, the consent or consents relating thereto shall be filed with the minutes of proceedings of the Board of Directors or committee in the same paper or electronic form as the minutes are maintained.

Section 12. Meetings by Telephone Conference Call. Directors or any members of any committee designated by the directors may participate in a meeting of the Board of Directors or such committee by means of conference telephone or other communications equipment by means of which all persons participating in the meeting can hear each other, and participation by such means shall constitute presence in person at such meeting.

Section 13. Compensation of Directors. Directors may be paid such compensation for their services and such reimbursement for expenses of attendance at meetings of the Board of Directors or committees of the Board of Directors as the Board of Directors or any committee to which the Board has delegated responsibility for establishing director compensation may from time to time determine. No such payment shall preclude any director from serving the Corporation or any of its parent, subsidiary, or affiliate corporations in any other capacity and receiving compensation for such service.

Section 14. Committees. The Board of Directors may designate one or more committees, each committee to consist of one or more of the directors of the Corporation. In addition to other committees that the Board of Directors may designate from time to time, the Board of Directors shall designate a Compensation Committee, an Audit Committee and a Nominating and Corporate Governance Committee each of which shall be comprised only of directors of the Corporation who are determined by the Board of Directors (i) to be “independent directors” as such term is defined by Section 303A(2) of the New York Stock Exchange Listed Company Manual and (ii) with respect to members of the Audit Committee only, to also be “independent” as such term is defined by Rule 10A-3(b)(1) of the Securities and Exchange Commission. The Board of Directors may designate one or more directors as alternate members of any committee, who may replace any absent or disqualified member at any meeting of the committee. In the absence or disqualification of a member of a committee, the member or members of the committee present at any meeting and not disqualified from voting, whether or not the member or members constitute a quorum, may unanimously appoint another member of the Board of Directors to act at the meeting in the place of any such absent or disqualified member. Any such committee, to the extent provided in the resolution of the Board of Directors and subject to the provisions of the Delaware General Corporation Law, shall have and may exercise all the powers and authority of the Board of Directors in the management of the business and affairs of the Corporation and may authorize the seal of the Corporation to be affixed to all papers that may require it. Each such committee shall keep minutes and make such reports as the Board of Directors may from time to time request. Except as the Board of Directors may otherwise determine, any committee may make rules for the conduct of its business, but unless otherwise provided by the directors or in such rules, its business shall be conducted as nearly as possible in the same manner as is provided in these By-laws for the Board of Directors. A majority of the members of a committee shall constitute a quorum unless the committee consist of one or two members, in which event, one member shall constitute a quorum. All matters shall be determined by a majority vote of the committee members present assuming a quorum is present.

Section 15. Emergency Bylaws. In the event of any emergency, disaster, catastrophe or other similar emergency condition of a type described in Section 110(a) of the Delaware General Corporation Law (an “Emergency”), notwithstanding any different or conflicting provisions in Delaware General Corporation Law, the Certificate of Incorporation or these By-laws, during such Emergency:

1. Notice. A meeting of the Board of Directors or a committee thereof may be called by any director, the Chairman of the Board, the Chief Executive Officer, the President or the Secretary by such means as, in the judgment of the person calling the meeting, may be feasible at the time, and notice of any such meeting of the Board of Directors or any committee may be given, in the judgment of the person calling the meeting, only to such directors as it may be feasible to reach at the time and by such means as may be feasible at the time. Such notice shall be given at such time in advance of the meeting as, in the judgment of the person calling the meeting, circumstances permit.

2. Quorum. The director or directors in attendance at a meeting called in accordance with Section 15 shall constitute a quorum.

3. Liability. No officer, director or employee acting in accordance with this Section 15 shall be liable except for willful misconduct. No amendment, repeal or change to this Section 15 shall modify the prior sentence with regard to actions taken prior to the time of such amendment, repeal or change.

ARTICLE III - OFFICERS

Section 1. General Provisions; Qualification. The officers of the Corporation shall be a Chief Executive Officer, a President, a Chief Financial Officer, a General Counsel, a Treasurer and a Secretary, and may include one or more Vice Presidents, one or more Assistant Treasurers and one or more Assistant Secretaries and such other officers as the Board of Directors may deem appropriate. Any two or more offices may be held by the same person.

Section 2. Election. Officers of the Corporation shall be elected annually by the Board of Directors.

Section 3. Tenure. Except as otherwise provided by the Delaware General Corporation Law, by the Certificate of Incorporation or by these By-laws, each officer shall hold office until such officer’s successor is elected and qualified, unless a different term is specified in the vote choosing or appointing such officer, or until such officer’s earlier death, resignation or removal.

Section 4. Resignation and Removal. Any officer may resign by delivering a resignation to the Corporation at its principal office or to the Chief Executive Officer or the Secretary. Such resignation shall be effective upon receipt unless it is specified to be effective at some other time or upon the happening of some other event. Any officer may be removed at any time, with or without cause by vote of the Board of Directors.

Section 5. Vacancies. The Board of Directors may at any time fill any vacancy occurring in any office for any reason. Each such successor shall hold office for the unexpired term of such successor’s predecessor and until such successor’s successor is elected and qualified, or until such successor’s earlier death, resignation or removal.

Section 6. The Chief Executive Officer. The Chief Executive Officer shall be the principal executive officer of the Corporation. Subject to the control of the Board of Directors, the Chief Executive Officer shall have general charge of the business and affairs of the Corporation. The Chief Executive Officer shall employ and discharge employees and agents of the Corporation, except such as shall hold their offices by appointment of the Board of Directors, but the Chief Executive Officer may delegate these powers to other officers as to employees under their immediate supervision. The Chief Executive Officer shall have such other powers and perform such other duties as may be prescribed by the Board of Directors.

Section 7. The President. The Board of Directors may appoint an officer of the Corporation to serve as the President of the Corporation. The President shall perform such of the duties of the Chief Executive Officer of the Corporation on behalf of the Corporation as may be assigned to the President from time to time by the Board of Directors or the Chief Executive Officer. In the absence or inability of the Chief Executive Officer to act, the President shall have and possess all of the powers and discharge all of the duties of the Chief Executive Officer, subject to the control of the Board of Directors.

Section 8. Vice Presidents. Each Vice President shall have such powers and perform such duties as the Board of Directors, the Chief Executive Officer, or the President may from time to time prescribe.

Section 9. Chief Financial Officer. The Board of Directors shall appoint an officer to serve as the Chief Financial Officer of the Corporation. The Chief Financial Officer shall be responsible for the Corporation's public financial reporting obligations and shall have such further powers and duties as are incident to the position of Chief Financial Officer, subject to the direction of the Chief Executive Officer and the Board of Directors.

Section 10. General Counsel. The Board of Directors shall appoint an officer to serve as the General Counsel of the Corporation. The General Counsel shall be the chief legal officer of the Corporation and shall be responsible for all legal affairs of the Corporation, and shall have such further powers and duties as are incident to the position of General Counsel.

Section 11. The Treasurer. The Treasurer shall perform such duties and shall have such powers as may from time to time be assigned to the Treasurer by the Board of Directors, the Chief Executive Officer or the Chief Financial Officer. In addition, subject to the direction of the Board of Directors, the Treasurer shall perform such duties and have such powers as are incident to the office of treasurer, including, without limitation, the duty and power to keep and be responsible for all funds and securities of the Corporation, to deposit funds of the Corporation in depositories, to disburse such funds, to make proper accounts of such funds, and to render statements of all such transactions and of the financial condition of the Corporation.

Section 12. The Secretary. The Secretary shall keep the minutes of all meetings of the Board of Directors and of the stockholders and shall attend to the giving and serving of all notices of the Corporation.

The Secretary shall have custody of the seal of the Corporation and shall affix the seal to all certificates of shares of stock of the Corporation and to such other papers or documents as may be proper and, when the seal is so affixed, the Secretary shall attest the same by the Secretary's signature wherever required. The Secretary shall have charge of the stock certificate book, transfer book, and stock ledger, and such other books and papers as the Board of Directors may direct. The Secretary shall, in general, perform all the duties of secretary, subject to the control of the Board of Directors.

Section 13. Assistant Treasurers. In the absence or inability of the Treasurer to act, any Assistant Treasurer may perform all the duties and exercise all of the powers of the Treasurer, subject to the control of the Board of Directors. An Assistant Treasurer shall also perform such other duties as the Board of Directors, the Chief Executive Officer, or the Treasurer may from time to time prescribe.

Section 14. Assistant Secretaries. In the absence or inability of the Secretary to act, any Assistant Secretary may perform all the duties and exercise all the powers of the Secretary, subject to the control of the Board of Directors. An Assistant Secretary shall also perform such other duties as the Board of Directors, the Chief Executive Officer, or the Secretary may from time to time prescribe.

Section 15. Other Officers. Other officers shall perform such duties and have such powers as may from time to time be assigned to them by the Board of Directors.

Section 16. Delegation of Duties. In case of the absence of any officer of the Corporation, or for any other reason that the Board of Directors may deem sufficient, the Board of Directors may confer, for the time being, the powers or duties, or any of them, of such officer upon any other officer, or upon any director.

Section 17. Salaries. Officers of the Corporation shall be entitled to such salaries, compensation, or reimbursement as shall be fixed or allowed from time to time by the Board of Directors.

ARTICLE IV - CAPITAL STOCK

Section 1. Shares of Stock. The shares of capital stock of the Corporation shall be uncertificated and shall not be represented by certificates, except to the extent as may be required by applicable law or as otherwise authorized by the Board of Directors. The preceding sentence shall not apply to shares represented by a certificate until such certificate is surrendered to the Corporation. Every holder of capital stock of the Corporation represented by certificates shall be entitled to have a certificate for shares of capital stock of the Corporation signed by, or in the name of the Corporation by two authorized officers of the Corporation (it being understood that each of the Chairman of the Board, the Vice-Chairman of the Board, the Chief Executive Officer, the President, any Vice President, the Secretary, any Assistant Secretary, the Treasurer and any Assistant Treasurer shall be an authorized person for these purposes), certifying the class and number of shares of record owned by such stockholder in the Corporation. Any or all of the signatures may be a facsimile.

Section 2. Transfer of Shares of Stock. Stock of the Corporation shall be transferable in the manner prescribed by applicable law and in these By-Laws. Transfers of stock shall be made on the books of the Corporation, and in the case of certificated shares of stock, only by the person named in the certificate or by such person's attorney lawfully constituted in writing and upon the surrender of

the certificate therefor, properly endorsed for transfer and payment of all necessary transfer taxes; or, in the case of uncertificated shares of stock, upon receipt of proper transfer instructions from the registered holder of the shares or by such person's attorney lawfully constituted in writing, and upon payment of all necessary transfer taxes and compliance with appropriate procedures for transferring shares in uncertificated form; provided, however, that such surrender and endorsement, compliance or payment of taxes shall not be required in any case in which the officers of the Corporation shall determine to waive such requirement. No transfer of stock shall be valid as against the Corporation for any purpose until it shall have been entered in the books of the Corporation by an entry showing from and to whom transferred.

Section 3. Lost, Stolen or Destroyed Certificates. In the event of the loss, theft or destruction of any certificate of stock, another may be issued in its place pursuant to such regulations as the Board of Directors or transfer agent may establish concerning proof of such loss, theft, or destruction and concerning the giving of a satisfactory bond or bonds of indemnity.

Section 4. Record Date.

(a) In order that the Corporation may determine the stockholders entitled to notice of or to vote at any meeting of stockholders, or to receive payment of any dividend or other distribution or allotment of any rights or to exercise any rights in respect of any change, conversion, or exchange of stock or for the purpose of any other lawful action, the Board of Directors may, except as otherwise required by the Delaware General Corporation Law, fix a record date, which record date shall not precede the date on which the resolution fixing the record date is adopted and which record date shall not be more than sixty (60) nor less than ten (10) days before the date of any meeting of stockholders, nor more than sixty (60) days prior to the time for such other action as hereinbefore described; *provided, however,* that if no record date is fixed by the Board of Directors, the record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be at the close of business on the day next preceding the day on which notice is given or, if notice is waived, at the close of business on the day next preceding the day on which the meeting is held, and, for determining stockholders entitled to receive payment of any dividend or other distribution or allotment of rights or to exercise any rights of change, conversion, or exchange of stock or for any other purpose, the record date shall be at the close of business on the day on which the Board of Directors adopts a resolution relating thereto. A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall apply to any adjournment of the meeting; *provided, however,* that the Board of Directors may fix a new record date for the adjourned meeting.

(b) In order that the Corporation may determine the stockholders entitled to consent to corporate action without a meeting, the Board of Directors may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which date shall not be more than ten (10) days after the date upon which the resolution fixing the record date is adopted by the Board of Directors. Any stockholder of record seeking to have the stockholders authorize or take corporate action by consent shall, by written notice to the Secretary of the Corporation, request the Board of Directors to fix a record date.

The Board of Directors shall promptly, but in all events within ten (10) days after the date on which such a request is received by the Secretary, adopt a resolution fixing the record date. If no record date has been fixed by the Board of Directors within ten (10) days of the date on which such a request is received, the record date for determining stockholders entitled to consent to corporate action without a meeting, when no prior action by the Board of Directors is required by applicable law, shall be the first date on which a consent setting forth the action taken or proposed to be taken is delivered to the Corporation in accordance with Section 228 of the Delaware General Corporation Law. If no record date has been fixed by the Board of Directors and prior action by the Board of Directors is required by applicable law, the record date for determining stockholders entitled to consent to corporate action without a meeting shall be at the close of business on the date on which the Board of Directors adopts the resolution taking such prior action.

Section 5. Regulations. The issue, transfer, conversion and registration of shares of stock shall be governed by such other regulations as the Board of Directors may establish.

ARTICLE V - GENERAL PROVISIONS

Section 1. Fiscal Year. Except as from time to time otherwise designated by the Board of Directors, the fiscal year of the Corporation shall end on December 31.

Section 2. Corporate Seal. The corporate seal shall be in such form as may be approved by the Board of Directors. The corporate seal may be altered from time to time by the Board.

Section 3. Waiver of Notice. Whenever any notice whatsoever is required to be given by the Delaware General Corporation Law, by the Certificate of Incorporation or by these By-laws, a waiver of such notice given by the person entitled to such notice or such person's duly authorized attorney, whether before or after the time of the event for which notice is to be given shall be deemed equivalent to the notice required to be given to such person. Neither the business nor the purpose of any meeting need be specified in such a waiver. The appearance of such person at such meeting in person or by proxy, shall constitute waiver of notice except attendance for the sole purpose of objecting at the beginning of the meeting to the timeliness or lack of notice.

Section 4. Voting of Securities. Unless otherwise provided by resolution adopted by the Board of Directors, the Chairman of the Board, the President, any Vice President or the Secretary may from time to time appoint an attorney or attorneys or agent or agents of the Corporation, in the name and on behalf of the Corporation, to cast the votes which the Corporation may be entitled to cast as the holder of stock or other securities in any other corporation or other entity, any of whose stock or other securities may be held by the Corporation, at meetings of the holders of the stock or other securities of such other corporation or other entity, or to consent in any manner permitted under applicable law, in the name of the Corporation as such holder, to any action by such other corporation or other entity, and may instruct the person or persons so appointed as to the manner of casting such votes or giving such consents, and may execute or cause to be executed in the name and on behalf of the Corporation and under its corporate seal or otherwise, all such proxies or other instruments as he or she may deem necessary or proper. Any of the rights set forth in this Section 4 which may be delegated to an attorney or agent may also be exercised directly by the Chairman of the Board, the President, any Vice President or the Secretary.

Section 5. Evidence of Authority. A certificate by the Secretary, or an Assistant Secretary as to any action taken by the stockholders, directors, a committee or any officer or representative of the Corporation shall as to all persons who rely on the certificate in good faith be conclusive evidence of such action.

Section 6. Certificate of Incorporation. All references in these By-laws to the Certificate of Incorporation shall be deemed to refer to the Third Amended and Restated Certificate of Incorporation of the Corporation, as amended, restated and in effect from time to time.

Section 7. Transactions with Interested Parties. No contract or transaction between the Corporation and one or more of the directors or officers, or between the Corporation and any other corporation, partnership, association or other organization in which one or more of the directors or officers are directors or officers, or have a financial interest, shall be void or voidable solely for this reason, or solely because the director or officer is present at or participates in the meeting of the Board of Directors or a committee of the Board of Directors that authorizes the contract or transaction or solely because the interested directors' votes are counted for such purpose, if:

(1) The material facts as to the director's or officer's relationship or interest and as to the contract or transaction are disclosed or are known to the Board of Directors or the committee, and the Board of Directors or committee in good faith authorizes the contract or transaction by the affirmative votes of a majority of the disinterested directors, even though the disinterested directors be less than a quorum;

(2) The material facts as to the director's or officer's relationship or interest and as to the contract or transaction are disclosed or are known to the stockholders entitled to vote thereon, and the contract or transaction is specifically approved in good faith by vote of the stockholders; or

(3) The contract or transaction is fair as to the Corporation as of the time it is authorized, approved or ratified, by the Board of Directors, a committee of the Board of Directors, or the stockholders.

Common or interested directors may be counted in determining the presence of a quorum at a meeting of the Board of Directors or of a committee that authorizes the contract or transaction.

Section 8. Severability. Any determination that any provision of these By-laws is for any reason inapplicable, illegal, or ineffective shall not affect or invalidate any other provision of these By-laws.

Section 9. Limitation on Stock Option Repricing. No stock option granted to an officer or director of the Corporation shall, after issuance, be repriced to a lower exercise price (other than adjustments for stock splits, stock dividends, spinoffs, recapitalizations and like events), without the prior affirmative vote of the holders of a majority in voting power of the shares of capital stock of the Corporation present at a stockholders meeting in person or by proxy and entitled to vote thereon.

ARTICLE VI - AMENDMENTS

Section 1. By the Board of Directors. In furtherance and not in limitation of the powers conferred by the Delaware General Corporation Law and the Certificate of Incorporation, the Board of Directors is expressly authorized to alter, amend or repeal any provision of these By-laws or make new by-laws.

Section 2. By the Stockholders. The stockholders of the Corporation shall have the power to alter, amend or repeal any provision of these By-laws or make new by-laws by affirmative vote of the holders of a majority in voting power of the shares of capital stock of the Corporation issued and outstanding and entitled to vote, voting together as a single class.

THERMO FISHER SCIENTIFIC INC.

DEFERRED COMPENSATION PLAN FOR DIRECTORS,

As amended and restated effective as of February 21, 2024

Section 1. Participation. Any director of Thermo Fisher Scientific Inc. (the “Company”) may elect to have such percentage as he or she may specify of the fees otherwise payable to him or her deferred and paid to him or her as provided in this Plan. A director who is also an employee of the Company or any subsidiary or parent of the Company shall not be eligible to participate in this Plan. Each election to defer fees to be paid in any calendar year shall be made by notice in writing delivered to the Secretary of the Company no later than December 31 of the preceding year, in such form as the Secretary shall designate, and each election shall be applicable only with respect to fees earned during the calendar year designated in the form. The term “participant” as used herein refers to any director who shall have made an election. No participant may defer the receipt of any fees to be earned after the date on which he or she shall cease to be a director of the Company (the “deferral termination date”).

Section 2. Establishment of Deferred Compensation Accounts. There shall be established for each participant an account to be designated as that participant’s deferred compensation account.

Section 3. Allocations to Deferred Compensation Accounts. There shall be allocated to each participant’s deferred compensation account, as of the end of each quarter, an amount equal to his or her fees for that quarter which that participant shall have elected to have deferred pursuant to Section 1.

Section 4. Stock Units and Stock Unit Accounts. All amounts allocated to a participant’s deferred compensation account pursuant to Section 3 shall be converted, at the end of each quarter, into stock units by dividing the accumulated balance in the deferred compensation account as of the end of that quarter by the last sale price per share of the Company’s common stock as reported in The Wall Street Journal, for the last trading day of that quarter. The number of stock units, so determined, rounded to the nearest one-hundredth of a share, shall be credited to a separate stock unit account to be established for the participant, and the aggregate value thereof as of the last business day of that quarter shall be charged to the participant’s deferred compensation account. No amounts credited to the participant’s deferred compensation account pursuant to Section 5 shall be converted into stock units. Any such amount shall be distributed in cash as provided in Section 8.

Section 5. Cash Dividend Credits. Additional credits shall be made to a participant’s deferred compensation account, until all distributions shall have been made from the participant’s stock unit account, in amounts equal to the cash dividends (or the fair market value of dividends paid in property other than dividends payable in common stock of the Company) which the participant would have received from time to time had he or she been the owner on the record dates for the payment of such dividends of the number of shares of the Company’s common stock equal to the number of units in his or her stock unit account on those dates.

Section 6. Stock Dividend Credits. Additional credits shall be made to a participant's stock unit account, until all distributions shall have been made from the participant's stock unit account, of a number of units equal to the number of shares of the Company's common stock, rounded to the nearest one-hundredth share, which the participant would have received from time to time as stock dividends had he or she been the owner on the record dates for the payments of such stock dividends of the number of units of the Company's common stock equal to the number of units credited to his or her stock unit account on those dates.

Section 7. Adjustments in the Event of Certain Transactions. In the event of a stock dividend, stock split or combination of shares, or other distribution with respect to holders of Common Stock other than normal cash dividends, the number of units then credited to a participant's stock unit account shall be appropriately adjusted on the same basis. In the event of any recapitalization, merger or consolidation involving the Company, any transaction in which the Company becomes a subsidiary of another entity, any sale or other disposition of all or a substantial portion of the assets of the Company or any similar transaction, as determined by the Board, the Board in its discretion may terminate the Plan pursuant to Section 11.

Section 8. Distribution of Stock and Cash After Participant's Deferral Termination Date. When a participant's deferral termination date shall occur, the Company shall become obligated to make the distributions prescribed in the following paragraphs (a) and (b).

(a) The Company shall distribute to the participant the number of shares of the common stock of the Company which shall equal the total number of units accumulated in his or her stock unit account as of the close of the fiscal year in which the participant's deferral termination date occurs. Such distribution of stock shall be made in a single distribution within 60 days after the close of the fiscal year in which the participant's deferral termination date occurs. Distribution of stock made hereunder may be made from shares of common stock held in the treasury and/or from shares of authorized but previously unissued shares of common stock.

(b) The Company shall distribute to the participant sums in cash equal to the cash balance credited to his or her deferred compensation account as of the close of the fiscal year in which his or her deferral termination date occurs. The cash distribution shall be made on the same date as the distribution made pursuant to paragraph (a) above, and shall consist of the entire cash balance credited to the participant's deferred compensation account at the time of the distribution.

(c) If a participant's deferral termination date shall occur by reason of his or her death or if he or she shall die after his or her deferral termination date but prior to receipt of all distributions of stock and cash provided for in this Section 8, all stock and cash remaining distributable hereunder shall be distributed to such beneficiary as the participant shall have designated in writing and filed with the Secretary of the Company or, in the absence of designation, to the participant's personal representative. Such distributions shall be made in the same manner and at the same intervals as they would have been made to the participant had he or she continued to live.

(d) A participant may change the time of payment of the distribution to be made

under Section 8(a) by submitting an election form to the Secretary of the Company. Such election shall not take effect until at least 12 months after the date on which the election is made, the new distribution shall take place at least 5 years after the distribution date that would otherwise been applicable, and the election must be made at least 12 months prior to such distribution date.

Section 9. Participant's Rights Unsecured. The right of any participant to receive distributions under Section 8 shall be an unsecured claim against the general assets of the Company. The Company may but shall not be obligated to acquire shares of its outstanding common stock from time to time in anticipation of its obligation to make such distributions, but no participant shall have any rights in or against any shares of stock so acquired by the Company. All such stock shall constitute general assets of the Company and may be disposed of by the Company at such time and for such purposes as it may deem appropriate.

Section 10. Change in Control.

10.1 Impact of Event

In the event of a "Change in Control" as defined in Section 10.2, the Plan shall terminate and full distribution shall be made from all participants' deferred compensation accounts and stock unit accounts effective upon the Change of Control.

