

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

**FORM 10-K
ANNUAL REPORT
PURSUANT TO SECTIONS 13 OR 15(d)
OF THE SECURITIES EXCHANGE ACT OF 1934**

(MARK ONE)

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

For the fiscal year ended December 31, 2020

OR

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

Commission file number 001-06462

TERADYNE, INC.

(Exact Name of Registrant as Specified in Its Charter)

MASSACHUSETTS
(State or Other Jurisdiction of
Incorporation or Organization)

04-2272148
(I.R.S. Employer
Identification Number)

600 RIVERPARK DRIVE
NORTH READING, MASSACHUSETTS
(Address of Principal Executive Offices)

01864
(Zip Code)

Registrant's telephone number, including area code: (978) 370-2700

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, par value \$0.125 per share	TER	Nasdaq Stock Market LLC

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

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

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

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File to be submitted pursuant to Rule 405 of Regulation S-T (232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

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

Large accelerated filer Accelerated filer Non-accelerated filer Smaller reporting company
Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

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. Yes No

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

The aggregate market value of the voting stock held by non-affiliates of the registrant as of June 26, 2020 was approximately \$10.6 billion based upon the closing price of the registrant's Common Stock on the Nasdaq Stock Market on that date.

The number of shares outstanding of the registrant's only class of Common Stock as of February 16, 2021 was 166,694,772 shares.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's proxy statement in connection with its 2021 annual meeting of shareholders are incorporated by reference into Part III of this Form 10-K.

TERADYNE, INC.

INDEX

	<u>Page No.</u>
PART I.	
Item 1. Business	1
Item 1A. Risk Factors	13
Item 1B. Unresolved Staff Comments	25
Item 2. Properties	25
Item 3. Legal Proceedings	25
Item 4. Mine Safety Disclosure	25
PART II.	
Item 5. Market for Registrant’s Common Equity, Related Shareholder Matters and Issuer Purchases of Equity Securities	26
Item 6. Selected Financial Data	26
Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operation ..	26
Item 7A. Quantitative and Qualitative Disclosures about Market Risk	44
Item 8. Financial Statements and Supplementary Data	46
Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure	108
Item 9A. Controls and Procedures	108
Item 9B. Other Information	109
PART III.	
Item 10. Directors, Executive Officers and Corporate Governance	110
Item 11. Executive Compensation	110
Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters	110
Item 13. Certain Relationships and Related Transactions, and Director Independence	110
Item 14. Principal Accountant Fees and Services	110
PART IV.	
Item 15. Exhibits and Financial Statement Schedule	111
Item 16. Form 10-K Summary	112
Signatures	118

TERADYNE, INC.

FORM 10-K

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act and Section 21E of the Securities Exchange Act. When used herein, the words “will,” “would,” “believe,” “anticipate,” “plan,” “expect,” “estimate,” “project,” “intend,” “may,” “see,” “target” and other words and terms of similar meaning are intended to identify forward-looking statements although not all forward looking statements contain these identifying words. Forward-looking statements involve risks and uncertainties, including, but not limited to, those discussed in the section entitled “Risk Factors” of this annual report on Form 10-K and elsewhere, and in other reports we file with the Securities and Exchange Commission. Readers are cautioned not to place undue reliance on these forward-looking statements which reflect management’s analysis only as of the date hereof and are subject to risks and uncertainties that could cause actual results to differ materially from those stated or implied. Teradyne assumes no obligation to update these forward-looking statements for any reason, except as may be required by law.

PART I

Item 1: *Business*

Teradyne, Inc. (“Teradyne”) was founded in 1960 and is a leading global supplier of automation equipment for test and industrial applications.

We design, develop, manufacture and sell automatic test systems used to test semiconductors, wireless products, data storage and complex electronics systems in many industries including consumer electronics, wireless, automotive, industrial, computing, communications, and aerospace and defense industries. Our industrial automation products include collaborative robotic arms, autonomous mobile robots and advanced robotic control software used by global manufacturing, logistics and light industrial customers to improve quality, increase manufacturing and material handling efficiency and decrease manufacturing and logistics costs. Our automatic test equipment and industrial automation products and services include:

- semiconductor test (“Semiconductor Test”) systems;
- storage and system level test (“Storage Test”) systems, defense/aerospace (“Defense/Aerospace”) test instrumentation and systems, and circuit-board test and inspection (“Production Board Test”) systems (collectively these products represent “System Test”);
- wireless test (“Wireless Test”) systems; and
- industrial automation (“Industrial Automation”) products.

The market for our test products is concentrated with a limited number of significant customers accounting for a substantial portion of the purchases of test equipment. A few customers drive significant demand for our products both through direct sales and sales to the customer’s supply partners. We expect that sales of our test products will continue to be concentrated with a limited number of significant customers for the foreseeable future.

We have grown our Industrial Automation business through acquisitions, including Mobile Industrial Robots A/S (“MiR”), a leading maker of collaborative autonomous mobile robots (“AMRs”) for industrial applications, in 2018 and AutoGuide, LLC (“AutoGuide”), a maker of high payload AMRs, in 2019. The market for our Industrial Automation products is dependent on the adoption of new automation technologies by large

manufacturers as well as small and medium enterprises (SMEs) throughout the world. In 2020, our Industrial Automation businesses were negatively impacted by the global industrial downturn as well as the COVID-19 pandemic.

In 2020, revenue in our test businesses exceeded our plan as a result of Semiconductor Test demand by our largest customer, early 5G test investments and strength in our System Test businesses. The revenue of our Industrial Automation business was below our plan. In 2021, we expect strong momentum in our test businesses and a return to growth for Industrial Automation.

Our strategy is to focus on profitably growing market share in our test businesses through the introduction of differentiated products that target growth segments and accelerating growth through continued investment in our Industrial Automation businesses. We plan to execute on our strategy while balancing capital allocations between returning capital to our shareholders through dividends and stock repurchases and using capital for opportunistic acquisitions.

Investor Information

We are a Massachusetts corporation incorporated on September 23, 1960. We are subject to the informational requirements of the Securities Exchange Act of 1934 (“Exchange Act”). We file periodic reports, proxy statements and other information with the Securities and Exchange Commission (“SEC”). The SEC maintains an internet site (<http://www.sec.gov>) that contains reports, proxy and information statements and other information regarding issuers that file documents electronically.

You can access financial and other information, including the charters of our Audit Committee, Compensation Committee and Nominating and Corporate Governance Committee, our Corporate Governance Guidelines and Code of Conduct, by clicking the Investors link on our web site at www.teradyne.com. We make available, free of charge, copies of our filings with the SEC, including our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act through our web site as soon as reasonably practicable after filing such material electronically or otherwise furnishing it to the SEC.