10.2 Definition of "Change in Control"

"Change in Control" shall mean the occurrence of a "change in the ownership," a "change in the effective control" or a "change in the ownership of a substantial portion of the assets" of a corporation, as determined in accordance with this Section.

In order for an event described below to constitute a Change in Control with respect to a Participant, except as otherwise provided in part (b)(ii) of this Section, the applicable event must relate to the corporation for which the Participant is providing services, the corporation that is liable for payment of the Participant's Account Balance (or all corporations liable for payment if more than one), as identified by the Committee in accordance with Treas. Reg. § 1.409A-3(i)(5)(ii)(A)(2), or such other corporation identified by the Committee in accordance with Treas. Reg. § 1.409A-3(i)(5)(ii)(A)(3).

In determining whether an event shall be considered a "change in the ownership," a "change in the effective control" or a "change in the ownership of a substantial portion of the assets" of a corporation, the following provisions shall apply:

(a) A "change in the ownership" of the applicable corporation shall occur on the date on which any one person, or more than one person acting as a group, acquires ownership of stock of such corporation that, together with stock held by such person or group, constitutes more than 50% of the total fair market value or total voting power of the stock of such corporation, as determined in accordance with Treas. Reg. § 1.409A-3(i)(5)(v). If a person or group is considered either to own more than 50% of the total fair market value or total voting power of the stock of such corporation, or to have effective control of such corporation within the meaning

of part (b) of this Section, and such person or group acquires additional stock of such corporation, the acquisition of additional stock by such person or group shall not be considered to cause a "change in the ownership" of such corporation.

(b) A "change in the effective control" of the applicable corporation shall occur on either of the following dates:

(i) The date on which any one person, or more than one person acting as a group, acquires (or has acquired during the 12-month period ending on the date of the most recent acquisition by such person or persons) ownership of stock of such corporation possessing 40% or more of the total voting power of the stock of such corporation, as determined in accordance with Treas. Reg. § 1.409A-3(i)(5)(vi). If a person or group is considered to possess 40% or more of the total voting power of the stock of a corporation, and such person or group acquires additional stock of such corporation, the acquisition of additional stock by such person or group shall not be considered to cause a "change in the effective control" of such corporation; or

(ii) The date on which a majority of the members of the applicable corporation's board of directors is replaced during any 12-month period by directors whose appointment or election is not endorsed by a majority of the members of such corporation's board of directors before the date of the appointment or election, as determined in accordance with Treas. Reg. § 1.409A-3(i)(5)(vi). In determining whether the event described in the preceding sentence has occurred, the applicable corporation to which the event must relate shall only include a corporation identified in accordance with Treas. Reg. § 1.409A-3(i)(5)(ii) for which no other corporation is a majority shareholder.

(c) A "change in the ownership of a substantial portion of the assets" of the applicable corporation shall occur on the date on which any one person, or more than one person acting as a group, acquires (or has acquired during the 12-month period ending on the date of the most recent acquisition by such person or persons) assets from the corporation that have a total gross fair market value equal to or more than 40% of the total gross fair market value of all of the assets of the corporation immediately before such acquisition or acquisitions, as determined in accordance with Treas. Reg. § 1.409A-3(i)(5)(vii). A transfer of assets shall not be treated as a "change in the ownership of a substantial portion of the assets" when such transfer is made to an entity that is controlled by the shareholders of the transferor corporation, as determined in accordance with Treas. Reg. § 1.409A-3(i)(5)(vii)(B).

Section 11. Amendment and Termination of the Plan. The Board of Directors of the Company may amend or terminate the Plan at any time and from time to time, provided, however, that no amendment adversely affecting credits already made to any participant's deferred compensation account or stock unit account may be made without the consent of that participant or, if that participant has died, that participant's beneficiary. Upon termination of the Plan, the Company shall be obligated to distribute to the participant the following as the Board of Directors of the Company, in its sole discretion, may determine: (i) the number of shares of the common stock of the Company which shall equal the total number of units accumulated in the

participant's stock unit account as of the effective date of termination of the Plan and/or (ii) a sum in cash equal to the balance credited to the participant's deferred compensation account as of the effective date of termination of the Plan.

Section 12. Section 409A. This Plan is intended to comply with all applicable law, including Code Section 409A of the Internal Revenue Code and related Treasury guidance and regulations, and shall be operated and interpreted in accordance with this intention.

Thermo Fisher Scientific Inc. Deferred Compensation Plan

Amended & Restated Effective January 1, 2024

IMPORTANT NOTE

This document has not been approved by the Department of Labor, Internal Revenue Service, or any other governmental entity. An adopting Employer must determine whether the Plan is subject to the federal securities laws and the securities laws of the various states. An adopting Employer may not rely on this document to ensure any particular tax consequences or to ensure that the Plan is "unfunded and maintained primarily for the purpose of providing deferred compensation to a select group of management or highly compensated employees" under Title I of the Employee Retirement Income Security Act of 1974, as amended, with respect to the Employer's particular situation. FMR LLC, its affiliates and employees cannot provide you with legal advice in connection with the execution of this document. This document should be reviewed by the Employer's attorney prior to execution.

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Preamble

The Plan is intended to be a "plan which is unfunded and is maintained by an employer primarily for the purpose of providing deferred compensation for a select group of management or highly compensated employees" within the meaning of Sections 201(2), 301(a)(3) and 401(a)(1) of the Employee Retirement Income Security Act of 1974, as amended, or an "excess benefit plan" within the meaning of Section 3(36) of the Employee Retirement Income Security Act of 1974, as amended, or a combination of both. The Plan is further intended to conform with the requirements of Internal Revenue Code Section 409A and the final regulations issued thereunder and shall be interpreted, implemented and administered in a manner consistent therewith.

Preamble 1

Article 1 - General

1.1. Plan

The Plan will be referred to by the name specified in the Adoption Agreement.

1.2. Effective Dates

- (a) Original Effective Date. The Original Effective Date is the date as of which the Plan was initially adopted.
- (b) Amendment Effective Date. The Amendment Effective Date is the date specified in the Adoption Agreement as of which the Plan is amended and restated. Except as otherwise provided in the Adoption Agreement, all amounts deferred under the Plan prior to the Amendment Effective Date shall be governed by the terms of the Plan as in effect on the day before the Amendment Effective Date.
- (c) Special Effective Date. A Special Effective Date may apply to any given provision if so specified in Appendix A of the Adoption Agreement. A Special Effective Date will control over the Original Effective Date or Amendment Effective Date, whichever is applicable, with respect to such provision of the Plan.

1.3. Amounts Not Subject to Code Section 409A

Except as otherwise indicated by the Plan Sponsor in Section 1.01 of the Adoption Agreement, amounts deferred before January 1, 2005 that are earned and vested on December 31, 2004 will be separately accounted for and administered in accordance with the terms of the Plan as in effect on December 31, 2004.

Article 2 - Definitions

Wherever used herein, the following terms have the meanings set forth below, unless a different meaning is clearly required by the context:

2.1. Account

"Account" means an account and any subaccounts established for the purpose of recording amounts credited on behalf of a Participant and any earnings, expenses, gains, losses or distributions included thereon. The Account shall be a bookkeeping entry only and shall be utilized solely as a device for the measurement and determination of the amounts to be paid to a Participant or to the Participant's Beneficiary pursuant to the Plan.

2.2 Administrator

"Administrator" means the person or persons designated by the Plan Sponsor in Section 1.05 of the Adoption Agreement to be responsible for the administration of the Plan. If no Administrator is designated in the Adoption Agreement, the Administrator is the Plan Sponsor.

2.3 Adoption Agreement

"Adoption Agreement" means the agreement adopted by the Plan Sponsor that establishes the Plan.

2.4 Beneficiary

"Beneficiary" means the persons, trusts, estates or other entities entitled under Section 8.2 to receive benefits under the Plan upon the death of a Participant. The Participant's spouse, if living, otherwise the Participant's estate, shall be the Beneficiary if: (i) the Participant has failed to properly designate a Beneficiary or (ii) all designated Beneficiaries have predeceased the Participant.

2.5 Board or Board of Directors

"Board" or "Board of Directors" means the Board of Directors of the Plan Sponsor.

2.6 Bonus

"Bonus" means an amount of incentive remuneration payable by the Employer to a Participant.

2.7 Change in Control

"Change in Control" means the occurrence of an event involving the Plan Sponsor that is described in Section 9.7.

2.8 Code

"Code" means the Internal Revenue Code of 1986, as amended.

2.9 Committee

"Committee" means the Compensation Committee of the Board or such other committee as the Board may appoint from time to time.

2.10 Compensation

"Compensation" has the meaning specified in Section 3.01 of the Adoption Agreement.

2.11. Director

"Director" means a non-employee member of the Board.

2.12. Disability

"Disability" means that a Participant is disabled as defined in Section 6.01(i) of the Adoption Agreement.

2.13. Eligible Employee

"Eligible Employee" means an employee of the Employer who satisfies the requirements in Section 2.01 of the Adoption Agreement.

2.14. Employer

"Employer" means the Plan Sponsor and any other Related Employer that is listed in Section 1.04 of the Adoption Agreement and which is authorized by the Plan Sponsor to participate in and, in fact, does adopt the Plan.

2.15. ERISA

"ERISA" means the Employee Retirement Income Security Act of 1974, as amended.

2.16. Identification Date

"Identification Date" means the date as of which Key Employees are determined which is specified in Section 1.06 of the Adoption Agreement.

2.17. Key Employee

"Key Employee" means an employee who satisfies the conditions set forth in Section 9.6.

2.18. Match-Eligible Compensation

Match-Eligible Compensation for a given Plan Year means a Participant's Compensation that is in excess of the amount of Compensation treated as "compensation" for the applicable plan year under the Thermo Fisher Scientific Inc. 401(k) Retirement Plan. Match-Eligible Compensation includes a Participant's Compensation that is in excess of the IRS limit on covered compensation for qualified plans established in Code Section 401 (a)(17) in effect for that Plan Year and also includes any amount of a Participant's Compensation that was reduced below the Code Section 401(a)(17) limit for purposes of applying the Company match in the Company sponsored 401(k) plan due to deferrals in this Plan.

2.19. Participant

"Participant" means an Eligible Employee who commences participation in the Plan in accordance with Article 3.

2.20. Plan

"Plan" means the unfunded plan of deferred compensation set forth herein, including the Adoption Agreement and any trust agreement, as adopted by the Plan Sponsor, and as amended from time to time.

2.21. Plan Sponsor

"Plan Sponsor" means the entity identified in Section 1.03 of the Adoption Agreement or any successor by merger, consolidation or otherwise.

2.22. Plan Year

"Plan Year" means the period identified in Section 1.02 of the Adoption Agreement.

2.23. *Related Employer*

"Related Employer" means the Plan Sponsor and (a) any corporation that is a member of a controlled group of corporations as defined in Code Section 414(b) that includes the Plan Sponsor and (b) any trade or business that is under common control as defined in Code Section 414(c) that includes the Plan Sponsor.

2.24. *Retirement*

"Retirement" has the meaning specified in 6.01(f) of the Adoption Agreement.

2.25. *Separation from Service*

"Separation from Service" means the date that the Participant dies, retires or otherwise has a termination of employment with respect to all entities comprising the Related Employer. A Separation from Service does not occur if the Participant is on military leave, sick leave or other bona fide leave of absence if the period of leave does not exceed six months or such longer period during which the Participant's right to re-employment is provided by statute or contract. If the period of leave exceeds six months and the Participant's right to re-employment is not provided either by statute or contract, a Separation from Service will be deemed to have occurred on the first day following the six-month period. If the period of leave is due to any medically determinable physical or mental impairment that can be expected to result in death or can be expected to last for a continuous period of not less than six months, where the impairment causes the Participant to be unable to perform the duties of his or her position of employment or any substantially similar position of employment, a 29 month period of absence may be substituted for the six month period.

Whether a termination of employment has occurred is based on whether the facts and circumstances indicate that the Related Employer and the Participant reasonably anticipated that no further services would be performed after a certain date or that the level of bona fide services the Participant would perform after such date (whether as an employee or as an independent contractor) would permanently decrease to no more than 20 percent of the average level of bona fide services performed (whether as an employee or an independent contractor) over the immediately preceding 36 month period (or the full period of services to the Related Employer if the employee has been providing services to the Related Employer for less than 36 months).

An independent contractor is considered to have experienced a Separation from Service with the Related Employer upon the expiration of the contract (or, in the case of more than one contract, all contracts) under which services are performed for the Related Employer if the expiration constitutes a good-faith and complete termination of the contractual relationship.

If a Participant provides services as both an employee and an independent contractor of the Related Employer, the Participant must separate from service both as an employee and as an independent contractor to be treated as having incurred a Separation from Service. If a Participant ceases providing services as an independent contractor and begins providing services as an employee, or ceases providing services as an employee and begins providing services as an independent contractor, the Participant will not be considered to have experienced a Separation from Service until the Participant has ceased providing services in both capacities.

If a Participant provides services both as an employee and as a member of the Board of Directors of a corporate Related Employer (or an analogous position with respect to a noncorporate Related Employer), the services provided as a Director are not taken into account in determining whether the Participant has incurred a Separation from Service as an employee for purposes of a nonqualified deferred compensation plan in which the Participant participates as an employee that is not aggregated under Code Section 409A with any plan in which the Participant participates as a Director.

For purposes of determining whether a Separation from Service has occurred, the Related Employer means the Related Employer as defined in Section 2.22 of the Plan, except that in applying Code Sections 1563(a)(1), (2) and (3) for purposes of determining whether another organization is a Related Employer of the Plan Sponsor under Code Section 414(b), and in applying Treas. Reg. § 1.414(c)-2 for purposes of determining whether another organization is a Related Employer of the Plan Sponsor under Code Section 414(c), "at least 50 percent" shall be used instead of "at least 80 percent" each place it appears in those Sections. The Plan Sponsor specifically reserves the right to determine whether a sale or other disposition of substantial assets to an unrelated party constitutes a Separation from Service with respect to a Participant providing services to the seller immediately prior to the transaction and providing services to the buyer after the transaction.

All determinations of whether a Separation from Service has occurred will be made in a manner consistent with Code Section 409A and the final regulations thereunder.

2.26. *Unforeseeable Emergency*

"Unforeseeable Emergency" means a severe financial hardship of the Participant resulting from an illness or accident of the Participant, the Participant's spouse, the Participant's Beneficiary or the Participant's dependent (as defined in Code Section 152, without regard to Code Section 152(b)(1), (b)(2) and (d)(1)(B)); loss of the Participant's property due to casualty; or other similar extraordinary and unforeseeable circumstances arising as a result of events beyond the control of the Participant. The types of events which may qualify as an Unforeseeable Emergency may be limited by the Plan Sponsor.

2.27. *Valuation Date*

"Valuation Date" means each business day of the Plan Year that the New York Stock Exchange is open.

2.28. *Years of Service*

"Years of Service" means each one-year period for which the Participant receives service credit in accordance with the provisions of Section 7.01(d) of the Adoption Agreement.

Article 3 - Participation

3.1. Participation

The Participants in the Plan shall be those Eligible Employees of the Employer who satisfy the requirements of Section 2.01 of the Adoption Agreement.

3.2 Termination of Participation

The Administrator may terminate a Participant's participation in the Plan in a manner consistent with Code Section 409A. If the Employer terminates a Participant's participation before the Participant experiences a Separation from Service, the Participant's vested Accounts shall be paid in accordance with the provisions of Article 9.

Article 4 - Participant Elections

4.1. Deferral Agreement

If permitted by the Plan Sponsor in accordance with Section 4.01 of the Adoption Agreement, each Eligible Employee may elect to defer his or her Compensation within the meaning of Section 3.01 of the Adoption Agreement by executing, in writing or electronically, a deferral agreement in accordance with rules and procedures established by the Administrator and the provisions of this Article 4.

A new deferral agreement must be timely executed for each Plan Year during which the Eligible Employee desires to defer Compensation. An Eligible Employee who does not timely execute a deferral agreement shall be deemed to have elected zero deferrals of Compensation for such Plan Year.

A deferral agreement may be changed or revoked during the period specified by the Administrator. Except as provided in Section 9.3, a deferral agreement becomes irrevocable at the close of the specified period.

The Plan Sponsor may modify any deferral agreement prior to the date the election becomes irrevocable under the rules of Section 4.3.

4.2. Amount of Deferral

An Eligible Employee may elect to defer Compensation in any amount permitted by Section 4.01(a) of the Adoption Agreement.

4.3. Timing of Election to Defer

Each Eligible Employee who desires to defer Compensation otherwise payable during a Plan Year must execute a deferral agreement within the period preceding the Plan Year during which the Compensation is earned that is specified by the Administrator. Each Eligible Employee who desires to defer Compensation that is a Bonus must execute a deferral agreement within the period preceding the Plan Year during which the Bonus is earned that is specified by the Administrator, except that if the Bonus can be treated as performance based compensation as described in Code Section 409A(a)(4)(B)(iii), the deferral agreement may be executed within the period specified by the Administrator, which period, in no event, shall end after the date which is six months prior to the end of the period during which the Bonus is earned, provided the Participant has performed services continuously from the later of the beginning of the performance period or the date the performance criteria are established through the date the Participant executed the deferral agreement and provided further that the compensation has not yet become 'readily ascertainable' within the meaning of Treas. Reg. § 1.409A-2(a)(8). Compensation that meets the definition of a "short-term deferral" described in Treas. Reg. § 1.409A-1(b)(4) may be deferred in accordance with the rules of Section 9.2, applied as if the date the substantial risk of forfeiture lapses is the date payments were originally scheduled to commence, provided, however, that the provisions requiring the delay of the payment date for a minimum period of 60 months from the originally scheduled date of payment shall not apply to payments attributable to a change in control (as defined in Treas. Reg. § 1.409A- 3(i)(5)). In addition, if the Compensation qualifies as 'fiscal year compensation' within the meaning of Treas. Reg. § 1.409A-2(a)(6), the deferral agreement may be made not later than the end of the Employer's taxable year immediately preceding the first taxable year of the Employer in which any services are performed for which such Compensation is payable.

Except as otherwise provided below, an employee who is classified or designated as an Eligible Employee during a Plan Year may elect to defer Compensation otherwise payable during the remainder of such Plan Year in accordance with the rules of this Section 4.3 by executing a deferral agreement within the thirty (30)-day period beginning on the date the employee is classified or designated as an Eligible Employee, if permitted by Section 4.01(b)(ii) of the Adoption Agreement. If Compensation is based on a specified performance period that begins before the Eligible Employee or Director executes his or her deferral agreement, the election will be deemed to apply to the portion of such Compensation equal to the total amount of Compensation for the performance period multiplied by the ratio of the number of days remaining in the performance period after the election becomes irrevocable and effective over the total number of days in the performance period. The rules of this paragraph shall not apply unless the Eligible Employee can be treated as initially eligible in accordance with Treas. Reg. § 1.409A-2(a)(7).

4.4. *Election of Payment Schedule and Form of Payment*

All elections of a payment schedule and a form of payment will be made in accordance with rules and procedures established by the Administrator and the provisions of this Section 4.4.

- (a) If the Plan Sponsor has elected to permit annual distribution elections in accordance with Section 6.01(h) of the Adoption Agreement the following rules apply. At the time an Eligible Employee completes a deferral agreement, the Eligible Employee must elect a distribution event (which includes a specified time) and a form of payment for the Compensation subject to the deferral agreement from among the options the Plan Sponsor has made available for this purpose and which are specified in 6.01(b) of the Adoption Agreement. Prior to the time required by Treas. Reg. § 1.409A-2, the Eligible Employee shall elect a distribution event (which includes a specified time) and a form of payment for any Employer contributions that may be credited to the Participant's Account during the Plan Year. If an Eligible Employee fails to elect a distribution event, he or she shall be deemed to have elected Separation from Service as the distribution event. If he or she fails to elect a form of payment, he or she shall be deemed to have elected a lump sum form of payment.
- (b) If the Plan Sponsor has elected not to permit annual distribution elections in accordance with Section 6.01(h) of the Adoption Agreement the following rules apply. At the time an Eligible Employee first completes a deferral agreement but in no event later than the time required by Treas. Reg. § 1.409A-2, the Eligible Employee must elect a distribution event (which includes a specified time) and a form of payment for amounts credited to his or her Account from among the options the Plan Sponsor has made available for this purpose and which are specified in Section 6.01(b) of the Adoption Agreement. If an Eligible Employee fails to elect a distribution event, he or she shall be deemed to have elected Separation from Service in the distribution event. If the Participant fails to elect a form of payment, he or she shall be deemed to have elected a lump sum form of payment.

Article 5 - Employer Contributions

5.1. Matching Contributions

If elected by the Plan Sponsor in Section 5.01(a) of the Adoption Agreement, the Employer will credit the Participant's Account with a matching contribution determined in accordance with the formula specified in Section 5.01(a) of the Adoption Agreement. The matching contribution will be treated as allocated to the Participant's Account at the time specified in Section 5.01(a)(iii) of the Adoption Agreement.

5.1. Other Contributions

If elected by the Plan Sponsor in Section 5.01(b) of the Adoption Agreement, the Employer will credit the Participant's Account with a contribution or contributions determined in accordance with the formula or method specified in Section 5.01(b) of the Adoption Agreement. These contributions will be treated as allocated to the Participant's Account at the time specified in Section 5.01(b)(iii) of the Adoption Agreement.

Article 6 - Accounts and Credits

6.1. Establishment of Account

For accounting and computational purposes only, the Administrator will establish and maintain an Account on behalf of each Participant which will reflect the credits made pursuant to Section 6.2, distributions or withdrawals, along with the earnings, expenses, gains and losses allocated thereto, attributable to the hypothetical investments made with the amounts in the Account as provided in Article 7. The Administrator may establish and maintain such other records and accounts, as it decides in its discretion to be reasonably required or appropriate to discharge its duties under the Plan.

6.2. Credits to Account

A Participant's Account will be credited for each Plan Year with the amount of his or her elective deferrals under Section 4.1 at the time the amount subject to the deferral election would otherwise have been payable to the Participant and the amount of Employer contributions, if any, treated as allocated on his or her behalf under Article 5.

Article 7 - Investment of Contributions

7.2. *Investment Options*

The amount credited to each Account shall be treated as invested in the investment options designated for this purpose by the Administrator.

7.2. *Adjustment of Accounts*

The amount credited to each Account shall be adjusted for hypothetical investment earnings, expenses, gains or losses in an amount equal to the earnings, expenses, gains or losses attributable to the investment options selected by the party designated in Section 9.01 of the Adoption Agreement from among the investment options provided in Section 7.1. If permitted by Section 9.01 of the Adoption Agreement, a Participant (or the Participant's Beneficiary after the death of the Participant) may, in accordance with rules and procedures established by the Administrator, select the investments from among the options provided in Section 7.1 to be used for the purpose of calculating future hypothetical investment adjustments to the Account or to future credits to the Account under Section 6.2 effective as of the Valuation Date coincident with or next following notice to the Administrator. Each Account shall be adjusted as of each Valuation Date to reflect: (a) the hypothetical earnings, expenses, gains and losses described above; (b) amounts credited pursuant to Section 6.2; and (c) distributions or withdrawals. In addition, each Account may be adjusted for its allocable share of the hypothetical costs and expenses associated with the maintenance of the hypothetical investments provided in Section 7.1.

Article 8 - Right to Benefits

8.1. Vesting

A Participant, at all times, has a 100% nonforfeitable interest in the amounts credited to his or her Account attributable to his or her elective deferrals made in accordance with Section 4.1.

A Participant's right to the amounts credited to his or her Account attributable to Employer contributions made in accordance with Article 5 shall be determined in accordance with the relevant schedule and provisions in Section 7.01 of the Adoption Agreement. Upon a Separation from Service and after application of the provisions of Section 7.01 of the Adoption Agreement, the Participant shall forfeit the nonvested portion of his or her Account.

8.2. Death

The Plan Sponsor may elect to accelerate vesting upon the death of the Participant in accordance with Section 7.01(c) of the Adoption Agreement and/or to accelerate distributions upon death in accordance with Section 6.01(b) or Section 6.01(d) of the Adoption Agreement. If the Plan Sponsor does not elect to accelerate distributions upon death in accordance with Section 6.01(b) or Section 6.01(d) of the Adoption Agreement, the vested amount credited to the Participant's Account will be paid in accordance with the provisions of Article 9.

A Participant may designate a Beneficiary or Beneficiaries, or change any prior designation of Beneficiary or Beneficiaries in accordance with rules and procedures established by the Administrator. Whenever a Participant designates a new Beneficiary, all former Beneficiary designations by such Participant shall be revoked automatically. If a Participant and the Participant's spouse divorce, any designations of the spouse as Beneficiary shall become null and void. The former spouse shall be treated as the Beneficiary under the Plan only if after the divorce is final, the Participant expressly re-designates the former spouse as the Participant's Beneficiary.

A copy of the death notice or other sufficient documentation must be filed with and approved by the Administrator.

8.3. Disability

If the Plan Sponsor has elected to accelerate vesting upon the occurrence of a Disability in accordance with Section 7.01(c) of the Adoption Agreement and/or to permit distributions upon Disability in accordance with Section 6.01(b) or Section 6.01(d) of the Adoption Agreement, the determination of whether a Participant has incurred a Disability shall be based on the definition of Disability in Section 6.01(i) of the Adoption Agreement and in a manner consistent with the requirements of Code Section 409A.

Article 9 - Distribution of Benefits

9.1. Amount of Benefits

The vested amount credited to a Participant's Account as determined under Articles 6, 7 and 8 shall determine and constitute the basis for the value of benefits payable to the Participant under the Plan.

9.2. Method and Timing of Distributions

Except as otherwise provided in this Article 9, distributions under the Plan shall be made in accordance with the elections made or deemed made by the Participant under Article 4. Subject to the provisions of Section 9.6 requiring a six-month delay for certain distributions, payments following a distribution event described in Section 6.01(b) shall commence at the time specified in Section 6.01(a) and 6.01(b) of the Adoption Agreement. If permitted by Section 6.01(g) of the Adoption Agreement, a Participant may elect, at least twelve months before a scheduled distribution event, to delay the payment date for a minimum period of sixty months from the originally scheduled date of payment, provided the election does not take effect for at least twelve months from the date on which the election is made. The distribution election change must be made in accordance with procedures and rules established by the Administrator. The Participant may, at the same time the date of payment is deferred, change the form of payment but such change in the form of payment may not effect an acceleration of payment in violation of Code Section 409A or the provisions of Treas. Reg. § 1.409A-2(b). For purposes of this Section 9.2, a series of installment payments is always treated as a single payment and not as a series of separate payments.

Payments made on the payment date specified in the Plan, or on a later date within the same taxable year of the Participant or Beneficiary, or, if later, by the fifteenth (15th) day of the third (3rd) calendar month following the payment date specified in the Plan shall be treated as having been made on the payment date; provided, however, that the Participant or Beneficiary is not permitted, directly or indirectly, to designate the taxable year of the payment. In addition, payments made no earlier than thirty (30) days before the designated payment date will likewise be treated as having been made on the payment date so long as the Participant or Beneficiary is not permitted, directly or indirectly, to designate the taxable year of the payment. The foregoing shall be administered in compliance with the provisions of Treas. Reg. § 1.409A-3(d), which may authorize other instances in which payments made after the payment date shall be treated as having been made on the payment date.

9.3. Unforeseeable Emergency

A Participant may request a distribution of all or any portion of his or her vested Account due to an Unforeseeable Emergency if the Plan Sponsor has elected to permit Unforeseeable Emergency withdrawals under Section 8.01(a) of the Adoption Agreement. The request must be in writing and must be submitted to the Administrator along with evidence that the circumstances constitute an Unforeseeable Emergency. The Administrator has the discretion to require whatever evidence it deems necessary to determine whether a distribution is warranted, and may require the Participant to certify that the need cannot be met from other sources reasonably available to the Participant. Whether a Participant has incurred an Unforeseeable Emergency will be determined by the Administrator on the basis of the relevant facts and circumstances in its sole discretion, but, in no event, will an Unforeseeable Emergency be deemed to exist if the hardship can be relieved: (a) through reimbursement or compensation by insurance or otherwise, (b) by liquidation of the Participant's assets to the extent such liquidation would not itself cause severe financial hardship or (c) by cessation of deferrals under the Plan. A distribution due to an Unforeseeable Emergency must be limited to the amount reasonably necessary to satisfy the emergency need, taking into account the additional compensation that is available to the Participant as the result of any cancellation of deferrals under the Plan, and may include any amounts necessary to pay any federal, state, foreign or local income taxes and penalties reasonably anticipated to result from the distribution. The distribution will be made in the

form of a single lump sum cash payment. If permitted by Section 8.01(b) of the Adoption Agreement, a Participant's deferral elections for the remainder of the Plan Year may be cancelled upon a withdrawal due to an Unforeseeable Emergency. If the payment of all or any portion of the Participant's vested Account is being delayed in accordance with Section 9.6 at the time he or she experiences an Unforeseeable Emergency, the amount being delayed shall not be subject to the provisions of this Section 9.3 until the expiration of the six month period of delay required by Section 9.6.

9.4. *Payment Election Overrides*

If the Plan Sponsor has elected one or more payment election overrides in accordance with Section 6.01(d) of the Adoption Agreement, the following provisions apply. Upon the occurrence of the first event selected by the Plan Sponsor, the remaining vested amount credited to the Participant's Account shall be paid in the form designated to the Participant or his or her Beneficiary regardless of whether the Participant had made different elections of time and/or form of payment or whether the Participant was receiving installment payments at the time of the event.

9.5. *Cashouts of Amounts Not Exceeding Stated Limit*

If the vested amount credited to the Participant's Account does not exceed the limit established for this purpose by the Plan Sponsor in Section 6.01(e) of the Adoption Agreement at the time he or she incurs a Separation from Service for any reason, the Employer shall distribute such amount to the Participant at the time specified in Section 6.01(a) of the Adoption Agreement in a single lump sum cash payment following such Separation from Service regardless of whether the Participant had made different elections of time or form of payment as to the vested amount credited to his or her Account or whether the Participant was receiving installments at the time of such termination. A Participant's Account, for purposes of this Section 9.5, shall include any amounts described in Section 1.3.

9.6. *Required Delay in Payment (Including to Key Employees)*

Except as otherwise provided in this Section 9.6, a distribution made on account of Separation from Service to any Participant (including to any Participant who is a Key Employee as of the date of his or her Separation from Service) shall not be made before the date which is six months after the Separation from Service.

The six-month delay does not apply to payments described in Section 9.9(a), (b) or (d) or to payments that occur after the death of the Participant. If the payment of all or any portion of the Participant's vested Account is being delayed in accordance with this Section 9.6 at the time he or she incurs a Disability which would otherwise require a distribution under the terms of the Plan, no amount shall be paid until the expiration of the six month period of delay required by this Section 9.6.

9.7. *Change in Control*

If the Plan Sponsor has elected to permit distributions upon a Change in Control, the following provisions shall apply. A distribution made upon a Change in Control will be made at the time specified in Section 6.01(a) of the Adoption Agreement in the form elected by the Participant in accordance with the procedures described in Article 4. Alternatively, if the Plan Sponsor has elected in accordance with Section 11.02 of the Adoption Agreement to require distributions upon a Change in Control, the Participant's remaining vested Account shall be paid to the Participant or the Participant's Beneficiary at the time specified in Section 6.01(a) of the Adoption Agreement as a single lump sum payment. A Change in Control, for purposes of the Plan, will occur upon a change in the ownership of the Plan Sponsor, a change in the effective control of the Plan Sponsor or a change in the ownership of a substantial portion of the assets of the Plan Sponsor, but only if elected by the Plan Sponsor in Section 11.03 of the Adoption Agreement. The Plan Sponsor, for this purpose, includes any corporation identified in this Section 9.7. However, an event constitutes a Change in Control with respect to a Participant only if the Participant performs services for the Plan Sponsor at the time of the Change in Control, or the Participant's relationship to the Plan Sponsor otherwise satisfies the requirements of Treas. Reg. § 1.409A-3(i)(5)(ii). All distributions made in accordance with this Section 9.7 are subject to the provisions of Section 9.6.

If a Participant continues to make deferrals in accordance with Article 4 after he or she has received a distribution due to a Change in Control, the residual amount payable to the Participant shall be paid at the time and in the form specified in the elections he or she makes in accordance with Article 4 or upon his or her death or Disability as provided in Article 8.

Whether a Change in Control has occurred will be determined by the Administrator in accordance with the rules and definitions set forth in this Section 9.7. The determination as to the occurrence of a Change in Control shall be based on objective facts and in accordance with the requirements of Code Section 409A. A distribution to the Participant will be treated as occurring upon a Change in Control if the Plan Sponsor terminates the Plan in accordance with Section 10.2 and distributes the Participant's benefits within twelve (12) months of a Change in Control as provided in Section 10.3.

- (a) **Relevant Corporations.** To constitute a Change in Control for purposes of the Plan, the event must relate to: (i) the corporation for whom the Participant is performing services at the time of the Change in Control, (ii) the corporation that is liable for the payment of the Participant's benefits under the Plan (or all corporations liable if more than one corporation is liable) but only if either the deferred compensation is attributable to the performance of services by the Participant for such corporation (or corporations) or there is a bona fide business purpose for such corporation (or corporations) to be liable for such payment and, in either case, no significant purpose of making such corporation (or corporations) liable for such payment is the avoidance of federal income tax, or (iii) a corporation that is a majority shareholder of a corporation identified in (i) or (ii), or any corporation in a chain of corporations in which each corporation is a majority shareholder of another corporation in the chain, ending in a corporation identified in (i) or (ii). A majority shareholder is defined as a shareholder owning more than fifty percent (50%) of the total fair market value and voting power of such corporation.
- (b) **Stock Ownership.** Code Section 318(a) applies for purposes of determining stock ownership. Stock underlying a vested option is considered owned by the individual who owns the vested option (and the stock underlying an unvested option is not considered owned by the individual who holds the unvested option). If, however, a vested option is exercisable for stock that is not substantially vested (as defined by Treas. Reg. § 1.83-3(b) and (j)) the stock underlying the option is not treated as owned by the individual who holds the option.
- (c) **Change in the Ownership of a Corporation.** A change in the ownership of a corporation occurs on the date that any one person, or more than one person acting

as a group, acquires ownership of stock of the corporation that, together with stock held by such person or group, constitutes more than fifty percent (50%) of the total fair market value or total voting power of the stock of such corporation. If any one person or more than one person acting as a group is considered to own more than fifty percent (50%) of the total fair market value or total voting power of the stock of a corporation, the acquisition of additional stock by the same person or persons is not considered to cause a change in the ownership of the corporation (or to cause a change in the effective control of the corporation as discussed below in Section 9.7(d)). An increase in the percentage of stock owned by any one person, or persons acting as a group, as a result of a transaction in which the corporation acquires its stock in exchange for property will be treated as an acquisition of stock. Section 9.7(c) applies only when there is a transfer of stock of a corporation (or issuance of stock of a corporation) and stock in such corporation remains outstanding after the transaction. For purposes of this Section 9.7(c), persons will not be considered to be acting as a group solely because they purchase or own stock of the same corporation at the same time or as a result of a public offering. Persons will, however, be considered to be acting as a group if they are owners of a corporation that enters into a merger, consolidation, purchase or acquisition of stock or similar business transaction with the corporation. If a person, including an entity, owns stock in both corporations that enter into a merger, consolidation, purchase or acquisition of stock or similar transaction, such shareholder is considered to be acting as a group with other shareholders in a corporation only with respect to ownership in that corporation prior to the transaction giving rise to the change and not with respect to the ownership interest in the other corporation.

- (d) **Change in the Effective Control of a Corporation.** A change in the effective control of a corporation occurs on the date that either (i) any one person, or more than one person acting as a group, acquires (or has acquired during the twelve month-period ending on the date of the most recent acquisition by such person or persons) ownership of stock of the corporation possessing forty percent (40%) or more of the total voting power of the stock of such corporation or (ii) a majority of members of the corporation's Board of Directors is replaced during any twelve month period by Directors whose appointment or election is not endorsed by a majority of the members of the corporation's Board of Directors prior to the date of the appointment or election, provided that for purposes of this paragraph (ii), the term corporation refers solely to the relevant corporation identified in Section 9.7(a) for which no other corporation is a majority shareholder for purposes of Section 9.7(a). In the absence of an event described in Section 9.7(d)(i) or (ii), a change in the effective control of a corporation will not have occurred. A change in effective control may also occur in any transaction in which either of the two corporations involved in the transaction has a change in the ownership of such corporation as described in Section 9.7(c) or a change in the ownership of a substantial portion of the assets of such corporation as described in Section 9.7(e). If any one person, or more than one person acting as a group, is considered to effectively control a corporation within the meaning of this Section 9.7(d), the acquisition of additional control of the corporation by the same person or persons is not considered to cause a change in the effective control of the corporation or to cause a change in the ownership of the corporation within the meaning of Section 9.7(c). For purposes of this Section 9.7(d), persons will or will not be considered to be acting as a group in accordance with rules similar to those set forth in Section 9.7(c) with the following exception. If a person, including an entity, owns stock in both corporations that enter into a merger, consolidation, purchase or acquisition of stock or similar transaction, such shareholder is considered to be acting as a group with other shareholders in a corporation only with respect to the ownership in that corporation prior to the transaction giving rise to the change and not with respect to the ownership interest in the other corporation.

- (e) **Change in the Ownership of a Substantial Portion of a Corporation's Assets.** A change in the ownership of a substantial portion of a corporation's assets occurs on the date that any one person, or more than one person acting as a group (as determined in accordance with rules similar to those set forth in Section 9.7(d)), acquires (or has acquired during the twelve month period ending on the date of the most recent acquisition by such person or persons) assets from the corporation that have a total gross fair market value equal to or more than forty percent (40%) of the total gross fair market value of all of the assets of the corporation immediately prior to such acquisition or acquisitions. For this purpose, gross fair market value means the value of the assets of the corporation or the value of the assets being disposed of determined without regard to any liabilities associated with such assets. There is no Change in Control event under this Section 9.7(e) when there is a transfer to an entity that is controlled by the shareholders of the transferring corporation immediately after the transfer. A transfer of assets by a corporation is not treated as a change in ownership of such assets if the assets are transferred to (i) a shareholder of the corporation (immediately before the asset transfer) in exchange for or with respect to its stock, (ii) an entity, fifty percent (50%) or more of the total value or voting power of which is owned, directly or indirectly, by the corporation, (iii) a person, or more than one person acting as a group, that owns, directly or indirectly, fifty percent (50%) or more of the total value or voting power of all the outstanding stock of the corporation, or (iv) an entity, at least fifty (50%) of the total value or voting power of which is owned, directly or indirectly, by a person described in Section 9.7(e)(iii). For purposes of the foregoing, and except as otherwise provided, a person's status is determined immediately after the transfer of assets.

9.8. Permissible Delays in Payment

Distributions may be delayed beyond the date payment would otherwise occur in accordance with the provisions of Articles 8 and 9, provided such delay would be permitted by the provisions of Treas. Reg. § 1.409A-2(b)(7), including the following events (as long as the Employer treats all payments to similarly situated Participants on a reasonably consistent basis):

- (a) The Employer may delay payment if it reasonably anticipates that its deduction with respect to such payment would be limited or eliminated by the application of Code Section 162(m). Payment must be made during the Participant's first taxable year in which the Employer reasonably anticipates, or should reasonably anticipate, that if the payment is made during such year the deduction of such payment will not be barred by the application of Code Section 162(m) or during the period beginning with the Participant's Separation from Service and ending on the later of the last day of the Employer's taxable year in which the Participant separates from service or the 15th day of the third month following the Participant's Separation from Service. If a scheduled payment to a Participant is delayed in accordance with this Section 9.8(a), all scheduled payments to the Participant that could be delayed in accordance with this Section 9.8(a) will also be delayed.
- (b) The Employer may also delay payment if it reasonably anticipates that the making of the payment will violate federal securities laws or other applicable laws provided payment is made at the earliest date on which the Employer reasonably anticipates that the making of the payment will not cause such violation.
- (c) The Employer reserves the right to amend the Plan to provide for a delay in payment upon such other events and conditions as the Secretary of the Treasury may prescribe in generally applicable guidance published in the Internal Revenue Bulletin.

9.9. Permitted Acceleration of Payment

The Employer may permit acceleration of the time or schedule of any payment or amount scheduled to be paid pursuant to a payment under the Plan provided such acceleration would be permitted by the provisions of Treas. Reg. § 1.409A-3(j)(4), including the following events:

- (a) **Domestic Relations Order.** A payment may be accelerated if such payment is made to an alternate payee pursuant to and following the receipt and qualification of a domestic relations order as defined in Code Section 414(p).
- (b) **Compliance with Ethics Agreement and Legal Requirements.** A payment may be accelerated as may be necessary to comply with ethics agreements with the federal government or as may be reasonably necessary to avoid the violation of federal, state, local or foreign ethics law or conflicts of laws, in accordance with the requirements of Code Section 409A.
- (c) **De Minimis Amounts.** A payment may be accelerated if (i) the amount of the payment is not greater than the applicable dollar amount under Code Section 402(g)(1)(B) and (ii) at the time the payment is made, the amount constitutes the Participant's entire interest under the Plan and all other plans that are aggregated with the Plan under Treas. Reg. § 1.409A-1(c)(2).
- (d) **FICA Tax.** A payment may be accelerated to the extent required to pay the Federal Insurance Contributions Act tax imposed under Code Sections 3101, 3121(a) and 3121(v)(2) of the Code with respect to compensation deferred under the Plan (the "FICA Amount"). Additionally, a payment may be accelerated to pay the income tax on wages imposed under Code Section 3401 of the Code on the FICA Amount and to pay the additional income tax at source on wages attributable to the pyramiding

Code Section 3401 wages and taxes. The total payment under this subsection (d) may not exceed the aggregate of the FICA Amount and the income tax withholding related to the FICA Amount.

- (e) **Section 409A Additional Tax.** A payment may be accelerated if the Plan fails to meet the requirements of Code Section 409A; provided that such payment may not exceed the amount required to be included in income as a result of the failure to comply with the requirements of Code Section 409A.
- (f) **Offset.** A payment may be accelerated in the Employer's discretion as satisfaction of a debt of the Participant to the Employer, where such debt is incurred in the ordinary course of the service relationship between the Participant and the Employer, the entire amount of the reduction in any of the Employer's taxable years does not exceed \$5,000 and the reduction is made at the same time and in the same amount as the debt otherwise would have been due and collected from the Participant.
- (g) **Other Events.** A payment may be accelerated in the Administrator's discretion in connection with such other events and conditions as permitted by Code Section 409A.

Article 10 - Amendment and Termination

10.1. Amendment by Plan Sponsor

The Plan Sponsor reserves the right to amend the Plan (for itself and each Employer) through action of its Board of Directors or other authorized person or body. No amendment can directly or indirectly deprive any current or former Participant or Beneficiary of all or any portion of his or her Account which had accrued and vested prior to the amendment.

10.2. Plan Termination Following Change in Control or Corporate Dissolution

If so elected by the Plan Sponsor in 11.01 of the Adoption Agreement, the Plan Sponsor reserves the right to terminate the Plan and distribute all amounts credited to all Participant Accounts within the 30 days preceding or the twelve months following a Change in Control as determined in accordance with the rules set forth in Section 9.7 through action of its Board of Directors or other authorized person or body. For this purpose, the Plan will be treated as terminated only if all agreements, methods, programs and other arrangements sponsored by the Related Employer immediately after the Change in Control which are treated as a single plan under Treas. Reg. § 1.409A-1(c)(2) are also terminated so that all Participants under the Plan and all similar arrangements are required to receive all amounts deferred under the terminated arrangements within twelve months of the date the Plan Sponsor irrevocably takes all necessary action to terminate the arrangements. In addition, the Plan Sponsor reserves the right to terminate the Plan within twelve months of a corporate dissolution taxed under Code Section 331 or with the approval of a bankruptcy court pursuant to Section 503(b)(1)(A) of Title 11 of the United States Code provided that amounts deferred under the Plan are included in the gross incomes of Participants in the latest of (a) the calendar year in which the termination and liquidation occurs, (b) the first calendar year in which the amount is no longer subject to a substantial risk of forfeiture or (c) the first calendar year in which payment is administratively practicable.

10.3. Other Plan Terminations

The Plan Sponsor retains the discretion to terminate the Plan through action of its Board of Directors or other authorized person or body if (a) all arrangements sponsored by the Plan Sponsor that would be aggregated with any terminated arrangement under Code Section 409A and Treas. Reg. § 1.409A-1(c)(2) are terminated, (b) no payments other than payments that would be payable under the terms of the arrangements if the termination had not occurred are made within twelve months of the termination of the arrangements, (c) all payments are made within twenty-four months of the date the Plan Sponsor takes all necessary action to irrevocably terminate and liquidate the arrangements, (d) the Plan Sponsor does not adopt a new arrangement that would be aggregated with any terminated arrangement under Code Section 409A and the regulations thereunder at any time within the three year period following the date of termination of the arrangement and (e) the termination does not occur proximate to a downturn in the financial health of the Plan Sponsor. The Plan Sponsor also reserves the right to amend the Plan to provide that termination of the Plan will occur under such conditions and events as may be prescribed by the Secretary of the Treasury in generally applicable guidance published in the Internal Revenue Bulletin.

Article 11 - The Trust

11.1. Establishment of Trust

The Plan Sponsor may but is not required to establish a trust to hold amounts which the Plan Sponsor may contribute from time to time to correspond to some or all amounts credited to Participants under Section 6.2. In the event that the Plan Sponsor wishes to establish a trust to provide a source of funds for the payment of Plan benefits, any such trust shall be constructed to constitute an unfunded arrangement that does not affect the status of the Plan as an unfunded plan for purposes of Title I of ERISA and the Code. If the Plan Sponsor elects to establish a trust in accordance with Section 10.01 of the Adoption Agreement, the provisions of Sections 11.2 and 11.3 shall become operative.

11.2. Trust

Any trust established by the Plan Sponsor shall be between the Plan Sponsor and a trustee pursuant to a separate written agreement under which assets are held, administered and managed, subject to the claims of the Plan Sponsor's creditors in the event of the Plan Sponsor's insolvency. The Plan Sponsor must notify the trustee in the event of a bankruptcy or insolvency.

11.3. Investment of Trust Funds

Any amounts contributed to the trust by the Plan Sponsor shall be invested by the trustee in accordance with the provisions of the trust and the instructions of the Administrator. Trust investments need not reflect the hypothetical investments selected by Participants under Section 7.1 for the purpose of adjusting Accounts and the earnings or investment results of the trust need not affect the hypothetical investment adjustments to Participant Accounts under the Plan.

Article 12 - Plan Administration

12.1. Powers and Responsibilities of the Administrator

The Administrator has the full power and the full responsibility to administer the Plan in all of its details, subject, however, to the applicable requirements of ERISA. The Administrator's powers and responsibilities include, but are not limited to, the following:

- (a) To make and enforce such rules and procedures as it deems necessary or proper for the efficient administration of the Plan;
- (b) To interpret the Plan, its interpretation thereof to be final, except as provided in Section 12.2, on all persons claiming benefits under the Plan;
- (c) To decide all questions concerning the Plan and the eligibility of any person to participate in the Plan;
- (d) To administer the claims and review procedures specified in Section 12.2;
- (e) To compute the amount of benefits which will be payable to any Participant, former Participant or Beneficiary in accordance with the provisions of the Plan;
- (f) To determine the person or persons to whom such benefits will be paid;
- (g) To authorize the payment of benefits;
- (h) To make corrections and recover the overpayment of any benefits;
- (i) To comply with the reporting and disclosure requirements of Part 1 of Subtitle B of Title I of ERISA;
- (j) To appoint such agents, counsel, accountants and consultants as may be required to assist in administering the Plan;
- (k) To sever from the Plan or any deferral agreement any provision or exercise of a right that otherwise would result in a violation of Code Section 409A; and
- (l) By written instrument, to allocate and delegate its responsibilities, including the formation of an administrative committee to administer the Plan.