Products

Semiconductor Test

We design, manufacture, sell and support Semiconductor Test products and services on a worldwide basis. The test systems we provide are used both for wafer level and device package testing. These chips are used in automotive, industrial, communications, consumer, smartphones, and computer and electronic game applications, among others. Semiconductor devices span a broad range of functionality, from very simple low-cost devices such as appliance microcontrollers, operational amplifiers or voltage regulators to complex digital signal processors and microprocessors as well as memory devices. Semiconductor Test products and services are sold to integrated device manufacturers (“IDMs”) that integrate the fabrication of silicon wafers into their business, “Fabless” companies that outsource the manufacturing of silicon wafers, “Foundries” that cater to the processing and manufacturing of silicon wafers, and semiconductor assembly and test providers (“OSATs”) that provide test and assembly services for the final packaged devices to both Fabless companies and IDMs. Fabless companies perform the design of integrated circuits without manufacturing capabilities, and use Foundries for wafer manufacturing and OSATs for test and assembly. These customers obtain the overall benefit of comprehensively testing devices and reducing the total costs associated with testing by using our Semiconductor Test systems to:

- improve and control product quality;
- measure and improve product performance;
- reduce time to market; and
- increase production yields.

Our FLEX Test Platform architecture advances our core technologies to produce test equipment that is designed for high efficiency multi-site testing. Multi-site testing involves the simultaneous testing of many devices in parallel. Leading semiconductor manufacturers are using multi-site testing to significantly improve their “Cost of Test” economics. The FLEX Test Platform architecture addresses customer requirements through the following key capabilities:

- A high efficiency multi-site architecture that reduces tester overhead such as instrument setup, synchronization and data movement, and signal processing;
- The IG-XL™ software operating system which provides fast program development, including instant conversion from single to multi-site test; and
- Broad technology coverage by instruments designed to cover the range of test parameters, coupled with a universal slot test head design that allows easy test system reconfiguration to address changing test needs.

FLEX Test Platform purchases are made by IDMs, OSATs, Foundries and Fabless customers. The FLEX Test Platform has become a widely used test solution at OSATs by providing versatile testers that can handle the widest range of devices, allowing OSATs to leverage their capital investments. The broad consumer, automotive and broadband markets have historically driven most of the device volume growth in the semiconductor industry. These markets include smartphones, cell phones, tablets, set top boxes, HDTVs, game controllers, computer graphics, and automotive controllers to name a few. These end use markets continue to be drivers for the FLEX Test Platform family of products because they require a wide range of technologies and instrument coverage. In 2019, we introduced our next generation UltraFlex^{Plus} tester, the newest member of the UltraFlex family, UltraFlex^{Plus} uses the new PACE™ architecture to deliver superior economics and fast time to market for complex digital devices. The FLEX Test Platform has an installed base of more than 8,000 systems.

Our J750™ test system shares the IG-XL software environment with the family of FLEX Test Platform systems. The J750 is designed to address the highest volume semiconductor devices, such as microcontrollers, that are central to the functionality of almost every consumer electronics product, from small appliances to automobiles. J750 test systems combine compact packaging, high throughput and ease of production test. We extended the J750 platform technology to create the IP750 Image Sensor™ test system. The IP750 is focused on testing image sensor devices used in smartphones and other imaging products. We have continued to invest in the J750 platform with new instrument releases that bring new capabilities to existing market segments and expand the J750 platform to new devices that include high end microcontrollers and the latest generation of cameras. The J750 platform has an installed base of over 5,900 systems.

Our Magnum platform addresses the requirements of mass production test of memory devices for flash and DRAM memory. Flash and DRAM memory are widely used core building blocks in modern electronic products finding wide application in consumer, industrial, and computing equipment. Magnum V, the newest member of the family, is a next generation memory test solution designed for parallel memory test in the flash, DRAM and multi-chip package markets. In 2019, we introduced a high-speed DRAM test version of our Magnum platform called Magnum EPIC giving us full product coverage of the memory test market. The Magnum platform has an installed base of over 3,200 systems.

Our ETS platform is used by semiconductor manufacturers and assembly and test subcontractors, primarily in the analog/mixed signal markets that cover more cost sensitive applications. Our proprietary SmartPin™ technology enables high efficiency multi-site testing, on an individual test system, permitting greater test throughput. Semiconductors tested by ETS platform systems are incorporated into a wide range of products in historically high-growth markets, including mobile devices, video/multimedia products, automotive electronics, computer peripherals, and notebook and desktop computers. The newest products from the platform include the ETS-88, a high performance multi-site production test system designed to test a wide variety of high volume commodity and precision devices, and the ETS-800, a high performance multi-site production test system to test

high complexity power devices in automotive, industrial and consumer applications. The ETS platform has an installed base of over 5,600 systems.

Lemsys SA, which we acquired in January 2019, has added a high power discrete device tester to our portfolio of semiconductor testers. Lemsys's testers address the emerging segment for high power discrete devices used in electric vehicles, wind and solar power generation and other high power industrial applications.

System Test

Our System Test segment is comprised of three business units: Storage Test, Defense/Aerospace, and Production Board Test.

Storage Test

The Storage Test business unit addresses the high throughput, automated manufacturing test requirements of hard disk drive ("HDD") and solid state disk ("SSD") manufacturers and semiconductor manufacturers. Our products address the client and enterprise storage markets. The client market is driven by the needs of desktop, laptop, and external HDD and SSD storage products. The enterprise market is driven by the needs of data centers and cloud storage. In 2017, we developed a system level test product for the semiconductor production market, called Titan. Titan is used to test devices following wafer and package test. The business unit's products lead in addressing customer requirements related to factory density, throughput and thermal performance.

Defense/Aerospace

We are a leading provider of high performance test systems, subsystems, instruments and service for the defense and aerospace markets. Our test products are used to ensure the readiness of military and commercial aerospace electronics systems. New programs, such as tactical aircraft and missile systems, as well as upgrade programs, continue to fuel the demand for high performance test systems in this market. Our test products are well-suited to the demands of defense/aerospace electronics manufacturers and repair depots worldwide. Our leadership in this market is underscored by our success with major Department of Defense programs across all U.S. military service branches and many allied defense services worldwide.

Production Board Test

Our test systems are used by electronics manufacturers worldwide to perform In-Circuit-Test ("ICT") and device programming of printed circuit board assemblies. Fast, accurate and cost-effective test capabilities are hallmark features of our Test Station and Spectrum ICT product families. We offer the Test Station in off-line and automated in-line configurations. The automated in-line configurations address the growing requirements for automating production lines for high volume applications, such as automotive electronics.

Wireless Test

Our Wireless Test business operates under the LitePoint brand name and provides test solutions utilized in the development and manufacturing of wireless devices and modules. The world's leading makers of smartphones, tablets, notebooks, laptops, peripherals, and Internet-of-Things ("IoT") devices rely on LitePoint technology to ensure their products get into consumer hands with high quality and high efficiency.