Within one hundred and twenty (120) days following a Change in Control, the individuals who comprised the Committee (as defined in the Adoption Agreement) immediately prior to the Change in Control (whether or not such individuals are members of the Committee following the Change in Control) may, by written consent of the majority of such individuals, appoint an independent third party administrator to perform any or all of the Plan Sponsor's duties as Administrator as described in this Section, including, without limitation, the power to determine any questions arising in connection with the administration or interpretation of the Plan and the power to make benefit entitlement determinations. Upon and after the effective date of such appointment, (i) the Plan Sponsor must pay all reasonable administrative expenses and fees of such new administrator and (ii) such new administrator may only be terminated with the written consent of the majority of Participants with an Account balance in the Plan as of the date of such proposed termination.

The decision or action of the Plan Sponsor, or in the event of a Change in Control and actions pursuant to any new administrator, in respect of any question arising out of or in connection with the administration, interpretation and application of the Plan and the rules and regulations thereunder shall be final and conclusive and binding upon all persons having any interest in the Plan.

12.2. *Claims and Review Procedures*

(a) **Claims Procedure.** If any person believes he or she is being denied any rights or benefits under the Plan, such person may file a claim in writing with the Administrator. Notice of a claim for payments shall be delivered to the Administrator within 90 days of the latest date upon which the payment could have been timely made in accordance with the terms of the Plan and Code Section 409A, and if not paid, such person must file a claim under this Article 12 not later than 180 days after such latest date.

If any such claim is wholly or partially denied, the Administrator will notify such person of its decision in writing. Such notification will contain (i) specific reasons for the denial, (ii) specific reference to pertinent Plan provisions, (iii) a description of any additional material or information necessary for such person to perfect such claim and an explanation of why such material or information is necessary and (iv) a description of the Plan's review procedures and the time limits applicable to such procedures, including a statement of the person's right to bring a civil action under Section 502(a) of ERISA following an adverse decision on review. If the claim involves a Disability, the denial must also include (i) a statement that the Administrator will provide to such person, upon request and free of charge, a copy of any internal rule, guideline, protocol or other similar criterion that was relied upon in making the decision and (ii) a discussion of the decision, including an explanation of the basis for disagreeing with or not following (a) the views of health care professionals treating such person or vocational professionals who evaluated such person that were presented by such person to the Plan, (b) the views of medical or vocational experts whose advice was obtained on behalf of the Plan in connection with the adverse benefit determination, regardless of whether the advice was relied on in making the determination or (c) a disability determination regarding such person made by the Social Security Administration that was presented by such person to the Plan.

Such notification will be given within 90 days (45 days in the case of a claim regarding Disability) after the claim is received by the Administrator. The Administrator may extend the period for providing the notification by 90 days (30 days in the case of a claim regarding Disability, which may be extended an additional 30 days) if special circumstances require an extension of time for processing the claim and if written notice of such extension, the circumstances requiring the extension and the date by which the Administrator expects to make a decision is given to such person within the initial 90 day period (45 day period in the case of a claim regarding Disability). Further, in the case of a claim regarding Disability, if the Administrator determines that a decision cannot be made within the first extension period due to matters beyond the control of the Administrator, the Administrator may extend the period for providing the notification by an additional 30 days if written notice of such extension, the circumstances requiring the extension, the date by which the Administrator expects to make a decision, the specific standards on which such entitlement to a benefit is based, the unresolved issues that prevent a decision on the claim and any additional information needed to resolve those issues is given to such person within the initial 30-day extension. Such person will be provided a minimum of 45 days to submit any necessary additional information to the Administrator. In the event that a 30-day extension is necessary due to such person's failure to submit information necessary to decide a claim, the period for furnishing a notice of decision shall be tolled from the date on which the notice of the extension is sent to such person until the earlier of the date such person responds to the request for additional information or the response deadline. If such notification is not given within the proper period, the claim will be considered denied as of the last day of such period and such person may request a review of his or her claim.

(b) **Review Procedure.** Within 60 days (180 days in the case of a claim regarding Disability) after the date on which a person receives a written notification of

complete or partial denial of claim (or, if written notification is not provided, within 60 days (180 days in the case of a claim regarding Disability) of the date denial is considered to have occurred), such person (or his or her duly authorized representative) may file a written request with the Administrator (but in the case of a claim regarding Disability, the Committee exclusive of the person who made the initial adverse decision or such person's subordinate) for a review of his or her denied claim. If such person timely requests a review of the denied claim, such person may review, upon request and free of charge, copies of all documents, records and other information relevant to the denial and may submit written comments, documents, records and other information relevant to the claim to the Committee . All written comments, document, records and other information shall be considered "relevant" if the information (i) was relied upon in making a benefits determination, (ii) was submitted, considered or generated in the course of making a benefits decision regardless of whether it was relied upon to make the decision or (iii) demonstrates compliance with administrative processes and safeguards established for making benefit decisions. The Committee may, in its sole discretion and if it deems appropriate or necessary, decide to hold a hearing with respect to the claim appeal.

The Committee will take into account comments, documents, records and other information submitted by the person relating to the claim without regard to whether such information was submitted or considered in the initial benefit determination. In the case of a claim regarding Disability, the Committee will (i) not afford deference to the initial denial of the claim, (ii) consult a medical professional who has appropriate training and experience in the field of medicine relating to such person's Disability and who was neither consulted as part of the initial denial nor is the subordinate of such individual and (iii) identify the medical or vocational experts whose advice was obtained with respect to the initial benefit denial, without regard to whether the advice was relied upon in making the decision.

The Committee will notify such person of its decision in writing. Such notification will be written in a manner calculated to be understood by such person and will contain (i) specific reasons for the decision, (ii) specific references to pertinent Plan provisions, (iii) a statement that the person is entitled to receive, upon request and free of charge, reasonable access to and copies of all documents, records or other information relevant (as defined above) to such person's claim and (iv) a statement describing any voluntary appeals procedures offered by the Plan and a statement of such person's right to bring a civil action under Section 502(a) of ERISA following an adverse decision on review. In the case of a claim regarding Disability, the notification will also contain a statement that the Committee will provide, upon request and free of charge, (i) any internal rule, guideline, protocol or other similar criterion relied upon in making the decision, (ii) any medical opinion relied upon to make the decision, (iii) the required statement under Section 2560.503-1(i)(5)(iii) of the Department of Labor regulations and (iv) a discussion of the decision, including an explanation of the basis for disagreeing with or not following (a) the views of health care professionals treating such person, or vocational professionals who evaluated such person, that were presented by such person to the Plan, (b) the views of medical or vocational experts whose advice was obtained on behalf of the Plan in connection with the appeal of the adverse benefit determination, regardless of whether the advice was relied upon in making the determination or (c) a disability determination regarding such person made by the Social Security Administration that was presented by such person to the Plan.

The decision on review will be made within 60 days (45 days in the case of a claim regarding Disability) following receipt of the appeal. The Committee may extend the period for making the decision on review by 60 days (45 days in the case of a claim regarding Disability) if special circumstances require an extension of time for processing the request such as an election by the Committee to hold a hearing, and if written notice of such extension, the circumstances requiring the extension and the date by which the Committee expects to make a decision is given to such person

within the initial 60-day period (45 days in the case of a claim regarding Disability). If the decision on review is not made within such period, the claim will be considered denied.

Before issuing any decision with respect to a claim involving Disability, the Committee will provide to the person, free of charge, the following information as soon as possible and sufficiently in advance of the date on which the response is required to be provided to the person to allow the person a reasonable opportunity to respond prior to the due date of the response:

- (i) Any new or additional evidence considered, relied upon, or generated by the Committee or other person making the decision; and
- (ii) A new or additional rationale if the decision will be based on that rationale.

(c) **Review Procedure Upon Change in Control.** Upon a Change in Control, the Committee, as constituted immediately prior to such Change in Control, shall continue to act as the Committee. Upon such Change in Control, the Plan Sponsor may not remove any member of the Committee but may replace resigning members if 2/3rds of the members of the Committee, as constituted immediately prior to such Change in Control, and a majority of Participants and Beneficiaries with Account balances consent to the replacement. The Committee shall have the exclusive authority at the appeals stage to interpret the terms of the Plan and resolve appeals under the claims procedures.

(d) **Exhaustion of Claims Procedures and Right to Bring Legal Claim.** A claimant may not bring any legal action, including commencement of any arbitration, relating to a claim for benefits under the Plan unless and until the claimant has followed the claims procedures under the Plan and exhausted his or her administrative remedies under such claims procedures. No such action at law or equity shall be brought more than one year after the Committee's affirmation of a denial of a claim, or, if no appeal is filed by the applicable appeals deadline, 12 months following the appeals deadline.

If a Participant or Beneficiary prevails in a legal proceeding brought under the Plan to enforce the rights of such Participant or any other similarly situated Participant or Beneficiary, in whole or in part, the Plan Sponsor shall reimburse such Participant or Beneficiary for all reasonable legal costs, expenses, attorneys' fees and such other reasonable liabilities incurred as a result of such proceedings. If the legal proceeding is brought in connection with a Change in Control, or a "change in control" as defined in a trust described in Section 11.1 (if applicable), the Participant or Beneficiary may file a claim directly with the trustee for reimbursement of such costs, expenses and fees. For purposes of the preceding sentence, the amount of the claim shall be treated as if it were an addition to the Participant's or Beneficiary's Account balance.

(e) **Discretion of Committee.** All interpretations, determinations and decisions of the Committee with respect to any claim shall be made in its sole discretion, and shall be final and conclusive.

(f) **Arbitration.** If, prior to a Change in Control, any claim or controversy between the Plan Sponsor and a Participant or Beneficiary is not resolved through the claims procedure set forth in this Article 12, such claim shall be submitted to and resolved exclusively by expedited binding arbitration by a single arbitrator. Arbitration shall be conducted in accordance with the following procedures.

The complaining party shall promptly send written notice to the other party identifying the matter in dispute and the proposed remedy. Following the giving of such notice, the parties shall meet and attempt in good faith to resolve the matter. In the event the parties are unable to resolve the matter within 21 days, the parties

shall meet and attempt in good faith to select a single arbitrator acceptable to both parties. If a single arbitrator is not selected by mutual consent within ten business days following the giving of the written notice of dispute, an arbitrator shall be selected from a list of nine persons each of whom shall be an attorney who is either engaged in the active practice of law or a recognized arbitrator and who, in either event, is experienced in serving as an arbitrator in disputes between employers and employees, which list shall be provided by the main office of either Judicial Arbitration and Mediation Services, Inc. ("JAMS"), the American Arbitration Association ("AAA") or the Federal Mediation and Conciliation Service. If, within three business days of the parties' receipt of such list, the parties are unable to agree on an arbitrator from the list, then the parties shall each strike names alternatively from the list, with the first to strike being determined by the flip of a coin. After each party has had four strikes, the remaining name on the list shall be the arbitrator. If such person is unable to serve for any reason, the parties shall repeat this process until an arbitrator is selected.

Unless the parties agree otherwise, within 60 days of the selection of the arbitrator, a hearing shall be conducted before such arbitrator at a time and a place agreed upon by the parties. In the event the parties are unable to agree upon the time or place of the arbitration, the time and place shall be designated by the arbitrator after consultation with the parties. Within 30 days of the conclusion of the arbitration hearing, the arbitrator shall issue an award, accompanied by a written decision explaining the basis for the arbitrator's award.

In any arbitration hereunder, the Plan Sponsor shall pay all administrative fees of the arbitration and all fees of the arbitrator. Each party shall pay its own attorneys' fees, cost and expenses, unless the arbitrator orders otherwise. The prevailing party in such arbitration, as determined by the arbitrator, and in any enforcement or other court proceedings, shall be entitled, to the extent permitted by law, to reimbursement from the other party for all of the prevailing party's costs (including but not limited to the arbitrator's compensation), expenses and attorneys' fees. The arbitrator shall have no authority to add to or to modify this Plan, shall apply all applicable law and shall have no lesser and no greater remedial authority than would a court of law resolving the same claim or controversy. The arbitrator shall, upon an appropriate motion, dismiss any claim without an evidentiary hearing if the party bringing the motion establishes that it would be entitled to summary judgment if the matter had been pursued in court litigation.

The parties shall be entitled to discovery as follows: Each party may take no more than three depositions. The Plan Sponsor may depose the Participant or Beneficiary plus two other witnesses, and the Participant or Beneficiary may depose the Plan Sponsor, pursuant to Rule 30(b)(6) of the Federal Rules of Civil Procedure, plus two other witnesses. Each party may make such reasonable document discovery requests as are allowed in the discretion of the arbitrator.

The decision of the arbitrator shall be final, binding, and non-appealable, and may be enforced as a final judgment in any court of competent jurisdiction.

This arbitration provision of the Plan shall extend to claims against any parent, subsidiary or affiliate of each party, and, when acting within such capacity, any officer, director, shareholder, Participant, Beneficiary or agent of any party or of any of the above and shall apply as well to claims arising out of state and federal statutes and local ordinances as well as to claims arising under the common law or under this Plan.

Notwithstanding the foregoing, and unless otherwise agreed between the parties, either party may apply to a court for provisional relief, including a temporary restraining order or preliminary injunction, on the grounds that the arbitration award to which the applicant may be entitled may be rendered ineffectual without provisional relief.

Any arbitration hereunder shall be conducted in accordance with the Federal Arbitration Act, provided, however, that, in the event of any inconsistency between the rules and procedures of the Act and the terms of this Plan, the terms of this Plan shall prevail.

If any of the provisions of this Section are determined to be unlawful or otherwise unenforceable, in the whole part, such determination shall not affect the validity of the remainder of this Section and this Section shall be reformed to the extent necessary to carry out its provisions to the greatest extent possible and to insure that the resolution of all conflicts between the parties, including those arising out of statutory claims, shall be resolved by neutral, binding arbitration. If a court should find that the provisions of this Section are not absolutely binding, then the parties intend any arbitration decision and award to be fully admissible in evidence in any subsequent action, given great weight by any finder of fact and treated as determinative to the maximum extent permitted by law.

The parties do not agree to arbitrate any putative class action or any other representative action. The parties agree to arbitrate only the claims(s) of a single Participant or Beneficiary.

- (g) **Arbitration Upon Change in Control.** If, upon the occurrence of a Change in Control, any dispute, controversy or claim arises between a Participant or Beneficiary and the Plan Sponsor out of or relating to or concerning the provisions of the Plan, such dispute, controversy or claim shall be finally settled by a court of competent jurisdiction which, notwithstanding any other provision of the Plan, shall apply a de novo standard of review to any determination made by the Plan Sponsor or the Committee.

12.3. Plan Administrative Costs

All reasonable costs and expenses (including legal, accounting and employee communication fees) incurred by the Administrator in administering the Plan shall be paid by the Plan to the extent not paid by the Employer.

Article 13 - Miscellaneous

13.1. Unsecured General Creditor of the Employer

Participants and their Beneficiaries, heirs, successors and assigns shall have no legal or equitable rights, interests or claims in any property or assets of the Employer. For purposes of the payment of benefits under the Plan, any and all of the Employer's assets shall be, and shall remain, the general, unpledged, unrestricted assets of the Employer. Each Employer's obligation under the Plan shall be merely that of an unfunded and unsecured promise to pay money in the future.

13.2. Employer's Liability

Each Employer's liability for the payment of benefits under the Plan shall be defined only by the Plan and by the deferral agreements entered into between a Participant and the Employer. An Employer shall have no obligation or liability to a Participant under the Plan except as provided by the Plan and a deferral agreement or agreements. An Employer shall have no liability to Participants employed by other Employers.

13.3. Limitation of Rights

Neither the establishment of the Plan, nor any amendment thereof, nor the creation of any fund or account, nor the payment of any benefits, will be construed as giving to the Participant or any other person any legal or equitable right against the Employer, the Plan or the Administrator, except as provided herein; and in no event will the terms of employment or service of the Participant be modified or in any way affected hereby.

13.4. Anti-Assignment

Except as may be necessary to fulfill a domestic relations order within the meaning of Code Section 414(p), none of the benefits or rights of a Participant or any Beneficiary of a Participant shall be subject to the claim of any creditor. In particular, to the fullest extent permitted by law, all such benefits and rights shall be free from attachment, garnishment or any other legal or equitable process available to any creditor of the Participant and his or her Beneficiary. Neither the Participant nor his or her Beneficiary shall have the right to alienate, anticipate, commute, pledge, encumber or assign any of the payments which he or she may expect to receive, contingently or otherwise, under the Plan, except the right to designate a Beneficiary to receive death benefits provided hereunder. Notwithstanding the preceding, the benefit payable from a Participant's Account may be reduced, at the discretion of the Administrator, to satisfy any debt or liability to the Employer.

However, the Employer may assign any or all of its liabilities under this Plan in connection with any restructuring, recapitalization, sale of assets or other similar transactions affecting the Employer without the consent of the Participant.

13.5. Facility of Payment

If the Administrator determines, on the basis of medical reports or other evidence satisfactory to the Administrator, that the recipient of any benefit payments under the Plan is incapable of handling his or her affairs by reason of minority, illness, infirmity or other incapacity, the Administrator may direct the Employer to disburse such payments (i) to the legal guardian, or if none, to a parent of a minor payee with whom the payee maintains his or her residence or (ii) to the conservator or, if none, to the person having custody of an incompetent payee. The receipt by such person or institution of any such payments therefore, and any such payment to the extent thereof, shall discharge the liability of the Employer, the Plan and the Administrator for the payment of benefits hereunder to such recipient.

13.6. Notices

Any notice or other communication to the Employer or Administrator in connection with the Plan shall be deemed delivered in writing, in person, or through such electronic means as is established by the Employer or Administrator. Notice shall be deemed given as of the date it is actually delivered or, in the case delivery is made by mail, as of the date shown on the postmark on the receipt for registration or certification. Written transmission shall be addressed to the Plan Sponsor at the address specified in Section 1.03 of the Adoption Agreement.

Any notice or filing required or permitted to be given to a Participant under this Plan shall be sufficient if in writing or hand-delivered or sent by mail to the last known address of the Participant.

13.7. Tax Withholding

If the Employer concludes that tax is owing with respect to any deferral or payment hereunder, the Employer shall withhold such amounts from any payments due the Participant or from amounts deferred, as permitted by law, or otherwise make appropriate arrangements with the Participant or his or her Beneficiary for satisfaction of such obligation. Tax, for purposes of this Section 13.7 means any federal, state, local or any other governmental income tax, employment or payroll tax, excise tax or any other tax or assessment owing with respect to amounts deferred, any earnings thereon and any payments made to Participants under the Plan.

13.8. Indemnification

- (a) Each Indemnitee (as defined in Section 13.8(d)) shall be indemnified and held harmless by the Employer for all actions taken by him or her and for all failures to take action (regardless of the date of any such action or failure to take action) in connection with the operation and administration of the Plan, to the fullest extent permitted by the law of the jurisdiction in which the Employer is incorporated and to the extent that the claim, fine or penalty, expense or liability is not paid for by liability insurance purchased or paid for by the Employer, against all claims, fines and penalties, expenses and liabilities (including, without limitation, reasonable attorneys' fees) reasonably incurred or suffered by the Indemnitee. No indemnification pursuant to this Section shall be made, however, in any case where (1) the act or failure to act are due to gross negligence or willful misconduct or (2) for any such amount incurred through any settlement or compromise of any action unless the Employer consents in writing to such settlement or compromise.
- (b) Indemnification pursuant to this Section shall continue as to an Indemnitee who has ceased to be such and shall inure to the benefit of his or her heirs, executors and administrators. The Employer agrees that the undertakings made in this Section shall be binding on its successors or assigns and shall survive the termination, amendment or restatement of the Plan.

- (c) The foregoing right to indemnification shall be in addition to such other rights as the Indemnitee may enjoy as a matter of law or by reason of insurance coverage of any kind and is in addition to and not in lieu of any rights to indemnification to which the Indemnitee may be entitled pursuant to the by-laws of the Employer.
- (d) "Indemnitee" shall mean each person serving as an Administrator (or any other person who is an employee, Director, agent, organization or officer of the Employer) to whom or to which are delegated duties, responsibilities and authority under the Plan or otherwise with respect to administration of the Plan.

13.9. Successors

The provisions of the Plan shall bind and inure to the benefit of the Plan Sponsor, the Employer and their successors and assigns and the Participant and the Participant's designated Beneficiaries.

13.10. Lost Participant or Beneficiaries

Any Participant or Beneficiary who is entitled to a benefit from the Plan has the duty to keep the Employer advised of his or her current mailing address. If benefit payments are returned to the Plan or are not presented for payment after a reasonable amount of time, the Employer shall presume that the payee is missing. The Employer, after making such efforts as in its discretion it deems reasonable and appropriate to locate the payee, shall stop payment on any uncashed checks and may discontinue making future payments until contact with the payee is restored.

13.11. Headings

The headings of Sections are included solely for convenience of reference, and if there is any conflict between such headings and the text of this Plan, the text shall control.

13.12. Invalid or Unenforceable Provisions

If any provision of this Plan shall be held invalid or unenforceable, such invalidity or unenforceability shall not affect any other provisions hereof and the Employer may elect in its sole discretion to construe such invalid or unenforceable provisions in a manner that conforms to applicable law or as if such provisions, to the extent invalid or unenforceable, had not been included.

13.13. Disclaimer

It is the Plan Sponsor's intention that the Plan comply with the requirements of Code Section 409A. Neither the Plan Sponsor nor the Employer shall have any liability to any Participant should any provision of the Plan fail to satisfy the requirements of Code Section 409A.

13.14. Governing Law

The Plan will be construed, administered and enforced according to the laws of the State specified by the Plan Sponsor in Section 12.01 of the Adoption Agreement.

**Thermo Fisher Scientific Inc.
Deferred Compensation Plan**

Adoption Agreement

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Adoption Agreement

1.01 Preamble

By the execution of this Adoption Agreement the Plan Sponsor hereby [complete (a) or (b)]

- (1) adopts a new plan as of [month, day, year].
- (2) amends and restates its existing plan as of January 1, 2024 which is the Amendment Effective Date. All amounts deferred under the Plan prior to the Amendment Effective Date shall be governed by the terms of the Plan as in effect on the day before the Amendment Effective Date.

Originally effective November 1, 2001; Amounts deferred under the Plan prior to January 1, 2005 that were vested as of December 31, 2004 shall be subject to the provisions of the Plan as in effect on October 3, 2004.

Previously Amended & Restated effective January 1, 2009 and executed on January 27, 2009 for amounts deferred on or after January 1, 2005; and previously Restated effective January 1, 2020 with subsequent First Amendment effective January 1, 2022 and Second Amendment effective March 1, 2023.

Pre-409A Grandfathering: Yes No

By executing this Adoption Agreement, the Plan Sponsor (as defined below) has adopted the Plan (as defined below) consisting of the Basic Plan Document along with this Adoption Agreement (and any exhibits or schedules attached hereto). The Plan Sponsor, by completing this Adoption Agreement has made the specific choices regarding plan design as set forth in the Adoption Agreement together with the detailed additional provisions set out in the Basic Plan Document. All capitalized terms used in this Adoption Agreement have the same meaning given in the Basic Plan Document.

1.02 Plan

Plan Name: Thermo Fisher Scientific Inc. Deferred Compensation Plan

Plan Year: Calendar Year (1/1 – 12/31)

1.03 Plan Sponsor

Name: Thermo Fisher Scientific Inc. (also referred to herein as the "Company")

Address: 168 3rd Avenue, Waltham MA 02451

Phone #: 781-622-1000

EIN #: 04-2209186

Fiscal Year: Calendar Year (1/1 - 12/31)

Is stock of the Plan Sponsor, any Employer or any Related Employer publicly traded on an established securities market? Yes No

1.04 Employer

The following entities have been authorized by the Plan Sponsor to participate in and have adopted the Plan [insert "Not Applicable" if none have been authorized]:

<u>Entity</u>	<u>Publicly Traded on Est. Securities Market</u>	
	Yes	No
Not Applicable	<input type="checkbox"/>	<input type="checkbox"/>

1.05 Administrator

The Plan Sponsor has designated the following party or parties to be responsible for the administration of the Plan:

Name: Thermo Fisher Scientific Inc. Management Pension Committee (the "Committee")

Address: 168 3rd Avenue, Waltham MA 02451

Note: The Administrator is the person or persons designated by the Plan Sponsor to be responsible for the administration of the Plan. Neither Fidelity Employer Services Company nor any other Fidelity affiliate can be the Administrator.