LitePoint hardware and software wireless test solutions are used in test insertions that span design verification to high volume manufacturing and are deployed across the entire production eco-system from the wireless chipset suppliers to the consumer brands. Wireless devices are often tested at multiple points along the manufacturing process that include insertions at component, system-in-package ("SiP"), module, PCB, SMT and finished product stages.

Design verification is an important step in the development process for evaluating product performance prior to starting production. As end market unit volumes have increased, the quantity of units and the amount of data that must be analyzed for a successful product launch continues to grow. LitePoint products provide easy to use, domain specific tools for rapid analysis of product performance. This helps to speed time to market.

In high volume manufacturing, wireless test enables the calibration of each individual product's wireless performance to improve range, data throughput and battery life. Testing also verifies product specifications for product quality control. As markets become increasingly competitive, product performance and quality provide brand differentiation.

Wireless standards can be thought of in three categories, connectivity, cellular and location. Connectivity covers many standards such as Wi-Fi, Bluetooth, and GPS. LitePoint's IQxel products cover emerging Wi-Fi standards such as WiFi 6E which makes use of the newly allocated 6-7GHz spectrum. Connectivity also includes a variety of other standards such as Bluetooth Classic, Bluetooth 5.0 and Bluetooth low energy, Zigbee, Z-Wave, NFC, LoRa and others.

The IQxel product family's high-performance wireless and multi-device testing economics is aligned with the needs of networking equipment, Internet gateways, IoT products and embedded modules used in smartphones, tablets, and PCs. Another connectivity product, the IQnfc, addresses the growing use of NFC technology for payments with mobile devices.

Cellular standards include 2G, 3G, 4G and the new 5G mobile phone technologies. LitePoint's IQxstream is a multi-device production test optimized solution for high-speed testing of GSM, EDGE, CDMA2000, TD-SCDMA, WCDMA, HSPA+, LTE-FDD, TD-LTE, and LTE-A, and 5G technologies. It is used for calibration and verification of smartphones, tablets, small cell wireless gateways and embedded cellular modules. The IQcell, is a multi-device cellular signaling test solution which enables user experience testing of LTE cellular devices via over-the-air connections. The IQgig family provides test solutions at the intermediate and millimeter wave frequencies for 5G and 802.11ad.

Location technologies have traditionally been satellite-based wireless signals such as GPS and GLONASS, which are tested on LitePoint's connectivity and cellular equipment. A new technology called Ultra-WideBand is being adopted in IoT, automotive and mobile phones. Ultra-WideBand provides finer location capability and is tested on LitePoint's IQgig-UWB equipment.

To complement the test systems, LitePoint offers turnkey test software for over 350 of the most popular wireless chipsets. These optimized solutions provide rapid development of high volume manufacturing solutions with a minimum of engineering effort by customers.

Industrial Automation

Our Industrial Automation segment is comprised of three business units: Universal Robots, Mobile Industrial Robots and AutoGuide.

Universal Robots

Universal Robots is a leading supplier of collaborative robots, which are low-cost, easy-to-deploy and simple-to-program robots that work side by side with production workers to improve quality, increase manufacturing efficiency and decrease manufacturing costs. Collaborative robots are designed to mimic the motion of a human arm and can be fitted with task specific grippers or end effectors to support a wide range of applications. Universal Robots offers a variety of collaborative robot models, including the UR3, UR5 and UR10,

each with different weight carrying capacity and arm reach. All models are easily integrated into existing production environments. Universal Robots' products are differentiated by their:

- easy programming using a graphical interface which allows users to program the collaborative robot in a few hours;
- flexibility and ease of use in allowing customers to change the task the collaborative robot is performing as their production demands dictate;
- safe operations as collaborative robots can assist workers in side by side production environments requiring no special safety enclosures or shielding to protect workers; and
- short payback period, on average less than 12 months.

In 2018, Universal Robots introduced its e-Series collaborative robots which include technology advances that enable faster development of applications, greater precision and improved safety. Universal Robots offers four e-Series collaborative robot models UR3e, UR5e, UR10e and UR16e that was launched in September 2019. In 2020, Universal Robots introduced ActiNav, an autonomous bin picking kit for machine tending applications.

Cumulatively, Universal Robots has sold over 51,000 collaborative robots in diverse production environments and applications.

Mobile Industrial Robots

MiR is a leading supplier of AMRs, which are low-cost, easy-to-deploy and simple-to-program mobile robots that increase manufacturing and warehouse efficiency and decrease costs. Collaborative autonomous mobile robots are designed to move material from point to point via autonomous navigation rather than the need for traditional mobile robot guidance infrastructure such as painted or magnetic strips, and are designed to navigate safely around obstacles and people. MiR offers five collaborative autonomous mobile robot models, the MiR100, MiR200, MiR500, MiR1000 and MiR250 (launched in March 2020) each with different payload carrying capacity. All models are easily integrated into existing production environments. MiR's products are differentiated by their:

- easy programming using a graphical interface which allows users to program the collaborative robot in a few hours;
- ease of use, speed of deployment and flexibility in allowing customers to change the task as their demands dictate;
- reliable autonomous navigation over large manufacturing and warehouse areas; and
- short payback period, on average 12–18 months.

Cumulatively, MiR has sold over 5,000 collaborative autonomous mobile robots in diverse production and warehouse environments and applications.

AutoGuide

AutoGuide is a maker of high payload AMRs, an emerging and fast growing segment of the global forklift market. AutoGuide's AMRs are used for material transport of payloads up to 4,500 kg in manufacturing, warehouse and logistics applications. These products complement MiR's lower payload products.

Cumulatively, AutoGuide has sold over 160 autonomous mobile robots in diverse production and warehouse environments and applications.

Sales and Distribution

In 2020, revenues from Taiwan Semiconductor Manufacturing Company Ltd., a customer of our Semiconductor Test segment, accounted for 15% of our consolidated revenues. In 2019 and 2018, no single direct customer accounted for more than 10% of our consolidated revenues. In each of the years, 2020, 2019 and 2018, our five largest direct customers in aggregate accounted for 36%, 27% and 27% of our consolidated revenues, respectively.