1.06 Key Employee Determination Dates

Key Employee identification will not be applicable given distribution events other than those based on Specified Date or Specified Age, Death, Disability, or Change in Control will be treated as not having occurred for six (6) months (i.e., 6-month delay applies to all Participants. The remainder of this section is retained for information purposes only.

The Employer has designated [month, day, year] as the Identification Date for purposes of determining Key Employees.

In the absence of a designation, the Identification Date is December 31.

The Employer has designated [month, day, year] as the effective date for purposes of applying the six month delay in distributions to Key Employees.

In the absence of a designation, the effective date is the first day of the fourth month following the Identification Date.

2.01 Participation

- (a) Employees [complete (i), (ii) or (iii)]
- (i) Eligible Employees are selected by the Employer.
- (ii) Eligible Employees are those employees of the Employer who satisfy the following criteria:

Eligible Employee means a member of a "select group of management or highly compensated employees" of the Company within the meaning of Sections 201(2), 301(a)(3) and 401 (a)(l) of ERISA, as determined by the Committee from time to time in its sole discretion. Employees become Eligible Employees upon notification by the Company of their eligibility to become Participants in the Plan.

An Eligible Employee becomes a Participant upon the earlier to occur of: (i) the notification of eligibility to participate and the timely submission of a deferral agreement on which an election to make a deferral is made; or (ii) a credit of a Company contribution.

Further, a Participant shall become eligible to earn Matching Contributions under the Plan when they become eligible to earn matching contributions in the Thermo Fisher Scientific Inc. 401(k) Retirement Plan (without consideration of any limitations imposed by the Code).

- (iii) Employees are not eligible to participate.

3.01 Compensation

For purposes of determining Participant contributions under Article 4 and Employer contributions under Article 5, Compensation shall be defined in the following manner [complete (a) or (b) and select (c) and/or (d), if applicable]:

- (a) Compensation is defined as:

Compensation means the amount paid in the year of the deferral as the Participant's base salary, bonus and such other remuneration for services rendered as an employee (if any) approved by the Company as Compensation that may be deferred under this Plan. Compensation shall not include any Compensation that has been previously deferred under this Plan or any other arrangement subject to Code Section 409A. The Company has the authority to determine the payroll practices under which Compensation subject to a deferral agreement will be deducted from a Participant's Compensation.

"Match-Eligible Compensation" for a given Plan Year means a Participant's Compensation that is in excess of the amount of Compensation treated as "compensation" for the applicable plan year under the Thermo Fisher Scientific Inc. 401(k) Retirement Plan. Match-Eligible Compensation includes a Participant's Compensation that is in excess of the Internal Revenue Service ("IRS") limit on covered compensation for qualified plans established in Code Section 401(a)(17) in effect for that Plan Year and also includes any amount of a Participant's Compensation that was reduced below the Code Section 401(a)(17) limit for purposes of applying the Company match in the Company sponsored 401(k) plan due to deferrals in this Plan.

- (b) Compensation as defined in [insert name of qualified plan] without regard to the limitation in Section 401(a)(17) of the Code for such Plan Year.
- (c) Compensation shall, for all Plan purposes, be limited to \$_____.
- (d) Not Applicable.

3.02 Bonuses

Compensation, as defined in Section 3.01 of the Adoption Agreement, includes the following type of bonuses that will be the subject of a separate deferral election:

Type	[Will be treated as]	
	Performance Based Compensation	
	Yes	No
Annual Incentive Plan (AIP)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>

Not Applicable.

4.01 Participant Contributions

If Participant contributions are permitted, complete (a) and (b). Otherwise complete (c).

(a) Amount of Deferrals

A Participant may elect within the period specified in Section 4.01(b) of the Adoption Agreement to defer the following amounts of remuneration. For each type of remuneration listed, complete "dollar amount" and/or "percentage amount".

(i) Compensation other than Bonuses [do not complete if you complete (iii)]

Type of Remuneration	Dollar Amount		% Amount		Increment
	Min	Max	Min	Max	
Base Salary			1%	75%	1%
Match-Eligible Compensation			6%	6%	N/A

Note: The increment is required to determine the permissible deferral amounts. For example, a minimum of 0% and maximum of 20% with a 5% increment would allow an individual to defer 0%, 5%, 10%, 15% or 20%.

(ii) Bonuses [do not complete if you complete (iii)]

Type of Bonus	Dollar Amount		% Amount		Increment
	Min	Max	Min	Max	
Annual Incentive Plan			1%	75%	1%

Note: (If Match-Eligible Compensation is elected by Participant in Section 4.01(a)(i) and (ii) for deferral, Participants are prohibited from making separate base salary or Annual Incentive Plan bonus elections and vice versa (i.e., Participants may only defer Match-Eligible Compensation or separate base salary and/or Annual Incentive Plan)).

(iii) Compensation [do not complete if you completed (i) and (ii)]

Type of Remuneration	Dollar Amount		% Amount		Increment
	Min	Max	Min	Max	

(b) **Election Period**

(i) Performance Based Compensation

A special election period

Does

Does Not

apply to each eligible type of performance based compensation referenced in Section 3.02 of the Adoption Agreement.

The special election period, if applicable, will be determined by the Employer.

(ii) Newly Eligible Participants

An employee who is classified or designated as an Eligible Employee during a Plan Year

May

May Not

elect to defer Compensation earned during the remainder of the Plan Year by completing a deferral agreement within the 30 day period beginning on the date he or she is eligible to participate in the Plan.

The special election period, if applicable, will be determined by the Employer.

(c) **No Participant Contributions**

Participant contributions are not permitted under the Plan.

5.01 Employer Contributions

If Employer contributions are permitted, complete (a) and/or (b). Otherwise complete (c).

(a) Matching Contributions

(i) Amount

For each Plan Year, the Employer shall make a matching contribution on behalf of each Participant who defers Compensation for the Plan Year and satisfies the requirements of Section 5.01(a)(ii) of the Adoption Agreement equal to [complete the ones that are applicable]:

- (A) [insert percentage]% of the Compensation the Participant has elected to defer for the Plan Year
- (B) An amount determined by the Employer in its sole discretion
- (C) Matching contributions for each Participant shall be limited to \$____ and/or [insert percentage]% of Compensation
- (D) Other:
In each Plan Year, with respect to each Participant determined eligible for the Plan, the Plan Sponsor shall make a matching contribution equal to 100% of the first six percent (6%) of Match-Eligible Compensation that such Participant elected to defer for that Plan Year.
- (E) Not Applicable [Proceed to Section 5.01(b)]

(ii) Eligibility for matching contribution

A Participant who defers Compensation for the Plan Year shall receive an allocation of matching contributions determined in accordance with Section 5.01(a)(i) provided he or she satisfies the following requirements [complete the ones that are applicable]:

- (A) Describe requirements:
-

- (B) Is selected by the Employer in its sole discretion to receive an allocation of matching contributions
- (C) No requirements

(iii) Time of Allocation

Matching contributions, if made, shall be treated as allocated [select one]:

- (A) As of the last day of the Plan Year
 - (B) At such times as the Employer shall determine in its sole discretion
 - (C) At the time the Compensation on account of which the matching contribution is being made would otherwise have been paid to the Participant
 - (D) Other:
-

(b) **Other Contributions**

(i) Amount

The Employer shall make a contribution on behalf of each Participant who satisfies the requirements of Section 5.01(b)(ii) equal to [complete the ones that are applicable]:

- (A) An amount equal to [insert percentage]% of the Participant's Compensation
- (B) An amount determined by the Employer in its sole discretion
- (C) Contributions for each Participant shall be limited to \$_____

(D) Other:

(E) Not Applicable [Proceed to Section 6.01]

(ii) Eligibility for Other Contribution

A Participant shall receive an allocation of other Employer contributions determined in accordance with Section 5.01(b)(i) for the Plan Year if he or she satisfies the following requirements [complete the one that is applicable]:

(A) Describe requirements:

(B) Is selected by the Employer in its sole discretion to receive an allocation of other Employer contributions

(C) No requirements

(iii) Time of Allocation

Employer contributions, if made, shall be treated as allocated [select one]:

(A) As of the last day of the Plan Year

(B) At such times or times as the Employer shall determine in its sole discretion

(C) Other:

(c) **No Employer Contributions**

Employer contributions are not permitted under the Plan.

6.01 *Distributions*

The timing and form of payment of distributions made from the Participant's vested Account shall be made in accordance with the elections made in this Section 6.01 of the Adoption Agreement except when Section 9.6 of the Plan requires a six month delay for certain distributions to Key Employees of publicly traded companies.

(a) **Timing of Distributions**

(i) All distributions shall commence in accordance with the following [choose one]:

(A) As soon as administratively feasible following the distribution event but in no event later than the time prescribed by Treas. Reg. Sec. 1.409A-3(d).

(B) Monthly on the first business day of the month.

(C) Annually on specified month and day [insert month and day].

(D) Calendar quarter on specified month and day [insert month and day] [insert numerical quarter 1, 2, 3, or 4].

(ii) The timing of distributions as determined in Section 6.01(a)(i) shall be modified by the adoption of:

(A) Event Delay – Distribution events other than those based on Specified Date or Specified Age, Death, Disability, or Change in Control will be treated as not having occurred for six (6) months

(B) Hold Until Next Year – Distribution events other than those based on Specified Date or Specified Age will be treated as not having occurred for twelve months from the date of the event if payment pursuant to Section 6.01(a)(i) will thereby occur in the next calendar year or on the first payment date in the next calendar year in all other cases

(C) Immediate Processing – The timing method selected by the Plan Sponsor under Section 6.01(a)(i) shall be overridden for the following distribution events [insert events]:

(D) Not applicable

(b) **Distribution Events**

(i) Participant Contributions under Section 4.01(a)

Participants may elect the following payment events and the associated form or forms of payment. If multiple events for each year are selected, the earliest to occur will trigger payment. For installments, insert the range of available periods (e.g., 5-15) or insert the periods available (e.g., 5, 7, 9).

		<u>Lump Sum</u>	<u>Installments</u>
(A) <input checked="" type="checkbox"/> Specified Date (MM/YYYY)		<input checked="" type="checkbox"/>	<u>2-5 years</u>
(B) <input type="checkbox"/> Specified Age		<input type="checkbox"/>	<u> years</u>
(C) <input checked="" type="checkbox"/> Separation from Service		<input checked="" type="checkbox"/>	<u>2-15 years; (25 years with respect to contributions to the Plan made prior to 1/1/2022)</u>
(D) <input type="checkbox"/> Separation from Service plus 6 months		<input type="checkbox"/>	<u> years</u>
(E) <input type="checkbox"/> Separation from Service plus <u> </u> months [not to exceed <u> </u> months]		<input type="checkbox"/>	<u> years</u>
(F) <input type="checkbox"/> Retirement		<input type="checkbox"/>	<u> years</u>
(G) <input type="checkbox"/> Retirement plus 6 months		<input type="checkbox"/>	<u> years</u>
(H) <input type="checkbox"/> Retirement plus <u>12</u> months		<input type="checkbox"/>	<u> years</u>
(I) <input type="checkbox"/> Disability		<input type="checkbox"/>	<u> years</u>
(J) <input type="checkbox"/> Death		<input type="checkbox"/>	<u> years</u>
(K) <input checked="" type="checkbox"/> Change in Control**		<input checked="" type="checkbox"/>	<u>2-15 years</u>

** Change in Control benefit only available to amounts deferred under Compensation Deferral Agreements that became irrevocable prior to October 1, 2019 for those Participants who have elected prior to October 1, 2019 to receive a Change in Control Benefit and shall be paid within ninety (90) days following the date upon which the Change in Control occurred.

The minimum deferral period for Specified Date or Specified Age event shall be 2 year(s).

Installments may be paid [select each that applies]

- Monthly
- Quarterly
- Semi-Annually
- Annually

(ii) Employer Contributions under Section 5.01(a) and (b).

Participants may elect the following payment events and the associated form or forms of payment. If multiple events for each year are selected, the earliest to occur will trigger payment. For installments, insert the range of available periods (e.g., 5-15) or insert the periods available (e.g., 5, 7, 9).

		<u>Lump Sum</u>	<u>Installments</u>
(A)	<input type="checkbox"/> Specified Date (MM/YYYY)	<input type="checkbox"/>	__ years
(B)	<input type="checkbox"/> Specified Age	<input type="checkbox"/>	__ years
(C)	<input checked="" type="checkbox"/> Separation from Service	<input checked="" type="checkbox"/>	<u>2-15</u> years
(D)	<input type="checkbox"/> Separation from Service plus 6 months	<input type="checkbox"/>	__ years
(E)	<input type="checkbox"/> Separation from Service plus __ months [not to exceed __ months]	<input type="checkbox"/>	__ years
(F)	<input type="checkbox"/> Retirement	<input type="checkbox"/>	__ years
(G)	<input type="checkbox"/> Retirement plus 6 months	<input type="checkbox"/>	__ years
(H)	<input type="checkbox"/> Retirement plus <u>12</u> months	<input type="checkbox"/>	__ years
(I)	<input type="checkbox"/> Disability	<input type="checkbox"/>	__ years
(J)	<input type="checkbox"/> Death	<input type="checkbox"/>	__ years
(K)	<input type="checkbox"/> Change in Control	<input type="checkbox"/>	__ years

The minimum deferral period for Specified Date or Specified Age event shall be Not Applicable year(s).

Installments may be paid [select each that applies]

- Monthly
- Quarterly
- Semi-Annually
- Annually

(c) Specified Date and Specified Age elections may not extend beyond age Not Applicable.

(d) **Payment Election Override**

Payment of the remaining vested balance of the Participant's Account will automatically occur at the time specified in Section 6.01(a) of the Adoption Agreement in the form indicated upon the earliest to occur of the following events [check each event that applies and for each event include only a single form of payment]:

<u>Events</u>	<u>Form of Payment</u>	
	<u>Lump Sum</u>	<u>Installments</u>
<input checked="" type="checkbox"/> Separation from Service/Change in Control**	<input checked="" type="checkbox"/>	_____
	** Upon a Separation from Service or, with respect to any Participant who has elected (prior to October 1, 2019) a Change in Control benefit pursuant to Section 6.01(b), upon a Change in Control, the unpaid balance of a Specified Date account shall be paid as follows: (i) Specified Date payments that have commenced (i.e. in "pay status") shall continue to be paid separately; and (ii) Specified Date payments that have not commenced shall be paid in accordance with the form of payment applicable to the Separation from Service or Change in Control Benefit, as applicable . If such benefit is payable in a single lump sum, the unpaid balance of all Specified Date Accounts (including those in pay status) will be paid in a lump sum."	
<input type="checkbox"/> Separation from Service before Retirement	<input type="checkbox"/>	_____
<input checked="" type="checkbox"/> Separation from Service within 24 months following a Change in Control	<input checked="" type="checkbox"/>	_____
<input checked="" type="checkbox"/> Death	<input checked="" type="checkbox"/>	_____
<input type="checkbox"/> Disability	<input type="checkbox"/>	_____
<input type="checkbox"/> Not Applicable	<input type="checkbox"/>	_____

(e) Involuntary Cashouts

- If the Participant's vested Account at the time of his or her Separation from Service does not exceed the applicable dollar amount under Code Section 402(g)(1)(B), distribution of the vested Account shall automatically be made in the form of a single lump sum in accordance with Section 9.5 of the Plan.
- There are no involuntary cashouts.

(f) Retirement

- Retirement shall be defined as a Separation from Service that occurs on or after the Participant [insert description of requirements]:
-

- No special definition of Retirement applies.

(g) Distribution Election Change

A Participant

- Shall
- Shall Not

be permitted to modify a scheduled distribution date and/or payment option in accordance with Section 9.2 of the Plan.

The Plan Sponsor, in its sole and absolute discretion, reserves the right to limit the number of times a Participant may be permitted to modify distribution elections.

Administratively, allowable distribution events will be modified to reflect all options necessary to fulfill the distribution change election provision.

(h) Frequency of Elections

The Plan Sponsor

Has

Has Not

elected to permit annual elections of a time and form of payment for amounts deferred under the Plan. If a single election of a time and/or form of payment is required, the Participant will make such election at the time he or she first completes a deferral agreement which, in all cases, will be no later than the time required by Reg. Sec. 1.409A-2.

(i) Disability

For Purposes of Section 2.11 of the Plan, Disability shall be defined as

- Total disability as determined by the Social Security Administration or the Railroad Retirement Board.
- As determined by the Employer's long term disability insurance policy.
- As follows [insert description of requirements]:

Not applicable.

7.01 Vesting

(a) Matching Contributions

The Participant's vested interest in the amount credited to his or her Account attributable to matching contributions shall be based on the following schedule:

<input checked="" type="checkbox"/>	<u>Years of Service</u>	<u>Vesting %</u>	
	0	<u>100%</u>	[insert "100" if there is immediate vesting]
	1	<u> %</u>	
	2	<u> %</u>	
	3	<u> %</u>	
	4	<u> %</u>	
	5	<u> %</u>	
	6	<u> %</u>	
	7	<u> %</u>	
	8	<u> %</u>	
	9	<u> %</u>	

Other:

Class year vesting applies:

Not applicable.

(b) **Other Employer Contributions**

The Participant's vested interest in the amount credited to his or her Account attributable to Employer contributions other than matching contributions shall be based on the following schedule:

<input type="checkbox"/> <u>Years of Service</u>	<u>Vesting %</u>	
0	<u> %</u>	[insert "100" if there is immediate vesting]
1	<u> %</u>	
2	<u> %</u>	
3	<u> %</u>	
4	<u> %</u>	
5	<u> %</u>	
6	<u> %</u>	
7	<u> %</u>	
8	<u> %</u>	
9	<u> %</u>	

Other:

Vesting determined by the Employer in its sole discretion at the time the contribution is made.

Class year vesting applies:

Not applicable.

(c) **Acceleration of Vesting**

The Participant's vested interest in his or her Account will automatically be 100% upon the occurrence of the following events [select the ones that are applicable]:

- (i) Death.
- (ii) Disability.
- (iii) Change in Control.
- (iv) Eligibility for Retirement.
- (v) Other:

The Plan Sponsor may, at any time, in its sole discretion, increase a Participant's vested interest in a Plan Sponsor discretionary contribution.

- (vi) Not applicable.

(d) Years of Service

- (i) A Participant's Years of Service shall include all service performed for the Employer and
 - Shall
 - Shall Not

include service performed for the Related Employer.

(ii) Years of Service shall also include service performed for the following entities:

(iii) Years of Service shall be determined in accordance with [select one]:

- (A) The elapsed time method in Treas. Reg. Sec. 1.410(a)-7
- (B) The general method in DOL Reg. Sec. 2530.200b-1 through b-4
- (C) Participant's Years of Service credited under:

[insert name of plan]

- (D) Other:

(iv) Not applicable.

8.01 Unforeseeable Emergency

(a) A withdrawal due to an Unforeseeable Emergency as defined in Section 2.24:

Will

Will Not [if Unforeseeable Emergency withdrawals are not permitted, proceed to Section 9.01]

be allowed.

(b) Upon (i) a withdrawal due to an Unforeseeable Emergency, or (ii) during periods in which the Participant is unable to perform the duties of his or her position or any substantially similar position due to a mental or physical impairment that can be expected to result in death or last for a continuous period of at least six (6) months, provided cancellation occurs by the later of the end of the taxable year of the Participant or the fifteenth (15th) day of the third (3rd) month following the date the Participant incurs the Disability (as defined here), a Participant's deferral election for the remainder of the Plan Year:

May

Will Not

be cancelled. If cancellation occurs, the Participant may resume participation in accordance with Article 4 of the Plan.

9.01 Investment Decisions

Investment decisions regarding the hypothetical amounts credited to a Participant's Account shall be made by [select one]:

- (a) The Participant or his or her Beneficiary
- (b) The Employer

10.01 Trust

The Employer [select one]:

Does

Does Not

intend to establish a trust as provided in Article 11 of the Plan.

11.01 Termination Upon Change In Control

The Plan Sponsor

- Reserves
- Does Not Reserves

the right to terminate the Plan and distribute all vested amounts credited to Participant Accounts upon a Change in Control as described in Section 9.7.

11.02 Automatic Distribution Upon Change In Control

Distribution of the remaining vested balance of each Participant's Account

- Shall
- Shall Not

automatically be paid as a lump sum payment upon the occurrence of a Change in Control as provided in Section 9.7.

11.03 Change In Control

A Change in Control for Plan purposes includes the following [select each definition that applies]:

- (a) A change in the ownership of the Employer as described in Section 9.7(c) of the Plan.
- (b) A change in the effective control of the Employer as described in Section 9.7(d) of the Plan.
- (c) A change in the ownership of a substantial portion of the assets of the Employer as described in Section 9.7(e) of the Plan.
- (d) Not Applicable.

12.01 Governing State Law

The laws of Massachusetts shall apply in the administration of the Plan to the extent not preempted by ERISA.

The Plan Sponsor has caused this Adoption Agreement to be executed this 20 day of December, 2023.

Plan Sponsor: Thermo Fisher Scientific Inc.

By: /s/ Lisa P. Britt

Title: SVP & Chief Human Resources Officer

THERMO FISHER SCIENTIFIC INC.

NAME	STATE OR JURISDICTION OF ORGANIZATION
0972792 B.C. LTD	Canada
236 Perinton Parkway, LLC	New York
27 Forge Parkway LLC	Delaware
Abgene Inc.	Delaware
Abgene Limited	England
ABII 2 Limited	England
ACI Holdings Inc.	New York
Acoustic Cytometry Systems, Inc.	Delaware
AcroMetrix LLC	California
Acros Organics BV	Belgium
Acurian, Inc.	Delaware
Advanced Biotechnologies Limited	England
Advanced Scientifics International, Inc.	Pennsylvania
Advanced Scientifics, Inc.	Pennsylvania
Affymetrix Biotech Shanghai Ltd	China
Affymetrix Japan K.K.	Japan
Affymetrix UK Ltd	England
Affymetrix, Inc	Delaware
Alchematrix LLC	Delaware
Alchematrix, Inc.	Delaware
Alfa Aesar (China) Chemical Co. Ltd.	China
Alfa Aesar (Hong Kong) Limited	Hong Kong
Allergon AB	Sweden
Ambion, Inc.	Delaware
APBI Finance Corporation	Delaware
Apogent Finance Company	Delaware
Apogent Holding Company	Delaware
Apogent Technologies Inc.	Wisconsin
Apogent Transition Corp.	Delaware
Apogent U.K. Limited	England
Applied Bioscience International, LLC	Delaware
Applied Biosystems B.V.	Netherlands

NAME	STATE OR JURISDICTION OF ORGANIZATION
Applied Biosystems de Mexico S. de R.L. de C.V.	Mexico
Applied Biosystems International Inc.	Delaware
Applied Biosystems Taiwan LLC	Delaware
Applied Biosystems Trading (Shanghai) Company Ltd.	China
Applied Biosystems, LLC	Delaware
Applied Scientific Corporation	California
App-Tek International Pty Ltd	Australia
ARG Services LLC	Delaware
ASPEX Corporation	Pennsylvania
ATP, LLC	North Carolina
Avances Cientificos de Mexico, S. de R.L. de C.V.	Mexico
Avocado Research Chemicals Limited	England
B.R.A.H.M.S. Biotech GmbH	Germany
B.R.A.H.M.S. GmbH	Germany
B.R.A.H.M.S. UK Ltd	England
BAC BV	Netherlands
BAC IP BV	Netherlands
Barnstead Thermolyne LLC	Delaware
Beijing Phadia Diagnostics Co Ltd	China
Bender MedSystems GmbH	Austria
Biochemical Sciences LLC	Delaware
Bio-Sciences Ltd	Ireland
BioTrove Corporation	Delaware
BioTrove International, Inc.	Delaware
BmT GmbH Laborprodukte	Germany
Brammer Bio Holding Company, LLC	Delaware
Brammer Bio MA, LLC	Delaware
Brammer Bio, LLC	Delaware
Bumi-Sans Sendirian Berhad	Malaysia
CAC Limited	England
Capitol Scientific Products, Inc.	New York
Capitol Vial, Inc.	Alabama

NAME	STATE OR JURISDICTION OF ORGANIZATION
CB Diagnostics AB	Sweden
CB Diagnostics Holding AB	Sweden
CB Diagnostics I AB	Sweden
CCBR (Beijing) Company Limited	China
Cellomics, Inc.	Delaware
CellzDirect, Inc.	Delaware
Center for Clinical and Basic Research A/S	Denmark
CEPH International Corporation	Puerto Rico
Cezanne S.A.S.	France
Chase Scientific Glass, Inc.	Wisconsin
CHK Holdings Inc.	Delaware
Chromacol Limited	England
Clinical Technology Centre (International) Limited	England
Clinical Technology Centre (Ireland) Limited	Ireland
Clintrak Clinical Labeling Services, LLC	Delaware
Clintrak Pharmaceutical Services, LLC	Delaware
Cohesive Technologies (UK) Limited	England
Cohesive Technologies Inc.	Delaware
Columbia Diagnostics, Inc.	Delaware
Combinati Incorporated	Delaware
Compass NeuroHealth, LLC	Florida
Compass Research, LLC	Florida
Compendia Bioscience, Inc.	Michigan
Comtest Limited	England
Consolidated Technologies, Inc.	Wisconsin
Consultores Fisher Scientific Chile Ltd	Chile
Core Informatics UK Ltd.	England
Core Informatics, LLC	Connecticut
CorEvitas, LLC	Delaware
Corrona Intermediate Holdings, Inc.	Delaware
Corrona UK Holdings Limited	England
CTPS LLC	Delaware

NAME	STATE OR JURISDICTION OF ORGANIZATION
DCG Systems G.K.	Japan
D-finitive Technologies, Inc.	South Carolina
Diagnostix Ltd.	Canada
Dionex (Switzerland) AG	Switzerland
Dionex (UK) Limited	England
Dionex Austria GmbH	Austria
Dionex Benelux B.V.	Netherlands
Dionex Canada Ltd.	Canada
Dionex China Limited	Hong Kong
Dionex Corporation	Delaware
Dionex Denmark A/S	Denmark
Dionex Holding GmbH	Germany
Dionex I, LLC	Delaware
Dionex S.A.	France
Dionex S.p.A.	Italy
Dionex Softron GmbH	Germany
Dionex Sweden AB	Sweden
Distribution Solutions International, Inc.	Michigan
Doe & Ingalls Investors, Inc.	Delaware
Doe & Ingalls Limited	Ireland
Doe & Ingalls Management, LLC	Delaware
Doe & Ingalls of California Operating LLC	North Carolina
Doe & Ingalls of Florida Operating LLC	Florida
Doe & Ingalls of Maryland Operating LLC	North Carolina
Doe & Ingalls of Massachusetts Operating LLC	North Carolina
Doe & Ingalls of North Carolina Operating LLC	North Carolina
Doe & Ingalls Properties II, LLC	North Carolina
Doe & Ingalls Properties, LLC	North Carolina
Doublecape Holding Limited	England
Doublecape Limited	England
DPI Newco LLC	Delaware
Drakeside Real Estate Holding Company LLC	Delaware

NAME	STATE OR JURISDICTION OF ORGANIZATION
DSM Pharmaceutical Products, Inc.	Delaware
Duke Scientific Corporation	California
Dynal Biotech Beijing Limited	China
Eagle Holding Company II, LLC	Delaware
eBioscience SAS	France
eBioscience, Ltd	England
EGS Gauging Ltd.	England
EGS Gauging Technical Services Company	Delaware
EP Scientific Products LLC	Delaware
Epsom Glass Industries Limited	England
Erie (GC) Holding Limited	England
Erie Finance 1 Limited	England
Erie Finance 2 Limited	England
Erie Finance Holding Limited	England
Erie Finance Limited	England
Erie Finance LLC	Delaware
Erie GC Holding LLC	Delaware
Erie GC Limited	England
Erie LP Holding LLC	Delaware
Erie Luxembourg LLC	Delaware
Erie N10 LLC	Delaware
Erie N2 LLC	Delaware
Erie N2 UK Limited	England
Erie Scientific Company of Puerto Rico	Delaware
Erie Scientific Hungary Ipari és Szolgáltató Kft	Hungary
Erie Scientific LLC	Delaware
Erie U.K. Limited	England
Erie UK 1 Limited	England
Erie UK 1 LLC	Delaware
Erie UK 2 Limited	England
Erie UK 3 Limited	England
Erie UK 4 Limited	England

NAME	STATE OR JURISDICTION OF ORGANIZATION
Erie UK 5 Limited	England
Erie UK 6 Limited	England
Erie UK Holding Company	Delaware
Erie UK Senior Holding Limited	England
Erie US II LLC	Delaware
Erie US III LLC	Delaware
European Laboratory Holdings Limited	Ireland
Eutech Instruments Pte Ltd.	Singapore
Ever Ready Thermometer Co., Inc.	Wisconsin
Evidera Access Consulting Ltd	England
Evidera Holdings Ltd	England
Evidera Ltd	England
Evidera, Inc.	Delaware
Excel PharmaStudies Inc.	Cayman Islands
FB2 Blocker, LLC	Delaware
FEI Asia Pacific Co., Ltd.	China
FEI Australia Pty Ltd	Australia
FEI Company	Oregon
FEI Company Japan Ltd.	Japan
FEI Company of USA (S.E.A.) Pte Ltd.	Singapore
FEI CPD B.V.	Netherlands
FEI Deutschland GmbH	Germany
FEI EFA International Pte. Ltd.	Singapore
FEI EFA, Inc.	Delaware
FEI Electron Optics B.V.	Netherlands
FEI Electron Optics International B.V.	Netherlands
FEI Europe B.V.	Netherlands
FEI France SAS	France
FEI Hong Kong Company Limited	Hong Kong
FEI Houston, Inc.	Delaware
FEI Italia Srl	Italy
FEI Korea Ltd.	Korea

NAME	STATE OR JURISDICTION OF ORGANIZATION
FEI Melbourne Pty Ltd.	Australia
FEI Microscopy Solutions Ltd	Israel
FEI SAS	France
FEI Saudi Arabia LLC	Saudi Arabia
FEI Technologies, Inc.	Oregon
FEI Technology de Mexico S.A. de C.V.	Mexico
FEI Trading (Shanghai) Co., Ltd.	China
FEI UK Limited	England
Fermentas China Co., Ltd	China
Fermentas Inc.	Maryland
FHP LLC	Delaware
Fiberlite Centrifuge LLC	Delaware
Finesse Scientific Equipment (Shanghai) Co., Ltd.	China
Finesse Solutions, Inc.	Delaware
Fisher Alder S. de R.L. de C.V.	Mexico
Fisher Bermuda Holdings Limited	Bermuda
Fisher Bioblock Holding II SNC	France
Fisher BioPharma Services (India) Private Limited	India
Fisher BioSciences Japan G.K.	Japan
Fisher BioServices Inc.	Virginia
Fisher Bioservices Netherlands B.V.	Netherlands
Fisher Canada Holding ULC 1	Canada
Fisher Canada Holding ULC 2	Canada
Fisher Canada Holding ULC 3	Canada
Fisher Clinical Logistics LLC	Delaware
Fisher Clinical Services (Beijing) Co., Ltd.	China
Fisher Clinical Services (Bristol), LLC	Delaware
Fisher Clinical Services (Colombia) LLC	Delaware
Fisher Clinical Services (Korea) Co., Ltd	Korea
Fisher Clinical Services (Mexico) LLC	Delaware
Fisher Clinical Services (Peru) LLC	Delaware
Fisher Clinical Services (Suzhou) Co., Ltd.	China

NAME	STATE OR JURISDICTION OF ORGANIZATION
Fisher Clinical Services Colombia S.A.S.	Colombia
Fisher Clinical Services GmbH	Germany
Fisher Clinical Services GmbH	Switzerland
Fisher Clinical Services Inc.	Pennsylvania
Fisher Clinical Services Japan K.K.	Japan
Fisher Clinical Services Latin America S.R.L.	Argentina
Fisher Clinical Services Limited Liability Company	Russia
Fisher Clinical Services Mexico, S. de R.L. de C.V.	Mexico
Fisher Clinical Services Peru S.R.L	Peru
Fisher Clinical Services Pte Ltd.	Singapore
Fisher Clinical Services Rheinfelden GmbH	Germany
Fisher Clinical Services U.K. Limited	England
Fisher CLP Holding Limited Partnership	Canada
Fisher Emergo B.V.	Netherlands
Fisher Hamilton China Inc.	Delaware
Fisher Hamilton Mexico LLC	Delaware
Fisher Internet Minority Holdings L.L.C.	Delaware
Fisher Luxembourg Danish Holdings SARL	Luxembourg
Fisher Manufacturing (Malaysia) Sdn Bhd	Malaysia
Fisher Maybridge Holdings Limited	England
Fisher Mexico, S. de R.L. de C.V.	Mexico
Fisher Scientific (Austria) GmbH	Austria
Fisher Scientific (Hong Kong) Limited	Hong Kong
Fisher Scientific (M) Sdn Bhd	Malaysia
Fisher Scientific (SEA) Pte. Ltd.	Singapore
Fisher Scientific A/S	Norway
Fisher Scientific AG	Switzerland
Fisher Scientific Australia Pty Limited	Australia
Fisher Scientific Biotech Line ApS	Denmark
Fisher Scientific Brazil Inc.	Delaware
Fisher Scientific Central America Inc.	Delaware
Fisher Scientific Chile Inc.	Delaware

NAME	STATE OR JURISDICTION OF ORGANIZATION
Fisher Scientific Colombia Inc.	Delaware
Fisher Scientific Company	Canada
Fisher Scientific Company L.L.C.	Delaware
Fisher Scientific Costa Rica Sociedad de Responsabilidad Limitada	Costa Rica
Fisher Scientific de Mexico S.A.	Mexico
Fisher Scientific Europe Holdings B.V.	Netherlands
Fisher Scientific Germany Beteiligungs GmbH	Germany
Fisher Scientific GmbH	Germany
Fisher Scientific GTF AB	Sweden
Fisher Scientific Holding Company LLC	Delaware
Fisher Scientific Holding HK Limited	Hong Kong
Fisher Scientific Holding U.K., Limited	England
Fisher Scientific Holdings (S) Pte Ltd	Singapore
Fisher Scientific International LLC	Delaware
Fisher Scientific Investments (Cayman), Ltd.	Cayman Islands
Fisher Scientific Ireland Investments Unlimited	Ireland
Fisher Scientific Ireland Limited	Ireland
Fisher Scientific Japan, Ltd.	Japan
Fisher Scientific Jersey Island Limited	Jersey
Fisher Scientific Korea Ltd	Korea
Fisher Scientific Latin America Inc.	Delaware
Fisher Scientific Luxembourg S.a.r.l.	Luxembourg
Fisher Scientific Mexicana, S. de R.L. de C.V.	Mexico
Fisher Scientific Mexico Inc.	Delaware
Fisher Scientific Middle East and Africa Inc.	Delaware
Fisher Scientific Norway AS	Norway
Fisher Scientific Operating Company	Delaware
Fisher Scientific Oxoid Holdings Ltd.	England
Fisher Scientific Oy	Finland
Fisher Scientific Pte. Ltd.	Singapore
Fisher Scientific S.A.S.	France
Fisher Scientific S.L.	Spain

NAME	STATE OR JURISDICTION OF ORGANIZATION
Fisher Scientific SRL	Belgium
Fisher Scientific The Hague II B.V.	Netherlands
Fisher Scientific The Hague III B.V.	Netherlands
Fisher Scientific The Hague V B.V.	Netherlands
Fisher Scientific U.K., Limited	England
Fisher Scientific UK Holding Company 2	England
Fisher Scientific UK Holding Company Limited	England
Fisher Scientific Venezuela Inc.	Delaware
Fisher Scientific Worldwide (Shanghai) Co., Ltd.	China
Fisher Scientific Worldwide Holdings I C.V.	Netherlands
Fisher Scientific Worldwide Inc.	Delaware
Fisher Scientific, spol. S.r.o	Czech Republic
Fisher Scientific, Unipessoal, Lda.	Portugal
Fisher Servicios Clinicos (Chile) LLC	Delaware
Fisher Servicios Clinicos Chile Ltda	Chile
Fisher Worldwide Gene Distribution SPV	Cayman Islands
Fisher WWD Holding L.L.C.	Delaware
FRC Holding Inc., V	Delaware
FS Casa Rocas Holdings LLC	Delaware
FS Mexicana Holdings LLC	Delaware
FSI Receivables Company LLC	Delaware
FSII Sweden Holdings AB	Sweden
FSII Sweden Holdings I AB	Sweden
FSII Sweden Holdings II AB	Sweden
FSIR Holdings (UK) Limited	England
FSIR Holdings (US) Inc.	Delaware
FSUK Holdings Limited	England
FSWH Company LLC	Delaware
FSWH I LLC	Delaware
FSWH II LLC	Delaware
FSWH International Holdings LLC	Delaware
Fuji Partnership	Japan

NAME	STATE OR JURISDICTION OF ORGANIZATION
G & M Procter Limited	Scotland
G V Instruments Limited	England
General Scientific Company Sdn Bhd (M)	Malaysia
Ginkgo Parc SA	Belgium
Gold Cattle Standard Testing Labs, Inc.	Texas
Golden West Indemnity Company Limited	Bermuda
Goring Kerr Detection Limited	England
Greenbird Limited	Cyprus
GV Instruments Inc	Delaware
Hangar 215, Inc.	Delaware
Health iQ Limited	England
HealthUnlocked Holdings Limited	England
Helmet Securities Limited	England
Henogen SRL	Belgium
HighChem s.r.o.	Slovakia
Hybaid Limited	England
HyClone International Trade (Tianjin) Co., Ltd	China
I.Q. (BIO) Limited	England
Indigo Merger Subsidiary Inc.	Delaware
Inel Inc.	Delaware
Inel SAS	France
InnaPhase Limited	England
IntegenX Ltd	England
IntegenX, Inc.	California
Intrinsic BioProbes, Inc.	Arizona
Invitrogen (Shanghai) Investment Co., Ltd.	China
Invitrogen Argentina SA	Argentina
Invitrogen BioServices India Private Limited	India
Invitrogen Europe Limited	Scotland
Invitrogen Finance Corporation	Delaware
Invitrogen Holdings Limited	Scotland
Invitrogen Holdings LLC	Delaware

NAME	STATE OR JURISDICTION OF ORGANIZATION
Invitrogen Hong Kong Limited	Hong Kong
Invitrogen IP Holdings, Inc.	Delaware
Invitrogen Trading (Shanghai) Co., Ltd.	China
Ion Torrent Systems, Inc.	Delaware
Jaguar (Barbados) Finance SRL	Barbados
Jaguar Holding Company I, LLC	Delaware
Jaguar Holding Company II	Delaware
Jouan Limited	England
Jouan LLC	Delaware
Kendro Containment & Services Limited	England
Kendro Laboratory Products Ltd	England
Kettlebrook Insurance Co. ltd.	Hawaii
Kyle Jordan Investments LLC	Delaware
Lab-Chrom-Pack LLC	New York
Lab-Line Instruments, Inc.	Delaware
Labomex MBP, S. de R. L. De C.V.	Mexico
Laboratoire Service International - L.S.I	France
Laboratory Management Systems, Inc.	Delaware
Laboratory Specialties Proprietary Ltd.	South Africa
LambTrack Limited	England
La-Pha-Pack GmbH	Germany
Laser Analytical Systems, Inc.	California
Liberty Lane Investment LLC	Delaware
Liberty Lane Real Estate Holding Company LLC	Delaware
Life Sciences International Holdings BV	Netherlands
Life Sciences International Limited	England
Life Sciences International LLC	Delaware
Life Technologies AS	Norway
Life Technologies BPD UK Limited	England
Life Technologies Brasil Comercio e Industria de Produtos para Biotecnologia Ltda	Brazil
Life Technologies Chile SpA	Chile
Life Technologies Clinical Services Lab, Inc.	Delaware

NAME	STATE OR JURISDICTION OF ORGANIZATION
Life Technologies Co., Ltd.	Taiwan
Life Technologies Corporation	Delaware
Life Technologies Czech Republic s.r.o.	Czech Republic
Life Technologies Europe B.V.	Netherlands
Life Technologies Finance Ltd.	Scotland
Life Technologies GmbH	Germany
Life Technologies Holdings PTE Ltd.	Singapore
Life Technologies Inc.	Canada
Life Technologies Japan Ltd.	Japan
Life Technologies Limited	Scotland
Life Technologies Limited	Hong Kong
Life Technologies Magyarorszag Kft	Hungary
Life Technologies Norway Investments US LLC	Delaware
Life Technologies Polska Sp z.o.o.	Poland
Life Technologies s.r.o	Slovakia
Life Technologies SA	Spain
Life Technologies SAS	France
Limited Liability Company Contract Research Organisation Innopharm	Ukraine
Limited Liability Company PPD Development (Smolensk)	Russia
LLC PPD Ukraine	Ukraine
Loftus Furnace Company	Pennsylvania
Lomb Scientific (Aust) Pty Limited	Australia
LTC Tech South Africa PTY Ltd.	South Africa
Marketbase International Limited	Hong Kong
MarqMetrix, Inc	Washington
Matrix MicroScience Inc.	Delaware
Matrix Microscience Limited	England
Matrix Technologies Corporation Limited	England
Matrix Technologies LLC	Delaware
Maybridge Chemical Holdings Limited	England
Maybridge Limited	England
Medical Analysis Systems International, Inc.	California

NAME	STATE OR JURISDICTION OF ORGANIZATION
Medical Analysis Systems, Inc.	Delaware
Medical Centre Synexus Sofia EOOD	Bulgaria
Medical Diagnostics Systems, Inc.	California
MediciGroup, Inc.	Pennsylvania
Medimix Latam Pesquisa de Mercado Ltda	Brazil
Mesa Biotech LLC	Delaware
Metavac LLC	Delaware
Microgenics B.V. & Co. KG	Germany
Microgenics Corporation	Delaware
MLS ACQ, Inc.	Delaware
Molecular BioProducts, Inc.	California
Molecular Probes, Inc.	Oregon
Molecular Transfer, Inc.	Delaware
Nalge Nunc International (Monterrey) LLC	Delaware
Nalge Nunc International Corporation	Delaware
NanoDrop Technologies LLC	Delaware
NAPCO, Inc.	Connecticut
National Scientific Company	Wisconsin
Navaho Acquisition Corp.	Delaware
NERL Diagnostics LLC	Wisconsin
NeuroHealth, Inc.	Florida
New FS Holdings Inc.	Delaware
NewcoGen PE, LLC	Delaware
Niton Asia Limited	Hong Kong
NovaWave Technologies, Inc.	California
Nunc A/S	Denmark
Odyssey Holdings Corporation	Delaware
Odyssey Holdings LLC	Delaware
Odyssey Luxembourg IP Holdings 1 S.à r.l.	Luxembourg
Odyssey Luxembourg IP Holdings 2 S.à r.l.	Luxembourg
Odyssey Venture Corporation	Delaware
Oncomine India Private Limited	India

NAME	STATE OR JURISDICTION OF ORGANIZATION
Oncomine K.K.	Japan
Oncomine Limited	England
Oncomine LLC	Delaware
Oncomine Molecular Inc.	Delaware
Oncomine Molecular, S.L	Spain
Oncomine Pte. Ltd	Singapore
Oncomine S.r.l	Italy
Oncomine ULC	Canada
One Lambda, Inc	California
Onix Holdings Limited	England
ONIX Systems Inc.	Delaware
Optimal Research, LLC	Maryland
Orion Acquisition AB	Sweden
Owl Separation Systems LLC	Wisconsin
Oxoid (ELY) Limited	England
Oxoid 2000 Limited	England
Oxoid Australia Pty. Limited	Australia
Oxoid Company	Canada
Oxoid Deutschland GmbH	Germany
Oxoid Holding SAS	France
Oxoid Holdings Limited	England
Oxoid Inc.	Delaware
Oxoid International Limited	England
Oxoid Investments GmbH	Germany
Oxoid Limited	England
Oxoid Limited	Ireland
Oxoid NV	Belgium
Oxoid Pension Trustees Limited	England
Oxoid Senior Holdings Limited	England
Oxoid UKH LLC	Delaware
Pacific Rim Far East Industries LLC	Delaware
Pacific Rim Investment, LLC	Delaware

NAME	STATE OR JURISDICTION OF ORGANIZATION
Panomics, L.L.C.	California
Pasteur U.S. Corporation	Delaware
Patheon API Inc.	South Carolina
Patheon API Manufacturing Inc.	South Carolina
Patheon API Services Inc.	South Carolina
Patheon Austria GmbH & Co. KG	Austria
Patheon B.V.	Netherlands
Patheon Banner U.S. Holdings Inc.	Delaware
Patheon Biologics (NJ) LLC	Delaware
Patheon Biologics Australia Pty Ltd	Australia
Patheon Biologics B.V.	Netherlands
Patheon Biologics LLC	Delaware
Patheon Calculus Merger LLC	Delaware
Patheon Development Services Inc.	Delaware
Patheon France SAS	France
Patheon Holdings B.V.	Netherlands
Patheon Holdings I B.V.	Netherlands
Patheon Holdings II B.V.	Netherlands
Patheon Holdings SAS	France
Patheon I B.V.	Netherlands
Patheon I Holding GmbH	Austria
Patheon Inc.	Canada
Patheon Italia S.p.A.	Italy
Patheon KK	Japan
Patheon Life Science Products International GmbH	Austria
Patheon Logistics Switzerland GmbH	Switzerland
Patheon Manufacturing Services LLC	Delaware
Patheon Pharmaceuticals Inc.	Delaware
Patheon Pharmaceuticals Services Inc.	Delaware
Patheon Puerto Rico Acquisitions Corporation	Puerto Rico
Patheon Puerto Rico, Inc.	Puerto Rico
Patheon Regensburg GmbH	Germany

NAME	STATE OR JURISDICTION OF ORGANIZATION
Patheon Softgels B.V.	Netherlands
Patheon Softgels Inc.	Delaware
Patheon U.S. Holdings Inc.	Delaware
Patheon U.S. Holdings LLC	Delaware
Patheon UK Limited	England
Patheon UK Pension Trustees Limited	England
PAX – DSI Acquisition LLC	Delaware
Pelican Acquisition Corporation	Delaware
PeproTech Asia Ltd	Israel
PeproTech BioTech (Suzhou) Co., Ltd.	China
PeproTech EC Ltd.	England
PeproTech France	France
PeproTech GmbH	Germany
PeproTech Korea	Korea
PeproTech, Inc.	New Jersey
Perbio Science (Canada) Company	Canada
Perbio Science AB	Sweden
Perbio Science France SAS	France
Perbio Science International Netherlands B.V.	Netherlands
Perbio Science Sweden Holdings AB	Sweden
Perbio Science UK Limited	England
Perbio Science, Inc.	Delaware
Percivia LLC	Delaware
Phadia AB	Sweden
Phadia Diagnostics Ltda	Brazil
Phadia GmbH	Germany
Phadia Holding AB	Sweden
Phadia International Holdings LP	England
Phadia International LLC	Delaware
Phadia Real Property AB	Sweden
Phadia s.r.o.	Czech Republic
Phadia Taiwan Inc.	Taiwan