OSAT customers, such as Taiwan Semiconductor Manufacturing Company Ltd., often purchase our test systems based upon recommendations from OEMs, IDMs and Fabless companies. In all cases when an OSAT customer purchases a test system from us, we consider the OSAT as the customer since credit risk, title and risk of loss, among other things, are between Teradyne and the OSAT. We estimate consolidated revenues driven by one OEM customer, combining direct sales to that customer with sales to the customer's OSATs (which include Taiwan Semiconductor Manufacturing Company Ltd.), accounted for approximately 25%, 10% and 13% of our consolidated revenues in 2020, 2019 and 2018, respectively. We estimate consolidated revenues driven by Huawei Technologies Co. Ltd. ("Huawei"), combining direct sales to that customer with sales to the customer's OSATs, accounted for approximately 3%, 11% and 4% of our consolidated revenues in 2020, 2019 and 2018, respectively. The loss of, or significant decrease in demand from this OEM customer or Huawei, or any of our five largest direct customers, could have a material adverse effect on our business, results of operations and financial condition.

We have sales and service offices located throughout North America, Central America, Asia and Europe. We sell in these areas predominantly through a direct sales force, except for Industrial Automation products, which are sold through distributors. Our manufacturing activities are primarily conducted through subcontractors and outsourced contract manufacturers with significant operations in China and Malaysia.

Sales to customers outside the United States were 90%, 85%, and 87%, respectively, of our consolidated revenues in 2020, 2019 and 2018. Sales are attributed to geographic areas based on the location of the customer site.

See also "Item 1A: Risk Factors" and Note T: "Operating Segment, Geographic and Significant Customer Information" in Notes to Consolidated Financial Statements.

Competition

We face significant competition throughout the world in each of our reportable segments. Competitors in the Semiconductor Test segment include, among others, Advantest Corporation and Cohu, Inc.

Competitors in the System Test segment include, among others, Keysight Technologies, Inc., Advantest Corporation, Test Research, Inc. and SPEA S.p.A.

Competitors in our Wireless Test segment include, among others, Rohde & Schwarz GmbH & Co. KG, Anritsu Company, Keysight Technologies, Inc. and National Instruments Corporation, Welzek and iTest.

Competitors in our Industrial Automation segment include manufacturers of traditional industrial robots such as KUKA Robotics Corporation, ABB, FANUC and Yaskawa Electric Corporation, companies with emerging collaborative robot offerings such as Techman, Doosan, and AUBO Robotics, and manufacturers of autonomous mobile robots such as Omron, Fetch, OTTO Motors, Vecna, Seegrid and Balyo.

Some of our competitors have substantially greater financial and other resources to pursue engineering, manufacturing, marketing, and distribution of their products. We also face competition from emerging Asian companies and from internal suppliers at several of our customers. Some of our competitors have introduced or

announced new products with certain performance characteristics which may be considered equal or superior to those we currently offer. We expect our competitors to continue to improve the performance of their current products and to introduce new products or new technologies that provide improved cost of ownership and performance characteristics. See also “Item 1A: Risk Factors.”

Backlog

At December 31, 2020 and 2019, our backlog of unfilled orders in our four reportable segments was as follows:

	<u>2020</u>	<u>2019</u>
	(in millions)	
Semiconductor Test	\$567.4	\$543.2
System Test	290.6	206.0
Wireless Test	41.6	42.9
Industrial Automation	30.0	17.9
	<u>\$929.6</u>	<u>\$810.0</u>

Customers may delay delivery of products or cancel orders suddenly and without advanced notice, subject to possible cancellation penalties. Due to possible customer changes in delivery schedules and cancellation of orders, our backlog at any particular date is not necessarily indicative of the actual sales for any succeeding period. Delays in delivery schedules or cancellations of backlog during any particular period could have a material adverse effect on our business, financial condition or results of operations.

Raw Materials

Our products contain electronic and mechanical components that are provided by a wide range of suppliers. Some of these components are standard products, while others are manufactured to our specifications. We can experience occasional delays in obtaining timely delivery of certain items. While the majority of our components are available from multiple suppliers, certain items are obtained from sole sources. We may experience a temporary adverse impact if any of our sole source suppliers delay or cease to deliver products.

Intellectual Property and Licenses

The development of our products, both hardware and software, is based in significant part on proprietary information, our brands and technology. We protect our rights in proprietary information, brands and technology through various methods, such as:

- patents;
- copyrights;
- trademarks;
- trade secrets;
- standards of business conduct and related business practices; and
- technology license agreements, software license agreements, non-disclosure agreements, employment agreements, and other agreements.

However, these protections might not be effective in all circumstances. Competitors might independently develop similar technology or exploit our proprietary information and our brands in countries where we lack enforceable intellectual property rights or where enforcement of such rights through the legal system provides an

insufficient deterrent. Also, intellectual property protections can lapse or be invalidated through appropriate legal processes. We do not believe that any single piece of intellectual property or proprietary rights is essential to our business.

Human Capital Resources

We believe that our future success depends upon our continued ability to attract, develop, and retain a high-performance workforce, comprised of people with shared values. As of December 31, 2020, we employed approximately 5,500 employees, of whom approximately 1,900 were employed in the United States and approximately 3,600 were employed outside of the United States. Our largest non-US employee populations are in the Philippines (17%), China (12%), Denmark (10%), Costa Rica (6%), and Taiwan (6%). We also leverage contractors to provide flexibility for our business and manufacturing needs. As of December 31, 2020, we worked with approximately 300 contractors globally. Since the inception of our business, we have experienced no work stoppages or other labor disturbances.

Corporate Culture

Our core values are conducting business with honesty and integrity, collaborating with our colleagues as a company without doors, and partnering with our customers every step of the way, because customers count on us.

We strive to foster a positive work environment that helps employees thrive. It is a priority for us to ensure that our people feel inspired, supported, safe and able to achieve their personal best. We are committed to equality through nondiscrimination, harassment prevention and pay equity policies. We value a diverse, inclusive and respectful work environment where all employees enjoy challenging assignments, development opportunities and a safe, positive culture.

We are committed to conducting business in a responsible manner, with strategic operational policies, procedures and values that support transparency, sustainability and legal compliance. We ensure ethical operations and business commitments through robust governance of the company's code of conduct and environmental, health and safety programs.

Competitive Pay and Benefits

The primary objective of our compensation program is to provide a compensation and benefits package that will continue to attract, retain, motivate and reward high performing employees who operate in a highly competitive and technologically challenging environment. We seek to achieve this objective by linking a significant portion of compensation to company and business unit performance. We enable employees to share in the success of the company through various programs including a stock purchase program, equity compensation, profit sharing and bonus plans. We seek competitiveness and fairness in total compensation with reference to peer comparisons and internal equity.

In addition to providing our employees with competitive compensation packages, we offer benefits designed to meet the needs of employees and their families, including paid time off, parental leave, bereavement leave, health insurance coverage, flexible work arrangements, contributions to retirement savings, and access to employee assistance and work-life programs.

Employee Development and Training

We believe that employee development and training is a key factor in attracting, motivating, improving and retaining a strong, competitive workforce. We provide continual development to our employees focused on developing their job skills and competencies. Examples include new manager competencies like giving feedback

and coaching, and training in software development tools and project management. Our employees also receive annual performance reviews. Employees and managers look back on the previous year, review career development plans and create goals for the next year.

We are committed to recruiting and developing talent at the collegiate level to help advance STEM education for the future generation. For example, our paid internships and entry-level positions offer real-world experience, and our co-op program offers higher education students a unique learning opportunity as students alternate one semester in a work assignment and one semester in the classroom. Additionally, we pay \$5,250 per year for educational courses related to an employee's work or as part of a degree program, including tuition, lab fees and books. We also offer a scholarship program for employees with college-age children and grandchildren.

Employee Engagement

We conduct regular employee surveys to check in with our global workforce and obtain input on a number of topics. The feedback we receive from these surveys helps us assess employee sentiment, identify areas of improvement and guides our decision-making as it relates to people management. In addition, CEO Mark Jagiela and other executives meet with employees on a frequent basis through exchange meetings and quarterly webcasts. The exchange meetings allow the executives to directly interact with a small group of employees, while the global webcasts enable all employees to engage with senior leaders and ask questions in an open Q&A session.

We also offer employees an opportunity to network and connect with colleagues who share similar interests. This includes groups such as New Employees to Teradyne, Woman's Affinity Group, Blue and Green (for team members that are committed to the environment), Runner's affinity group and LGBTQ+ advocates.

Diversity and Inclusion

We believe in fostering a diverse workforce and equitable and inclusive culture in order to build a stronger and more resilient company for our customers, our employees and our communities. To support this effort, we have a Diversity and Inclusion Charter which was developed by our Diversity, Equity and Inclusion executive sub-committee and designed to ensure that we build diversity across our workforce. We have established programs for recruiting and hiring candidates from various backgrounds and experiences. We have implemented policies regarding gender pay equity and have conducted audits in the United States which have not identified any pay equity issues in the employee populations tested. We are an equal opportunity/affirmative action employer committed to making employment decisions without regard to race, religion, ethnicity or national origin, gender, sexual orientation, gender identity or expression, age, disability, protected veteran status or any other characteristics protected by law.

We have a tradition of amplifying the charitable actions of our employees and responding to the needs of the communities where we work. In 2020, in order to show support for effecting positive change in society, we joined countless others to donate to organizations fighting for social justice and racial equality. We also sponsor the Massachusetts Conference for Women and the California Conference for Women offering opportunities for business networking, professional development and personal growth.

Health and Safety

The health and safety of our employees is our highest priority. We are committed to complying with all applicable regulatory health and safety requirements wherever we operate. We conduct internal audits, regular reviews and monitoring of regulations to ensure compliance with laws and regulations at the local, state, province and country levels. We ensure workers are provided with the knowledge to perform their jobs safely by deploying mandatory environmental, health and safety training. We also require contractors to complete safety training prior to working at any Teradyne site. We monitor, track and report common safety metrics such as

accidents, near misses and illness. Our injury and illness rate is below the industry average. We also provide our employees with a flexible and adjustable workspace, which includes reviewing ergonomics issues in the workplace, educating employees to self-identify risks and ensuring they have the work environment they need to do their jobs safely and effectively.

Throughout the COVID-19 pandemic, we have focused on ensuring the health and safety of our employees. At the onset of the pandemic, we made the decision to close our offices and implement work from home policies for most employees. During this time, we have also provided resources to enable employees to effectively manage remote work, such as web conferencing and project collaboration solutions and furniture and equipment for at-home offices. To protect those employees whose work requires them to be on-site, we've implemented cleaning processes, access to personal protection equipment and other protocols to ensure their safety. We have also supported our global workforce by sending regular all-employee communications, providing development opportunities for managers and employees to support effectively working virtually, establishing emergency response teams to empower local decision-making, conducting surveys to check in with employees, sharing regular video updates from our leadership team, and establishing a well-defined return to work process.

Regulatory Environment

We are subject to various federal, state, and local government laws and regulations relating to international trade, business conduct, the protection of employee health and safety and the environment.

We accrue for all known environmental liabilities when it becomes probable that we will incur cleanup costs and those costs can reasonably be estimated. Estimated environmental costs are not expected to materially affect the financial position or results of our operations in future periods. However, estimates of future costs are subject to change due to protracted cleanup periods and changing environmental remediation laws and regulations.

We are subject to U.S. laws and regulations that limit and restrict the export of some of our products and services and may restrict our transactions with certain customers, business partners and other persons. In certain circumstances, export control and economic sanctions regulations may prohibit the export of certain products, services, and technologies, and in other circumstances we may be required to obtain an export license before exporting the controlled item. For example, we must comply with current U.S. Department of Commerce export control regulations restricting transactions with certain customers in China. We must also comply with export restrictions and laws imposed by other countries affecting trade and investments. We maintain an export compliance program but there are risks that the compliance controls could be circumvented, exposing us to legal liabilities. Compliance with these laws has not significantly limited our sales but could significantly limit them in the future. Changes in, and responses to, U.S. trade policy could reduce the competitiveness of our products and cause our sales to drop, which could have a material adverse effect on our business, financial condition or results of operations.

INFORMATION ABOUT OUR EXECUTIVE OFFICERS

Pursuant to General Instruction G (3) of Form 10-K, the following table is included in Part I of this Annual Report on Form 10-K in lieu of being included in the Proxy Statement for the Annual Meeting of Shareholders. The table sets forth the names of all of our executive officers and certain other information relating to their positions held with Teradyne and other business experience. Our executive officers do not have a specific term of office but rather serve at the discretion of the Board of Directors.

<u>Executive Officer</u>	<u>Age</u>	<u>Position</u>	<u>Business Experience for The Past 5 Years</u>
Mark E. Jagiela	60	Chief Executive Officer and President	Chief Executive Officer since February 2014; President of Teradyne since January 2013; President of Semiconductor Test from 2003 to February 2016; Vice President of Teradyne from 2001 to 2013.
Sanjay Mehta	52	Vice President, Chief Financial Officer and Treasurer	Vice President, Chief Financial Officer and Treasurer of Teradyne since April 2019; Senior Vice President and General Manager of Compute and XR Products at Qualcomm Technologies, Inc. (“Qualcomm”) from June 2018 to March 2019; President of Qualcomm’s semiconductor segment (“QCT”) China from March 2016 to June 2018; Senior Vice President Business Operations of QCT at Qualcomm from November 2015 to March 2016; Chief Financial Officer and Senior Vice President, Sales Operations, of QCT at Qualcomm from October 2010 to November 2015.
Charles J. Gray	59	Vice President, General Counsel and Secretary	Vice President, General Counsel and Secretary of Teradyne since April 2009.
Bradford B. Robbins	62	President of Wireless Test	President of Wireless Test since August 2014; Chief Operating Officer of LitePoint Corporation from 2012 to 2014; Vice President of Teradyne since 2001.
Gregory S. Smith	57	President of Industrial Automation	President of Industrial Automation since October 2020; President of Semiconductor Test from February 2016 to September 2020; Vice President, SOC Business Group and Marketing Manager for Semiconductor Test Group from January 2014 to February 2016; Business Unit Manager, Complex SOC Business Unit from 2009 to January 2014.
Richard J Burns	58	President of Semiconductor Test	President of Semiconductor Test since October 2020; Vice President, Semiconductor Test Engineering from February 2016 to September 2020.
Walter G. Vahey	56	Executive Vice President, Business Development	Executive Vice President, Business Development since December 2017; President of System Test from July 2012 to December 2017; Vice President of Teradyne since 2008; General Manager of Storage Test from 2008 to December 2017; General Manager of Production Board Test from April 2013 to December 2017.