NAME	STATE OR JURISDICTION OF ORGANIZATION
Phadia US Inc.	Delaware
Phadia US Market Holdings LLC	Delaware
Pharmacaps Mexicana S.A. de C.V.	Mexico
Pharmaceutical Product Development South Africa (Proprietary) Ltd	South Africa
Pharmaceutical Product Development Spain SL	Spain
Pharmaceutical Product Development, LLC	Delaware
Pharmaco Investments, Inc.	Delaware
PharmaFluidics NV	Belgium
Pitonex, Inc.	North Carolina
picoSpin, LLC	Colorado
Pierce Biotechnology, Inc.	Delaware
Pierce Milwaukee Holding Corp.	Delaware
Pierce Milwaukee, Inc.	Delaware
Power Sweden Holdings I AB	Sweden
Power Sweden Holdings II AB	Sweden
PPD (Netherlands) B.V.	Netherlands
PPD (Netherlands) LLC	Delaware
PPD Aeronautics Corporation	Delaware
PPD Aeronautics, LLC	North Carolina
PPD Argentina S.A.	Argentina
PPD Australia Pty Limited	Australia
PPD Bulgaria EOOD	Bulgaria
PPD Canada	Canada
PPD Colombia S.A.S	Colombia
PPD CT Investments LLP	England
PPD Czech Republic S.R.O.	Czech Republic
PPD Development (HK) Limited	Hong Kong
PPD Development (S) Pte. Ltd.	Singapore
PPD Development (Thailand) Co., Ltd.	Thailand
PPD Development Ireland Limited	Ireland
PPD Development, L.P.	Delaware
PPD do Brasil- Suporte a Pesquisa Clinica Ltd	Brazil

NAME	STATE OR JURISDICTION OF ORGANIZATION
PPD France SAS	France
PPD Germany GmbH	Germany
PPD Germany GmbH & Co. KG	Germany
PPD Global Central Labs (S) Pte. Ltd.	Singapore
PPD Global Central Labs BV	Belgium
PPD Global Central Labs, LLC	Kentucky
PPD Global Ltd.	England
PPD GP, LLC	Delaware
PPD Holdings, LLC	Delaware
PPD Hrvatska d.o.o.	Croatia
PPD Hungary Research and Development Ltd.	Hungary
PPD International Holdings (UK) Ltd	England
PPD International Holdings GmbH	Germany
PPD International Holdings, Inc. y Compania Limitada	Chile
PPD International Holdings, LLC	Delaware
PPD International Investments Limited	England
PPD Investigator Services, LLC	Delaware
PPD Italy S.r.l	Italy
PPD Laboratories (Suzhou) Co., Ltd.	China
PPD Latvia SIA	Latvia
PPD Mexico S.A. de C.V.	Mexico
PPD Netherlands International LLC	Delaware
PPD Peru S.A.C.	Peru
PPD Pharmaceutical Development (Beijing) Co., Ltd.	China
PPD Pharmaceutical Development India Private Limited	India
PPD Pharmaceutical Development Japan K.K.	Japan
PPD Pharmaceutical Development Philippines Corp.	Philippines
PPD Pharmaceutical Development Vietnam Company Limited	Vietnam
PPD Poland Sp.Z o.o.	Poland
PPD Romania SRL	Romania
PPD Scandinavia AB	Sweden
PPD Serbia D.O.O. Beograd	Serbia

NAME	STATE OR JURISDICTION OF ORGANIZATION
PPD Services, Inc.	North Carolina
PPD Slovak Republic s.r.o.	Slovak Republic
PPD Switzerland GmbH	Switzerland
PPD UK Holdings Limited	England
PPD Vaccines and Biologics, LLC	Pennsylvania
PPD, Inc.	Delaware
PPD-SNBL K.K.	Japan
Pregistry Holdings Limited	England
Pregistry, LLC	Delaware
Princeton Gamma-Tech Instruments LLC	Delaware
Prionics France SAS	France
Prionics Lelystad B.V.	Netherlands
Prionics USA Inc.	Delaware
Priority Air Express Pte. Ltd.	Singapore
Priority Air Express UK Limited	England
Priority Air Express, LLC	Delaware
Priority Air Holdings Corp	Delaware
Proxeon Biosystems ApS	Denmark
Quebec B.V.	Netherlands
Quebec Court B.V.	Netherlands
Remel Europe Limited	England
Remel Inc.	Wisconsin
REP GBP I-B Blocker, Inc.	Delaware
River Ventures, LLC	North Carolina
Robbins Scientific LLC	California
Robocon Labor- und Industrieroboter Gesellschaft m.b.H	Austria
S.C.I. du 10 rue Dugay Trouin	France
Samco Scientific (Monterrey) LLC	Delaware
Samco Scientific LLC	Delaware
Saroph Sweden AB	Sweden
Schantz Road LLC	Pennsylvania
SCI Inno 92	France

NAME	STATE OR JURISDICTION OF ORGANIZATION
Seradyn Inc.	Delaware
Shanghai Life Technologies Biotechnology Co. Limited	China
Shanghai Thermo Fisher (C-I) Trading Co. Ltd	China
Shanghai Thermo Fisher (S) Trading Co. Ltd	China
Shorecloud Corporation	Philippines
Southern Trials (Pty) Ltd.	South Africa
Specialty (SMI) Inc.	California
Spectra-Physics AB	Sweden
Spectra-Physics Holdings Limited	England
Spectra-Physics Holdings USA, LLC	Delaware
Staten Island Cogeneration Corporation	New York
STC Bio Manufacturing, Inc.	Illinois
Sterilin Limited	England
Stokes Bio Ltd.	Ireland
SwissAnalytic Group GmbH	Switzerland
Synexus Bulgaria EOOD	Bulgaria
Synexus Clinical Research Acquisitions Limited	England
Synexus Clinical Research GmbH	Germany
Synexus Clinical Research Limited	England
Synexus Clinical Research Mideco No1 Limited	England
Synexus Clinical Research South Africa (Pty) Limited	South Africa
Synexus Clinical Research Topco Limited	England
Synexus Clinical Research US, Inc.	Arizona
Synexus Compass, Inc. (fmr. Synarc Inc.)	Delaware
Synexus Czech s.r.o.	Czech Republic
Synexus Limited	England
Synexus Magyarorszg Egszsggyi Szolgltat Korlolt Felelssg Trsasg	Hungary
Synexus Polska Sp. Z o.o.	Poland
Synexus Ukraine Limited Liability Company	Ukraine
SystemLink, Inc.	Virginia
Systems Manufacturing Corporation	Delaware
TBS Howard Hill LLC	Vermont

NAME	STATE OR JURISDICTION OF ORGANIZATION
Technology Design Solutions Pty Ltd	Australia
TFLP LLC	Delaware
TFS (Barbados) I Srl	Barbados
TFS Brammer Holding Corporation	Delaware
TFS Breda B.V.	Netherlands
TFS FEI Holding LLC	Delaware
TFS Group Holding I LLC	Delaware
TFS Group Holding II LLC	Delaware
TFS Group Holdings III LLC	Delaware
TFS Group Holdings IV LLC	Delaware
TFS Life Holding LLC	Delaware
TFS LLC	Massachusetts
TFS Singapore HK Limited	Hong Kong
TFS Venture Holdings I LLC	Delaware
TFS Venture Holdings III S.C.S.	Luxembourg
The Binding Site Benelux BV	Belgium
The Binding Site Brasil Comercio De Produtos Para Laboratorio Ltda.	Brazil
The Binding Site Corporation Limited	England
The Binding Site Denmark ApS	Denmark
The Binding Site France SAS	France
The Binding Site GmbH	Germany
The Binding Site Group (Shanghai) Trading Co., Ltd.	China
The Binding Site Group Limited	England
The Binding Site Group Limited	Jordan
The Binding Site Holding GmbH	Germany
The Binding Site Holding Inc.	Delaware
The Binding Site Ireland Limited	Ireland
The Binding Site KK	Japan
The Binding Site Limited	New Zealand
The Binding Site Portugal, Specialist Protein Company, Unip Lda	Portugal
The Binding Site Pte Ltd.	Singapore
The Binding Site Pty Limited	Australia

NAME	STATE OR JURISDICTION OF ORGANIZATION
The Binding Site S. de R.L. de C.V.	Mexico
The Binding Site S.r.l.	Italy
The Binding Site s.r.o.	Czech Republic
The Binding Site Spain (Specialist Protein Company) S.L.	Spain
The Binding Site VT, Inc.	Vermont
The Binding Site, Inc.	California
The Compass Clinic, LLC	Florida
The Nettleton Gate Limited	England
The Thermo Fisher Scientific Phambili Trust	South Africa
Thermedics Detection de Argentina S.R.L	Argentina
Thermo Asset Management Services Inc.	Delaware
Thermo BioAnalysis Limited	England
Thermo BioAnalysis LLC	Delaware
Thermo BioSciences Holdings LLC	Delaware
Thermo Cambridge Limited	England
Thermo Cayman Holdings Ltd.	Cayman Islands
Thermo CIDTEC Inc.	New York
Thermo CN Luxembourg LLC	Delaware
Thermo Corporation	Delaware
Thermo CRS Holdings Ltd.	Canada
Thermo CRS Ltd.	Canada
Thermo Detection de Mexico S. de R.L. de C.V.	Mexico
Thermo DMA Inc.	Texas
Thermo Eberline Holdings I LLC	Delaware
Thermo Eberline Holdings II LLC	Delaware
Thermo Eberline LLC	Delaware
Thermo EGS Gauging LLC	Delaware
Thermo Electron (Calgary) Limited	Canada
Thermo Electron (Chile) S.p.A.	Chile
Thermo Electron (Karlsruhe) GmbH	Germany
Thermo Electron (Management Services) Limited	England
Thermo Electron (Proprietary) Limited	South Africa

NAME	STATE OR JURISDICTION OF ORGANIZATION
Thermo Electron A/S	Denmark
Thermo Electron Australia Pty Limited	Australia
Thermo Electron Export Inc.	Barbados
Thermo Electron Holdings SAS	France
Thermo Electron Industries	France
Thermo Electron LED GmbH	Germany
Thermo Electron LED S.A.S.	France
Thermo Electron Limited	England
Thermo Electron Manufacturing Limited	England
Thermo Electron Metallurgical Services, Inc.	Texas
Thermo Electron North America LLC	Delaware
Thermo Electron Pension Trust GmbH	Germany
Thermo Electron Puerto Rico, Inc.	Puerto Rico
Thermo Electron SAS	France
Thermo Electron Scientific Instruments LLC	Delaware
Thermo Electron Sweden AB	Sweden
Thermo Electron Sweden Forvaltning AB	Sweden
Thermo Electron Weighing & Inspection Limited	England
Thermo Environmental Instruments LLC	California
Thermo Finland Holdings MT1 B.V.	Netherlands
Thermo Finland Holdings MT2 B.V.	Netherlands
Thermo Finnigan LLC	Delaware
Thermo Fisher (Cayman) Holdings I Ltd.	Cayman Islands
Thermo Fisher (Cayman) Holdings II Ltd.	Cayman Islands
Thermo Fisher (China) Analytical Ltd.	China
Thermo Fisher (CN) Luxembourg Holding S.a.r.l. [Domesticated in the State of Delaware under the name of Thermo Fisher (CN) Luxembourg Holding S.a.r.l. LLC]	Luxembourg
Thermo Fisher (CN) Luxembourg S.a.r.l.	Luxembourg
Thermo Fisher (CN) Malta Holdings Limited	Malta
Thermo Fisher (CN-I) Luxembourg LLC	Delaware
Thermo Fisher (CN-II) Luxembourg LLC	Delaware
Thermo Fisher (FEI) Ireland Ltd	Ireland
Thermo Fisher (Gibraltar) II Limited	Gibraltar

NAME	STATE OR JURISDICTION OF ORGANIZATION
Thermo Fisher (Gibraltar) Limited	Gibraltar
Thermo Fisher (Heysham) Limited	England
Thermo Fisher (Kandel) GmbH	Germany
Thermo Fisher Biopharma Services (Hangzhou) Ltd.	China
Thermo Fisher Biopharma Services Pte. Ltd.	Singapore
Thermo Fisher Bioprocessing Research and Development (Shanghai) Co., Ltd.	China
Thermo Fisher China Business Trust	China
Thermo Fisher CHK Holding LLC	Delaware
Thermo Fisher Clinical Switzerland Holding LLC	Delaware
Thermo Fisher CM II LLC	Delaware
Thermo Fisher Detection Mexico LLC	Delaware
Thermo Fisher Diagnostics (Ireland) Limited	Ireland
Thermo Fisher Diagnostics AB	Sweden
Thermo Fisher Diagnostics AG	Switzerland
Thermo Fisher Diagnostics Aps	Denmark
Thermo Fisher Diagnostics AS	Norway
Thermo Fisher Diagnostics Austria GmbH	Austria
Thermo Fisher Diagnostics B.V.	Netherlands
Thermo Fisher Diagnostics CZ s.r.o.	Czech Republic
Thermo Fisher Diagnostics GmbH	Germany
Thermo Fisher Diagnostics K.K.	Japan
Thermo Fisher Diagnostics Limited	England
Thermo Fisher Diagnostics NV	Belgium
Thermo Fisher Diagnostics Oy	Finland
Thermo Fisher Diagnostics S.p.A.	Italy
Thermo Fisher Diagnostics SAS	France
Thermo Fisher Diagnostics sp. z o.o	Poland
Thermo Fisher Diagnostics, S.L.U.	Spain
Thermo Fisher Diagnostics, Sociedade Unipessoal Lda	Portugal
Thermo Fisher Electronic Technology Research and Development (Shanghai) Co., Ltd	China
Thermo Fisher Eurobonds Ltd.	Cayman Islands
Thermo Fisher Financial Services B.V.	Netherlands

NAME	STATE OR JURISDICTION OF ORGANIZATION
Thermo Fisher Financial Services Inc.	Delaware
Thermo Fisher German Holdings LLC	Delaware
Thermo Fisher Germany B.V.	Netherlands
Thermo Fisher GP LLC	Delaware
Thermo Fisher India Holding B.V.	Netherlands
Thermo Fisher Insurance Holdings Inc.	Delaware
Thermo Fisher Insurance Holdings LLC	Delaware
Thermo Fisher Investments (Cayman) LLC	Delaware
Thermo Fisher Investments (Cayman) Ltd.	Cayman Islands
Thermo Fisher Israel Ltd.	Israel
Thermo Fisher Project Cyprus LLC	Delaware
Thermo Fisher RE I Corporation	Delaware
Thermo Fisher RE II Corporation	Delaware
Thermo Fisher Scientific (Asheville) LLC	Delaware
Thermo Fisher Scientific (Breda) Holding BV	Netherlands
Thermo Fisher Scientific (Bremen) GmbH	Germany
Thermo Fisher Scientific (Cayman) LLC	Delaware
Thermo Fisher Scientific (CH EQ) LLC	Delaware
Thermo Fisher Scientific (CH) 1 LLC	Delaware
Thermo Fisher Scientific (CH) 2 LLC	Delaware
Thermo Fisher Scientific (China) Co., Ltd.	China
Thermo Fisher Scientific (China) Holding Limited	England
Thermo Fisher Scientific (China-HK) Holding Limited	Hong Kong
Thermo Fisher Scientific (CP1) Limited	England
Thermo Fisher Scientific (CP2) Limited	England
Thermo Fisher Scientific (DE) Holding S.a.r.l.	Luxembourg
Thermo Fisher Scientific (DPI) Limited Partnership	Canada
Thermo Fisher Scientific (Ecublens) SARL	Switzerland
Thermo Fisher Scientific (FCS) Holding LLC	Delaware
Thermo Fisher Scientific (Finance I) B.V.	Netherlands
Thermo Fisher Scientific (Finance I) S.a.r.l.	Luxembourg
Thermo Fisher Scientific (Finance II) S.a.r.l.	Luxembourg

NAME	STATE OR JURISDICTION OF ORGANIZATION
Thermo Fisher Scientific (Finance III) LLC	Delaware
Thermo Fisher Scientific (Finance III) S.a.r.l.	Luxembourg
Thermo Fisher Scientific (Fuji) LLC	Delaware
Thermo Fisher Scientific (Guangzhou) Biotechnology Co., Ltd.	China
Thermo Fisher Scientific (Guangzhou) Co., Ltd	China
Thermo Fisher Scientific (Holding II) B.V. & Co. KG	Germany
Thermo Fisher Scientific (Hong Kong) Limited	Hong Kong
Thermo Fisher Scientific (IVGN) B.V.	Netherlands
Thermo Fisher Scientific (IVGN) Holding LLC	Delaware
Thermo Fisher Scientific (IVGN) Limited	Hong Kong
Thermo Fisher Scientific (IVGN) Luxembourg S.a.r.l.	Luxembourg
Thermo Fisher Scientific (Johannesburg) (Proprietary) Limited	South Africa
Thermo Fisher Scientific (Luxembourg) II Holdings S.a.r.l.	Luxembourg
Thermo Fisher Scientific (Luxembourg) II S.a.r.l.	Luxembourg
Thermo Fisher Scientific (Mexico City) LLC	Delaware
Thermo Fisher Scientific (Milwaukee) LLC	Delaware
Thermo Fisher Scientific (Mississauga) Inc.	Canada
Thermo Fisher Scientific (Monterrey), S. De R.L. De C.V.	Mexico
Thermo Fisher Scientific (NK) LLC	Delaware
Thermo Fisher Scientific (OLI) 1 Limited	England
Thermo Fisher Scientific (OLI) 2 Limited	England
Thermo Fisher Scientific (OLI) 3 Limited	England
Thermo Fisher Scientific (OLI) 3 LLC	Delaware
Thermo Fisher Scientific (OLI) Limited	England
Thermo Fisher Scientific (OLI) LLC	Delaware
Thermo Fisher Scientific (OLI) LP	Canada
Thermo Fisher Scientific (OLI) UK Limited	England
Thermo Fisher Scientific (Panama) B.V.	Netherlands
Thermo Fisher Scientific (Panama) Dutch LLC	Delaware
Thermo Fisher Scientific (Panama) II B.V.	Netherlands
Thermo Fisher Scientific (PN) UK Limited Partnership	England
Thermo Fisher Scientific (PN) UK LLC	Delaware

NAME	STATE OR JURISDICTION OF ORGANIZATION
Thermo Fisher Scientific (PN1) UK Ltd	England
Thermo Fisher Scientific (PN-I) SRL	Barbados
Thermo Fisher Scientific (PN-II) SRL	Barbados
Thermo Fisher Scientific (PN-III) SRL	Barbados
Thermo Fisher Scientific (Praha) s.r.o.	Czech Republic
Thermo Fisher Scientific (Real Estate 1) GmbH & Co. KG	Germany
Thermo Fisher Scientific (Real Estate 1) S.a.r.l.	Luxembourg
Thermo Fisher Scientific (Schweiz) AG	Switzerland
Thermo Fisher Scientific (Shanghai) Instruments Co., Ltd.	China
Thermo Fisher Scientific (Shanghai) Management Co., Ltd.	China
Thermo Fisher Scientific (Shanghai) Supply Chain Management Co., Ltd	China
Thermo Fisher Scientific (Suzhou) Instruments Co., Ltd	China
Thermo Fisher Scientific (Suzhou) Research and Development Co., Ltd.	China
Thermo Fisher Scientific (Thailand) Co., Ltd.	Thailand
Thermo Fisher Scientific Africa Proprietary Ltd	South Africa
Thermo Fisher Scientific AL-1 LLC	Delaware
Thermo Fisher Scientific Aquasensors LLC	Delaware
Thermo Fisher Scientific Asset Management 1 GmbH	Germany
Thermo Fisher Scientific Asset Management 2 GmbH	Germany
Thermo Fisher Scientific AU C.V.	Netherlands
Thermo Fisher Scientific AU II Limited	England
Thermo Fisher Scientific AU Limited	England
Thermo Fisher Scientific AU LLC	Delaware
Thermo Fisher Scientific Australia Pty Ltd	Australia
Thermo Fisher Scientific B.V.	Netherlands
Thermo Fisher Scientific Baltics UAB	Lithuania
Thermo Fisher Scientific Beteiligungsverwaltungs GmbH	Germany
Thermo Fisher Scientific BHK (I) Limited	Hong Kong
Thermo Fisher Scientific BHK (II) Limited	Hong Kong
Thermo Fisher Scientific Biosciences Corp.	Canada
Thermo Fisher Scientific Blade I Limited	England
Thermo Fisher Scientific Blade II Limited	England

NAME	STATE OR JURISDICTION OF ORGANIZATION
Thermo Fisher Scientific Blade III Limited	England
Thermo Fisher Scientific Blade IV Limited	England
Thermo Fisher Scientific Blade V Limited	England
Thermo Fisher Scientific Blade VI Limited	England
Thermo Fisher Scientific Blade VII Limited	England
Thermo Fisher Scientific BLG Limited	England
Thermo Fisher Scientific Brahms LLC	Delaware
Thermo Fisher Scientific Brasil Instrumentos de Processo Ltda.	Brazil
Thermo Fisher Scientific Brasil Serviços de Logística Ltda	Brazil
Thermo Fisher Scientific Brno s.r.o.	Czech Republic
Thermo Fisher Scientific Brussels BV	Belgium
Thermo Fisher Scientific BV	Belgium
Thermo Fisher Scientific C.F. GmbH	Germany
Thermo Fisher Scientific C.V.	Netherlands
Thermo Fisher Scientific Canada Financing 1 ULC	Canada
Thermo Fisher Scientific Canada Financing 2 ULC	Canada
Thermo Fisher Scientific Canada Holdings LLC	Delaware
Thermo Fisher Scientific Cayman Investments LLC	Delaware
Thermo Fisher Scientific Chemicals Inc.	Delaware
Thermo Fisher Scientific China (C-I) LLC	Delaware
Thermo Fisher Scientific China (S) LLC	Delaware
Thermo Fisher Scientific China Holdings I B.V.	Netherlands
Thermo Fisher Scientific China Holdings II B.V.	Netherlands
Thermo Fisher Scientific China Holdings III B.V.	Netherlands
Thermo Fisher Scientific China Holdings IV B.V.	Netherlands
Thermo Fisher Scientific CHK Senior Holdings LLC	Delaware
Thermo Fisher Scientific CHN Holding Limited	England
Thermo Fisher Scientific Chromatography Holdings Aps	Denmark
Thermo Fisher Scientific Chromatography Holdings S.à r.l.	Luxembourg
Thermo Fisher Scientific Clinical Services Ireland Limited	Ireland
Thermo Fisher Scientific CMN LLC	Delaware
Thermo Fisher Scientific CN Holding LLC	Delaware

NAME	STATE OR JURISDICTION OF ORGANIZATION
Thermo Fisher Scientific Colombia S.A.S.	Colombia
Thermo Fisher Scientific Cork Ltd	Ireland
Thermo Fisher Scientific Cyprus I Ltd	Cayman Islands
Thermo Fisher Scientific Cyprus II Ltd	Cayman Islands
Thermo Fisher Scientific Cyprus III Ltd	Cayman Islands
Thermo Fisher Scientific Denmark Senior Holdings ApS	Denmark
Thermo Fisher Scientific Dutch Holdings B.V.	Netherlands
Thermo Fisher Scientific Dutch Holdings II B.V.	Netherlands
Thermo Fisher Scientific Dutch Senior Holdings B.V.	Netherlands
Thermo Fisher Scientific eCommerce Solutions, LLC	Delaware
Thermo Fisher Scientific EMEA Limited	Ireland
Thermo Fisher Scientific Erie 1 Financing (Barbados) SRL	Barbados
Thermo Fisher Scientific Erie Financing (Barbados) SRL	Barbados
Thermo Fisher Scientific Erie Financing S.a r.l	Luxembourg
Thermo Fisher Scientific Falcon Senior Holdings Inc.	Delaware
Thermo Fisher Scientific FCS Limited	England
Thermo Fisher Scientific FCS Switzerland Holdings GmbH	Switzerland
Thermo Fisher Scientific Flagship I LLC	Delaware
Thermo Fisher Scientific Flagship II LLC	Delaware
Thermo Fisher Scientific FLC B.V.	Netherlands
Thermo Fisher Scientific FLC Hong Kong Limited	Hong Kong
Thermo Fisher Scientific FLC II B.V. [Domesticated in the State of Delaware under the name of Thermo Fisher Scientific FLC II B.V.]	Netherlands
Thermo Fisher Scientific FLC LLC	Delaware
Thermo Fisher Scientific FSIR Financing (Barbados) SRL	Barbados
Thermo Fisher Scientific FSIR Financing S.a.r.l.	Luxembourg
Thermo Fisher Scientific FSIR Holdings (UK) Financing Limited	England
Thermo Fisher Scientific FSUKHCO Financing (Barbados) SRL	Barbados
Thermo Fisher Scientific GCL Limited	England
Thermo Fisher Scientific GCL LLC	Delaware
Thermo Fisher Scientific GCL2 Limited	Delaware
Thermo Fisher Scientific GENEART GmbH	Germany
Thermo Fisher Scientific Germany BV & Co. KG	Germany