Item 1A: Risk Factors

The risks described below are not the only risks that we face. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial also may materially adversely affect our business, financial condition and/or operating results.

Risks Related to the COVID-19 Pandemic

The novel coronavirus (COVID-19) pandemic has impacted our business and could materially adversely affect our results of operations, financial condition, liquidity or cash flows.

The global pandemic of the novel strain of the coronavirus (COVID-19) has resulted in government authorities implementing numerous measures in an effort to contain the spread of the virus, such as travel bans and restrictions, limitations on gatherings or social distancing requirements, quarantines, shelter-in-place orders, and business limitations and shutdowns. These measures have impacted our day-to-day operations and disrupted our business, workforce and operations, as well as the operations of our customers, contract manufacturers and suppliers. The COVID-19 pandemic, and the numerous measures implemented by authorities in response, has adversely impacted our results of operations, including increasing costs company-wide and decreasing demand in our Industrial Automation businesses, but we cannot accurately estimate the full extent of the impact for our 2020 financial results or to our future financial results.

The COVID-19 pandemic has significantly increased economic uncertainty in our markets, resulting in a decrease in demand for our industrial automation products. The spread of COVID-19 has caused us to modify our business practices, including implementing social distancing protocols, suspending employee travel, requiring most employees to work remotely, canceling physical participation in meetings, events and conferences, and extensively and frequently disinfecting our workspaces, and we may take further actions as may be required by government authorities or that we determine are in the best interests of our employees, customers, contract manufacturers and suppliers.

We are continuing to monitor the rapidly evolving situation regarding the COVID-19 pandemic and the availability of vaccinations where we do business. However, we are unable to accurately predict the full impact of COVID-19, which will depend on future developments that are highly uncertain and cannot be predicted with accuracy, including, but not limited to, any new surges of the virus, the availability of vaccines, further government actions to contain the virus, and how quickly and to what extent normal economic and operating conditions can resume.

Risks Associated with Teradyne's Markets

Our business is impacted by global and industry-specific economic cycles, which are difficult to predict, and actions we have taken or may take to offset these cycles may not be sufficient.

Capital equipment providers in the electronics, semiconductor industries and industrial automation, such as Teradyne, have, in the past, been negatively impacted by both sudden slowdowns in the global economies and recurring cyclicalities within those industries. These cycles have resulted in periods of over-supply; a trend we believe will continue to occur. Our business and results of operations depend, in significant part, upon capital expenditures of manufacturers of semiconductors electronics and other industrial products, which in turn depend upon the current and anticipated market demand for those products. Disruption or deterioration in economic conditions may reduce customer purchases of our products, thereby reducing our revenues and earnings. In addition, such adverse changes in economic conditions, and resulting slowdowns in the market for our products, may, among other things, result in increased price competition for our products, increased risk of excess and obsolete inventories, increased risk in the collectability of our accounts receivable from our customers, potential reserves for doubtful accounts and write-offs of accounts receivable, increased risk of restructuring charges, and higher operating costs as a percentage of revenues, which, in each case and together, adversely affect our

operating results. We are unable to predict the likely duration, frequency and severity of disruptions in financial markets, credit availability, and adverse economic conditions throughout the world, and we cannot ensure that the level of revenues or new orders for a fiscal quarter will be sustained in subsequent quarters. We have taken actions to address the effects of general economic variability and recurring industry cyclicality, including implementing cost control and reduction measures. We cannot predict whether these measures will be sufficient to offset global or market-specific disruptions that might affect our test businesses and we may need to take additional or different measures in the future.

We are subject to intense competition.

We face significant competition throughout the world in each of our reportable segments. Some of our competitors have substantial financial and other resources to pursue engineering, manufacturing, marketing and distribution of their products. We also face competition from emerging Asian companies and internal development at several of our customers. Some of our competitors have introduced or announced new products with certain performance characteristics that may be considered equal or superior to those we currently offer. We expect our competitors to continue to improve the performance of their current products and to introduce new products or new technologies that provide improved cost of ownership and performance characteristics. New product introductions by competitors could cause a decline in revenues or loss of market acceptance of our products.

The market for our products is concentrated, and our business depends, in part, on obtaining orders from a few significant customers.

The market for our products is concentrated with a limited number of significant customers accounting for a substantial portion of the purchases of test equipment. In each of the years, 2020, 2019 and 2018, our five largest direct customers in aggregate accounted for 36%, 27% and 27% of consolidated revenues, respectively.

We estimate consolidated revenues driven by one OEM customer, combining direct sales to that customer with sales to the customer's OSATs (which include Taiwan Semiconductor Manufacturing Company Ltd.), accounted for approximately 25%, 10% and 13% of our consolidated revenues in 2020, 2019 and 2018, respectively. We estimate consolidated revenues driven by Huawei, combining direct sales to that customer with sales to the customer's OSATs accounted for approximately 3%, 11% and 4% of our consolidated revenues in 2020, 2019 and 2018, respectively. In any one reporting period, a single customer or several customers may contribute even a larger percentage of our consolidated revenues. In addition, our ability to increase sales will depend, in part, on our ability to obtain orders from current or new significant customers. The opportunities to obtain orders from these customers may be limited, which may impair our ability to grow revenues. We expect that sales of our products will continue to be concentrated with a limited number of significant customers for the foreseeable future. The loss of a significant customer or any reduction in orders by these customers, including reductions due to market or competitive conditions, would likely have a material adverse effect on our business, financial conditions or results of operations.

If we fail to develop new technologies to adapt to our customers' needs and if our customers fail to accept our new products, our revenues will be adversely affected.

We believe that our technological position depends primarily on the technical competence and creative ability of our engineers. In a rapidly evolving market, such as ours, the development or acquisition of new technologies, commercialization of those technologies into products and market acceptance and customer demand for those products are critical to our success. Successful product development or acquisition, introduction and acceptance depend upon a number of factors, including:

- new product selection;

- ability to meet customer requirements including with respect to safety and cyber security;
- development of competitive products by competitors;
- timely and efficient completion of product design;
- timely and efficient implementation of manufacturing and manufacturing processes;
- timely remediation of product performance issues, if any, identified during testing;
- assembly processes and product performance at customer locations;
- differentiation of our products from our competitors' products;
- management of customer expectations concerning product capabilities and product life cycles;
- transition of customers to new product platforms;
- compliance with product safety regulations;
- ability to protect products from cyber attacks when used by our customers;
- ability to attract and retain technical talent; and
- innovation that does not infringe on the intellectual property rights of third parties.

Risks Associated with Operating a Global Business

We are subject to risks of operating internationally.

A significant portion of our total revenues is derived from customers outside the United States. Our international sales and operations are subject to significant risks and difficulties, including:

- unexpected changes in legal and regulatory requirements affecting international markets;
- changes in tariffs and exchange rates;
- social, political and economic instability, acts of terrorism and international conflicts;
- disruption caused by health pandemics, such as the coronavirus;
- difficulties in protecting intellectual property;
- difficulties in accounts receivable collection;
- cultural differences in the conduct of business;
- difficulties in staffing and managing international operations;
- compliance with anti-corruption laws;
- compliance with data privacy regulations;
- compliance with customs and trade regulations; and
- compliance with international tax laws and regulations.

In addition, an increasing portion of our products and the products we purchase from our suppliers are sourced or manufactured in foreign locations, including China and Malaysia, and a large portion of the devices our products test are fabricated and tested by foundries and subcontractors in Taiwan, China, Korea and other parts of Asia. As a result, we are subject to a number of economic and other risks, particularly during times of political, health or financial instability in these regions. Disruption of manufacturing or supply sources in these

international locations could materially adversely impact our ability to fill customer orders and potentially result in lost business.

Risks Related to Teradyne's Finances

We may not fully realize the benefits of our acquisitions or strategic alliances.

In June 2015, we acquired Universal Robots, in 2018, we acquired Energid and MiR and, in 2019, we acquired Lemsys and AutoGuide. We may not be able to realize the benefit of acquiring or successfully growing these businesses. We may continue to acquire additional businesses, form strategic alliances, or create joint ventures with third parties that we believe will complement or augment our existing businesses. We may not be able to realize the expected synergies and cost savings from the integration with our existing operations of other businesses or technologies that we may acquire. In addition, the integration process for our acquisitions may be complex, costly and time consuming and include unanticipated issues, expenses, and liabilities. We may have difficulty in developing, manufacturing, and marketing the products of a newly acquired company in a manner that enhances the performance of our combined businesses or product lines and allows us to realize value from expected synergies. Following an acquisition, we may not achieve the revenue or net income levels that justify the acquisition. Acquisitions may also result in one-time charges (such as acquisition-related expenses, write-offs or restructuring charges) or in the future, impairment of goodwill or acquired intangible assets that adversely affect our operating results. Additionally, we may fund acquisitions of new businesses, strategic alliances, or joint ventures by utilizing our cash, incurring debt, issuing shares of our common stock, or by other means.

We may incur higher tax rates than we expect and may have exposure to additional international tax liabilities and costs.

We are subject to paying income taxes in the United States and various other countries where we operate. Our effective tax rate is dependent on where our earnings are generated and the tax regulations and the interpretation and judgment of administrative tax or revenue authorities in the United States and other countries. We have pursued a global tax strategy that could be adversely affected by the mix of earnings and tax rates in the countries where we operate, changes to tax laws, tax regulations or an adverse tax ruling by administrative authorities. We are also subject to tax audits in the countries where we operate. Any material change in our tax liability resulting from changes in tax laws, tax regulations, administrative ruling or from an audit from an administrative tax or revenue authority could negatively affect our financial results.

As a multinational corporation, we are subject to income taxes as well as non-income based taxes, in both the United States and various foreign jurisdictions. In certain foreign jurisdictions, we qualify for tax incentives and tax holidays based on our ability to meet, on a continuing basis, various tests relating to our employment levels, research and development expenditures and other qualification requirements in a particular foreign jurisdiction. While we intend to operate in such a manner to maintain and maximize our tax incentives and tax holidays, no assurance can be given that we have so qualified or that we will so qualify for any particular year or jurisdiction. If we fail to qualify and to remain qualified for certain foreign tax incentives and tax holidays, we may be subject to further taxation or an increase in our effective tax rate which would adversely impact our financial results. In December 2015, we entered into an agreement with the Singapore Economic Development Board which extended, until December 31, 2020, our Singapore tax holiday under substantially similar terms to the agreement which expired on December 31, 2015. In November 2020, we entered into an agreement with the Singapore Economic Development Board which extended our Singapore tax holiday under substantially similar terms to the agreement which expired on December 31, 2020. The new tax holiday is scheduled to expire on December 31, 2025.

The tax savings attributable to the Singapore tax holiday for the years ended December 31, 2020, 2019 and 2018 were \$29.9 million or \$0.16 per diluted share, \$15.1 million or \$0.08 per diluted share and \$11.9 million or \$0.06 per diluted share, respectively. These tax savings may not be achievable in subsequent years due to changes in Singapore's tax laws or the expiration of the tax holiday.

In addition, we may incur additional costs, including headcount expenses, in order to maintain or obtain a foreign tax incentive or tax holiday in a particular foreign jurisdiction.

We have significant guarantees, indemnification, and customer confidentiality obligations.

From time to time, we make guarantees to customers regarding the delivery, price and performance of our products and guarantee certain indebtedness, performance obligations or lease commitments of our subsidiary and affiliate companies. We also have agreed to provide indemnification to our officers, directors, employees and agents, to the extent permitted by law, arising from certain events or occurrences, while the officer, director, employee or agent, is or was serving at our request in such capacity. Additionally, we have confidentiality obligations to certain customers and if breached would require the payment of significant penalties. If we become liable under any of these obligations, it could materially and adversely affect our business, financial condition or operating results. For additional information see Note M: “Commitments and Contingencies—Guarantees and Indemnification Obligations” in Notes to Consolidated Financial Statements.

We may discontinue or reduce our quarterly cash dividend or share repurchase program.

In January 2014, our Board of Directors initiated a quarterly cash dividend. Since 2014, the Board of Directors has increased our quarterly cash dividend from \$0.06 per share to \$0.10 per share. Holders of our common stock are only entitled to receive dividends when and if they are declared by our Board of Directors.