NAME	STATE OR JURISDICTION OF ORGANIZATION
Thermo Fisher Scientific GmbH	Germany
Thermo Fisher Scientific Holdings (Cayman) I	Cayman Islands
Thermo Fisher Scientific Holdings (Cayman) II	Cayman Islands
Thermo Fisher Scientific Holdings Europe Limited	England
Thermo Fisher Scientific HR Services Mexico, S. de R.L. de C.V.	Mexico
Thermo Fisher Scientific India Holding LLC	Delaware
Thermo Fisher Scientific India Pvt Ltd	India
Thermo Fisher Scientific Investments (Luxembourg) II S.a.r.l.	Luxembourg
Thermo Fisher Scientific Investments (Luxembourg) S.a.r.l.	Luxembourg
Thermo Fisher Scientific Investments (Sweden) II LLC	Delaware
Thermo Fisher Scientific Investments (Sweden) S.a.r.l.	Luxembourg
Thermo Fisher Scientific Invitrogen Financing (Barbados) SRL	Barbados
Thermo Fisher Scientific Invitrogen Holding 2 LLC	Delaware
Thermo Fisher Scientific IT Services GmbH	Germany
Thermo Fisher Scientific Japan 1 LLC	Delaware
Thermo Fisher Scientific Japan 2 LLC	Delaware
Thermo Fisher Scientific Japan Holdings I B.V.	Netherlands
Thermo Fisher Scientific Japan Holdings I LLC	Delaware
Thermo Fisher Scientific Japan Holdings I LP	Delaware
Thermo Fisher Scientific Japan Holdings II B.V.	Netherlands
Thermo Fisher Scientific Japan Holdings II LLC	Delaware
Thermo Fisher Scientific Japan Holdings II LP	Delaware
Thermo Fisher Scientific Japan Holdings III B.V.	Netherlands
Thermo Fisher Scientific Japan Holdings III LLC	Delaware
Thermo Fisher Scientific Japan Holdings IV LLC	Delaware
Thermo Fisher Scientific Japan Holdings V LLC	Delaware
Thermo Fisher Scientific K.K.	Japan
Thermo Fisher Scientific Korea Ltd.	Korea
Thermo Fisher Scientific Life Canada Holding ULC	Canada
Thermo Fisher Scientific Life Financing (Barbados) SRL	Barbados
Thermo Fisher Scientific Life Financing (Cayman)	Cayman Islands
Thermo Fisher Scientific Life Financing 2 Limited	England

NAME	STATE OR JURISDICTION OF ORGANIZATION
Thermo Fisher Scientific Life Financing Limited	England
Thermo Fisher Scientific Life Holding MRP LLC	Delaware
Thermo Fisher Scientific Life Holdings 1 Limited	England
Thermo Fisher Scientific Life Holdings 2 Limited	England
Thermo Fisher Scientific Life Holdings III C.V. LLC	Delaware
Thermo Fisher Scientific Life Holdings Limited	England
Thermo Fisher Scientific Life International Holdings II LP	England
Thermo Fisher Scientific Life Investments II S.à r.l.	Luxembourg
Thermo Fisher Scientific Life Investments IV S.a.r.l	Luxembourg
Thermo Fisher Scientific Life Investments US Financing I LLC	Delaware
Thermo Fisher Scientific Life Investments US Financing II LLC	Delaware
Thermo Fisher Scientific Life Sciences COE Corporation	Delaware
Thermo Fisher Scientific Life Senior Holdings MRP LLC	Delaware
Thermo Fisher Scientific Life Senior Holdings, Inc.	Delaware
Thermo Fisher Scientific Life Tech Korea Holdings LLC	Delaware
Thermo Fisher Scientific Life Technologies Enterprise Holding Limited	England
Thermo Fisher Scientific Life Technologies Investment I LLC	Delaware
Thermo Fisher Scientific Life Technologies Investment II LLC	Delaware
Thermo Fisher Scientific Life Technologies Investment UK I Limited	England
Thermo Fisher Scientific Life Technologies Investment UK II Limited	England
Thermo Fisher Scientific Life Technologies Israel Investment I Limited	England
Thermo Fisher Scientific Life Technologies Israel Investment II Limited	England
Thermo Fisher Scientific Life Technologies Luxembourg Holding LLC	Delaware
Thermo Fisher Scientific Life UK Holdings 2 LP	England
Thermo Fisher Scientific Life UK Holdings LP	England
Thermo Fisher Scientific LSI Financing (Barbados) SRL	Barbados
Thermo Fisher Scientific Luxembourg Enterprise Holdings S.à r.l.	Luxembourg
Thermo Fisher Scientific Luxembourg German Holdings S.a.r.l.	Luxembourg
Thermo Fisher Scientific Luxembourg Life Technologies UK Holding S.à r.l	Luxembourg
Thermo Fisher Scientific Luxembourg Sweden Holdings I S.à r.l	Luxembourg
Thermo Fisher Scientific Luxembourg Sweden Holdings II S.à r.l.	Luxembourg
Thermo Fisher Scientific Luxembourg Venture Holdings I S.a.r.l.	Luxembourg

NAME	STATE OR JURISDICTION OF ORGANIZATION
Thermo Fisher Scientific Luxembourg Venture Holdings II S.a.r.l.	Luxembourg
Thermo Fisher Scientific Malaysia Sdn. Bhd.	Malaysia
Thermo Fisher Scientific Matrix Holding Limited	England
Thermo Fisher Scientific Messtechnik GmbH	Germany
Thermo Fisher Scientific Middle East Holdings Inc.	Delaware
Thermo Fisher Scientific Milano Srl	Italy
Thermo Fisher Scientific MRP 1 LLC	Delaware
Thermo Fisher Scientific New Zealand Holdings	New Zealand
Thermo Fisher Scientific New Zealand Limited	New Zealand
Thermo Fisher Scientific NHK Limited	Hong Kong
Thermo Fisher Scientific Norway Holdings AS	Norway
Thermo Fisher Scientific Norway Senior Holding AS	Norway
Thermo Fisher Scientific Norway US Investments LLC	Delaware
Thermo Fisher Scientific Odyssey Financing (Barbados) SRL	Barbados
Thermo Fisher Scientific Odyssey Holding LLC	Delaware
Thermo Fisher Scientific Odyssey Holdings Limited	England
Thermo Fisher Scientific One Limited	England
Thermo Fisher Scientific Operating Company LLC	Delaware
Thermo Fisher Scientific Oy	Finland
Thermo Fisher Scientific Pakistan (Private) Limited	Pakistan
Thermo Fisher Scientific Panama I Cayman Ltd	Cayman Islands
Thermo Fisher Scientific Peprotech Holding LLC	Delaware
Thermo Fisher Scientific Peru S.R.L.	Peru
Thermo Fisher Scientific PN LLC	Delaware
Thermo Fisher Scientific PN2 (Luxembourg) S.à.r.l	Luxembourg
Thermo Fisher Scientific PN2 C.V	Netherlands
Thermo Fisher Scientific PN2 LLC	Delaware
Thermo Fisher Scientific PNM Limited Liability Partnership	England
Thermo Fisher Scientific PNM S.a.r.l	Luxembourg
Thermo Fisher Scientific Powder Finance LLC	Delaware
Thermo Fisher Scientific Powder Financing 2 LLC	Delaware
Thermo Fisher Scientific Powder Holdings 4 LLC	Delaware

NAME	STATE OR JURISDICTION OF ORGANIZATION
Thermo Fisher Scientific Powder Holdings I	Cayman Islands
Thermo Fisher Scientific Powder Holdings II	Cayman Islands
Thermo Fisher Scientific Powder Holdings III	Cayman Islands
Thermo Fisher Scientific Powder Holdings IV	Cayman Islands
Thermo Fisher Scientific Powder LLC	Delaware
Thermo Fisher Scientific Powder SRL	Barbados
Thermo Fisher Scientific Powder UK Holdings Limited	England
Thermo Fisher Scientific Powder UK Senior Holdings Limited	England
Thermo Fisher Scientific Powder US Holdings Corp.	Delaware
Thermo Fisher Scientific Powder US Holdings Limited	England
Thermo Fisher Scientific PPD (OLI) LLC	Delaware
Thermo Fisher Scientific PRB S.a.r.l.	Luxembourg
Thermo Fisher Scientific PSG Corporation	Delaware
Thermo Fisher Scientific Pte. Ltd.	Singapore
Thermo Fisher Scientific Re Ltd.	Bermuda
Thermo Fisher Scientific Remel Luxembourg S.a.r.l.	Luxembourg
Thermo Fisher Scientific Senior Financing LLC	Delaware
Thermo Fisher Scientific Senior Holdings Australia LLC	Delaware
Thermo Fisher Scientific Senior Holdings LP	Canada
Thermo Fisher Scientific Singapore Holdings LLC	Delaware
Thermo Fisher Scientific SL	Spain
Thermo Fisher Scientific Solutions LLC	Korea
Thermo Fisher Scientific South Africa Proprietary Ltd	South Africa
Thermo Fisher Scientific SpA	Italy
Thermo Fisher Scientific Spectra S.a.r.l.	Luxembourg
Thermo Fisher Scientific Spectra-Physics Holdings Luxembourg I S.à r.l.	Luxembourg
Thermo Fisher Scientific Spectra-Physics Holdings Luxembourg II S.à r.l.	Luxembourg
Thermo Fisher Scientific Sweden 2 LLC	Delaware
Thermo Fisher Scientific Sweden Holdings LLC	Delaware
Thermo Fisher Scientific Sweden Holdings S.a.r.l	Luxembourg
Thermo Fisher Scientific Switzerland B.V.	Netherlands
Thermo Fisher Scientific Taiwan Co., Ltd.	Taiwan

NAME	STATE OR JURISDICTION OF ORGANIZATION
Thermo Fisher Scientific TDI 2 S.a.r.l.	Luxembourg
Thermo Fisher Scientific TDI S.a.r.l	Luxembourg
Thermo Fisher Scientific TR Limited	Hong Kong
Thermo Fisher Scientific TX LLC	Texas
Thermo Fisher Scientific UK Holding Company Financing Limited	England
Thermo Fisher Scientific US 1 LLC	Delaware
Thermo Fisher Scientific Vector Holdings 2 LLC	Delaware
Thermo Fisher Scientific Vector Holdings LLC	Delaware
Thermo Fisher Scientific Vector Holdings UAB	Lithuania
Thermo Fisher Scientific Vector Senior Holdings I UAB	Lithuania
Thermo Fisher Scientific Vector Senior Holdings II UAB	Lithuania
Thermo Fisher Scientific West Palm Holdings LLC	Delaware
Thermo Fisher Scientific Wissenschaftliche Geräte GmbH	Austria
Thermo Fisher Scientific Worldwide Investments (Cayman)	Cayman Islands
Thermo Fisher Scientific Worldwide Investments (Luxembourg) S.a.r.l.	Luxembourg
Thermo Fisher Scientific Worldwide Investments LLC	Delaware
Thermo Fisher Senior Canada Holdings LLC	Delaware
Thermo Fisher TDI Holding LLC	Delaware
Thermo FLC LP	Delaware
Thermo Foundation, Inc.	Massachusetts
Thermo Gamma-Metrics Holdings Pty Ltd.	Australia
Thermo Gamma-Metrics LLC	Delaware
Thermo Gamma-Metrics Pty Ltd	Australia
Thermo Holding European Operations LLC	Delaware
Thermo Hypersil-Keystone LLC	Delaware
Thermo Instrument Controls de Mexico, S.A. de C.V.	Mexico
Thermo Kevex X-Ray LLC	Delaware
Thermo Keytek LLC	Delaware
Thermo LabSystems Inc.	Massachusetts
Thermo Life Science International Trading (Tianjin) Co., Ltd.	China
Thermo Life Sciences AB	Sweden
Thermo Luxembourg Holding S.a.r.l. [Domesticated in the State of Delaware under the name of Thermo Luxembourg Holding LLC]	Luxembourg

NAME	STATE OR JURISDICTION OF ORGANIZATION
Thermo Luxembourg S.a.r.l.	Luxembourg
Thermo Luxembourg U.S. S.a.r.l.	Luxembourg
Thermo Measuretech Canada Inc.	Canada
Thermo MF Physics LLC	Delaware
Thermo Neslab LLC	New Hampshire
Thermo Onix Limited	England
Thermo Optek Limited	England
Thermo Orion Inc.	Massachusetts
Thermo Patheon Holdings LLC	Delaware
Thermo Portable Holdings LLC	Delaware
Thermo Power Corporation	Massachusetts
Thermo Process Instruments GP, LLC	Delaware
Thermo Process Instruments, L.P.	Texas
Thermo Projects Limited	England
Thermo Ramsey Italia S.r.l.	Italy
Thermo Ramsey LLC	Massachusetts
Thermo Ramsey S.A.	Spain
Thermo Re, Ltd.	Bermuda
Thermo Scientific Microbiology Pte Ltd.	Singapore
Thermo Scientific Microbiology Sdn Bhd	Malaysia
Thermo Scientific Portable Analytical Instruments Inc.	Delaware
Thermo Scientific Services, Inc.	California
Thermo Securities Corporation	Delaware
Thermo Sentron Canada Inc.	Canada
Thermo Services (Hungary) Kft	Hungary
Thermo Suomi Holding B.V.	Netherlands
Thermo TLH (UK) Limited	England
Thermo TLH L.P.	Delaware
Thermo TLH Luxembourg S.a.r.l.	Luxembourg
Thermo Trace Pty Ltd.	Australia
Thermo USC I LLC	Delaware
Thermo USC II LLC	Delaware

NAME	STATE OR JURISDICTION OF ORGANIZATION
Thermo-Fisher Biochemical Product (Beijing) Co., Ltd.	China
ThermoLase LLC	Delaware
TK Partnership (aka Silent Partnership)	Japan
TMOI Inc.	Delaware
TPI Real Estate Holdings LLC	Delaware
Trek Diagnostic Systems LLC	Delaware
Trek Diagnostic Systems Ltd.	England
Trek Holding Company II Ltd.	England
Trek Holding Company Ltd.	England
Trex Medical Corporation	Delaware
TSP Holdings I LLC	Delaware
TWX, LLC	Massachusetts
United Diagnostics, Inc.	Delaware
USB Corporation	Ohio
Vestrum Health Inc.	Canada
Vestrum Health, LLC	Delaware
VG Systems Limited	England
Westover Scientific, Inc.	Washington
Wildcat Acquisition Holdings (UK) Limited	England

Subsidiary Issuer of Guaranteed Securities

Thermo Fisher Scientific Inc. (the “Registrant”) is the guarantor of the senior secured registered notes listed below issued by Thermo Fisher Scientific (Finance I) B.V., a wholly-owned finance subsidiary of the Registrant.

Thermo Fisher Scientific (Finance I) B.V.

0.800% Senior Notes due 2030
1.125% Senior Notes due 2033
1.625% Senior Notes due 2041
2.000% Senior Notes due 2051
0.000% Senior Notes due 2025

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-3 (No. 333-263034) and Form S-8 (Nos. 033-51189, 033-54347, 333-188846, 333-220231, 333-261548, 333-272173, and 333-275438) of Thermo Fisher Scientific Inc. of our report dated February 22, 2024 relating to the financial statements and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP

Boston, Massachusetts
February 22, 2024

THERMO FISHER SCIENTIFIC INC.

**CERTIFICATION REQUIRED BY EXCHANGE ACT RULES 13a-14(a) and 15d-14(a),
AS ADOPTED PURSUANT TO
SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Marc N. Casper, certify that:

1. I have reviewed this Annual Report on Form 10-K of Thermo Fisher Scientific Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 22, 2024

/s/ Marc N. Casper

Marc N. Casper
Chairman, President and Chief Executive Officer

THERMO FISHER SCIENTIFIC INC.

**CERTIFICATION REQUIRED BY EXCHANGE ACT RULES 13a-14(a) and 15d-14(a),
AS ADOPTED PURSUANT TO
SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Stephen Williamson, certify that:

1. I have reviewed this Annual Report on Form 10-K of Thermo Fisher Scientific Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 22, 2024

/s/ Stephen Williamson

Stephen Williamson
Senior Vice President and Chief Financial Officer

THERMO FISHER SCIENTIFIC INC.

**CERTIFICATION REQUIRED BY EXCHANGE ACT RULES 13a-14(b) and 15d-14(b),
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report on Form 10-K of Thermo Fisher Scientific Inc. (the "Company") for the period ended December 31, 2023 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, Marc N. Casper, Chairman, President and Chief Executive Officer of the Company, hereby certifies, pursuant to Securities Exchange Act of 1934 Rules 13a-14(b) and 15d-14(b), that:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: February 22, 2024

/s/ Marc N. Casper

Marc N. Casper
Chairman, President and Chief Executive Officer

A signed original of this written statement required by Section 906, or other document authenticating, acknowledging, or otherwise adopting the signature that appears in typed form within the electronic version of this written statement required by Section 906, has been provided to Thermo Fisher Scientific Inc. and will be retained by Thermo Fisher Scientific Inc. and furnished to the Securities and Exchange Commission or its staff upon request.

THERMO FISHER SCIENTIFIC INC.

**CERTIFICATION REQUIRED BY EXCHANGE ACT RULES 13a-14(b) and 15d-14(b),
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report on Form 10-K of Thermo Fisher Scientific Inc. (the "Company") for the period ended December 31, 2023 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, Stephen Williamson, Senior Vice President and Chief Financial Officer of the Company, hereby certifies, pursuant to Securities Exchange Act of 1934 Rules 13a-14(b) and 15d-14(b), that:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: February 22, 2024

/s/ Stephen Williamson

Stephen Williamson
Senior Vice President and Chief Financial Officer

A signed original of this written statement required by Section 906, or other document authenticating, acknowledging, or otherwise adopting the signature that appears in typed form within the electronic version of this written statement required by Section 906, has been provided to Thermo Fisher Scientific Inc. and will be retained by Thermo Fisher Scientific Inc. and furnished to the Securities and Exchange Commission or its staff upon request.

Policies & Procedures

EFFECTIVE DATE: October 2, 2023

Title: CLAWBACK POLICY	Supersedes: February 25, 2019	Total Pages: 3
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POLICY

This Clawback Policy (this "Policy"), relates to the Company's right to recover compensation previously paid to specified employees in certain circumstances, including the recovery of Erroneously Awarded Compensation (as defined below) in accordance with Section 303A.14 of the New York Stock Exchange ("NYSE") Listed Company Manual ("Section 303A.14"), which implements Rule 10D-1 under the Securities Exchange Act of 1934, as amended (the "Exchange Act") (collectively, the "Applicable Rules"). This Policy is effective as of October 2, 2023 (the "Effective Date").

This Policy is applicable to current or former Executive Officers (as defined in 16a-1(f) under the Exchange Act), and such other employees of the Company as may be determined from time to time by the Compensation Committee of the Board of Directors (the "Committee").

In the event the Company is required, on or after the Effective Date, to prepare an Accounting Restatement, the Company will use reasonable efforts to recover reasonably promptly from each Covered Person, any Erroneously Awarded Compensation that was Received by such Covered Person from the Company during the three completed fiscal years immediately preceding the date on which the Company is required to prepare an Accounting Restatement (or such other period as may be required by Applicable Rules in the event of a change in the Company's fiscal year).

This Policy does not apply to Incentive-Based Compensation that was Received before the Effective Date. With respect to any Covered Person, this Policy does not apply to Incentive-Based Compensation that was Received by such Covered Person before beginning service as an Executive Officer.

INTERPRETATION AND ADMINISTRATION

This Policy will be interpreted in a manner that is consistent with the Applicable Rules and any other applicable law and this Policy will otherwise be interpreted in the business judgment of the Committee. All decisions and interpretations of the Committee will be final and binding; provided that such decisions must be consistent with the Applicable Rules.

The Company is not required to recover Erroneously Awarded Compensation under this Policy if a determination is made by the Committee that either (A) after the Company has made and documented a reasonable attempt to recover such Erroneously Awarded Compensation, the direct expense paid to a third party to assist in enforcing this Policy would exceed the amount to be recovered or (B) recovery of such Erroneously Awarded Compensation would likely cause an otherwise tax-qualified retirement plan, under which benefits are broadly available to employees of the Company, to fail to meet the requirements of Section 401(a) (13) or 411(a) of the Internal Revenue Code and regulations thereunder.

The Company will not indemnify any Covered Person against the loss of Erroneously Awarded Compensation and will not pay or reimburse any Covered Person for the purchase of a third-party insurance policy to fund potential recovery obligations.

The Committee will determine the appropriate means of any recovery of Erroneously Awarded Compensation under this Policy, which may vary between Covered Persons or based on the nature of the applicable Incentive-Based Compensation. Such recovery may involve, establishing a deferred repayment plan, setting off against current or future compensation otherwise payable to the Covered Person, or other appropriate means.

The Company may have other rights or remedies available to the Company under any agreement with a Covered Person (such as an equity award agreement) or applicable law, and nothing in this Policy will limit the Company's right to pursue these rights or remedies.

DEFINITIONS

"Accounting Restatement" means a requirement that the Company prepare an accounting restatement due to the material noncompliance of the Company with any financial reporting requirement under the U.S. federal securities laws, including any required accounting restatement to correct an error in previously issued financial statements that is material to the previously issued financial statements, or that would result in a material misstatement if the error were corrected in the current period or left uncorrected in the current period. Changes to the Company's financial statements that do not represent error corrections are not an Accounting Restatement, including: (A) retrospective application of a change in accounting principle; (B) retrospective revision to reportable segment information due to a change in the structure of the Company's internal organization; (C) retrospective reclassification due to a discontinued operation; (D) retrospective application of a change in reporting entity, such as from a reorganization of entities under common control; and (E) retrospective revision for stock splits, reverse stock splits, stock dividends or other changes in capital structure.

"Covered Person" means a person who served as an Executive Officer (and any other employee of the Company as may be determined from time to time by the Committee as subject to this Policy) at any time during the performance period for the applicable Incentive-Based Compensation.

"Erroneously Awarded Compensation" means the amount of Incentive-Based Compensation that was Received that exceeds the amount of Incentive-Based Compensation that otherwise would have been Received had the amount of Incentive-Based Compensation been determined based on the restated amounts, computed without regard to any taxes paid by the Covered Person or by the Company on the Covered Person's behalf. For Incentive-Based Compensation based on stock price or total shareholder return ("TSR"), where the amount of Erroneously Awarded Compensation is not subject to mathematical recalculation directly from the information in an Accounting Restatement, the amount of Erroneously Awarded Compensation will be based on a reasonable estimate by the Committee of the effect of the Accounting Restatement on the stock price or TSR upon which the Incentive-Based Compensation was Received.

"Incentive-Based Compensation" means any compensation that is granted, earned, or vested based wholly or in part upon the attainment of (A) measures that are determined and presented in accordance with the accounting principles used in preparing the Company's financial statements, and any measures that are derived wholly or in part from such measures (whether or not such measures are presented within the Company's financial statements or included in a filing made with the U.S. Securities and Exchange Commission), (B) stock price and (C) TSR.

Incentive-Based Compensation is deemed to be “**Received**” in the Company’s fiscal period during which the financial reporting measure specified in the applicable Incentive-Based Compensation award is attained, even if the payment or grant of the Incentive-Based Compensation occurs after the end of that period or is subject to additional time-based vesting requirements.