In January 2015, our Board of Directors approved a share repurchase program. From January 2015 to April 2020, we repurchased \$2.1 billion of common stock. Due to the uncertainty regarding the duration, severity and business impact of the COVID-19 pandemic, we suspended the stock repurchase program as of April 1, 2020. In January 2021, our Board of Directors approved a new \$2.0 billion share repurchase program. Under the share repurchase program, we may repurchase outstanding shares of our common stock from time to time in the open market and through privately negotiated transactions. Unless terminated earlier by resolution of our Board of Directors, the repurchase program will expire when we have repurchased all shares authorized for repurchase under the share repurchase program.

Future cash dividends and share repurchases are subject to the discretion of our Board of Directors and will depend, among other things, upon our earnings, capital requirements and financial condition. While we have declared a quarterly cash dividend on our common stock and authorized a share repurchase program, we are not required to do either and may reduce or eliminate our cash dividend or share repurchase program in the future. The reduction or elimination of our cash dividend or our share repurchase program could adversely affect the market price of our common stock.

We have incurred indebtedness and may incur additional indebtedness.

On December 12, 2016, we completed a private offering of \$460.0 million aggregate principal amount of 1.25% convertible senior unsecured notes (the “Notes”) due December 15, 2023 and received net proceeds, after issuance costs, of approximately \$450.8 million, \$33.0 million of which was used to pay the net cost, after being partially offset by proceeds from the sale of the warrants, of the convertible note hedge transactions and \$50.1 million of which was used to repurchase 2.0 million shares of our common stock. Holders of the Notes may require us to repurchase the Notes upon the occurrence of certain fundamental changes involving us or the holders may elect to convert into shares of our common stock. As of February 22, 2021, twenty-four holders had exercised the option to convert \$51.0 million worth of notes.

On May 1, 2020, we entered into a three-year, senior secured revolving credit facility of up to \$400.0 million. Subject to customary conditions, we may seek to obtain from existing or new lenders incremental commitments under the credit facility in an aggregate principal amount not to exceed \$150.0 million. We have

not borrowed any funds under this credit facility. We could borrow funds under this credit facility at any time for general corporate purposes and working capital.

The issuance of the Notes and any additional indebtedness, among other things, could:

- make it difficult to make payments on this indebtedness and our other obligations;
- make it difficult to obtain any necessary future financing for working capital, capital expenditures, debt service requirements or other purposes;
- require the dedication of a substantial portion of any cash flows from operations to service for indebtedness, thereby reducing the amount of cash flows available for other purposes, including capital expenditures; and
- limit our flexibility in planning for, or reacting to, changes in our business and the industries in which we compete.

Restrictive covenants in the agreement governing our senior secured revolving credit facility may restrict our ability to pursue business strategies.

The agreement governing our senior secured revolving credit facility limits our ability, among other things, to incur additional secured indebtedness; sell, transfer, license or dispose of assets; consolidate or merge; enter into transactions with our affiliates; and incur liens. In addition, our senior secured revolving credit facility contains financial and other restrictive covenants that limit our ability to engage in activities that may be in our long-term best interest, such as, subject to permitted exceptions, making capital expenditures in excess of certain thresholds, making investments, loans and other advances, and prepaying any additional indebtedness while our indebtedness under our senior secured revolving credit facility is outstanding. Our failure to comply with financial and other restrictive covenants could result in an event of default, which if not cured or waived, could result in the lenders requiring immediate payment of all outstanding borrowings or foreclosing on collateral pledged to them to secure the indebtedness.

Our convertible note hedge and warrant transactions could impact the value of our stock.

Concurrent with the offering of the Notes, we entered into convertible note hedge transactions (the “Note Hedge Transactions”) with the initial purchasers or their affiliates (the “Option Counterparties”). The Note Hedge Transactions cover, subject to customary anti-dilution adjustments, the number of shares of our common stock that underlie the Notes, with a strike price equal to the conversion price of the Notes of \$31.56. The Note Hedge Transactions cover, subject to customary anti-dilution adjustments, approximately 14.6 million shares of our common stock.

Separately and concurrent with the pricing of the Notes, we entered into warrant transactions with the Option Counterparties (the “Warrant Transactions”) in which we sold net-share-settled (or, at our election subject to certain conditions, cash-settled) warrants to the Option Counterparties. The Warrant Transactions cover, subject to customary anti-dilution adjustments, approximately 14.6 million shares of our common stock. The strike price of the warrants is \$39.60 per share. The Warrant Transactions could have a dilutive effect to our common stock to the extent that the market price per share of our common stock, as measured under the terms of the Warrant Transactions, exceeds the applicable strike price of the warrants.

The Note Hedge Transactions are expected to reduce the potential dilution to our common stock upon any conversion of the Notes. However, the Warrant Transactions could separately have a dilutive effect to the extent that the market value per share of our common stock exceeds the applicable strike price of the warrants. The net cost of the Note Hedge Transactions, after being partially offset by the proceeds from the sale of the warrants, was approximately \$33.0 million.

In connection with establishing their initial hedge of these convertible note hedge and warrant transactions, the Option Counterparties have entered into various derivative transactions with respect to our common stock

and/or purchase shares of our common stock or other securities, including the Notes, concurrent with, or shortly after, the pricing of the Notes. In addition, the Option Counterparties may modify their hedge positions by entering into or unwinding various derivative transactions with respect to our common stock or by selling our common stock or other securities, including the Notes, in secondary market transactions (and may do so during any observation period related to the conversion of the Notes). These activities could adversely impact the value of our common stock and the Notes.

We may not be able to pay our debt and other obligations.

If our cash flows are inadequate to meet our obligations, we could face substantial liquidity problems. If we are unable to generate sufficient cash flows or otherwise obtain funds necessary to make required payments on the Notes or certain of our other obligations, we would be in default under the terms thereof, which would permit the holders of those obligations to accelerate their maturity and also could cause defaults under future indebtedness we may incur. Any such default could have a material adverse effect on our business, prospects, financial position and operating results. In addition, we cannot be certain that we would be able to repay amounts due on the Notes if those obligations were to be accelerated following the occurrence of any other event of default as defined in the instruments creating those obligations, or if the holders of the Notes require us to repurchase the Notes upon the occurrence of a fundamental change involving us. Moreover, we cannot be certain that we will have sufficient funds or will be able to arrange for financing to pay the principal amount due on the Notes at maturity.

Risks Related to Operations

Our operating results are likely to fluctuate significantly.

Our operating results are affected by a wide variety of factors that could materially adversely affect revenues or profitability. The following factors could impact future operations:

- a worldwide economic slowdown or disruption in the global financial or industrial markets;
- competitive pressures on selling prices;
- our ability to introduce, and the market acceptance of, new products;
- changes in product revenues mix resulting from changes in customer demand;
- the level of orders received which can be shipped in a quarter because of the tendency of customers to wait until late in a quarter to commit to purchase due to capital expenditure approvals and constraints occurring at the end of a quarter, or the hope of obtaining more favorable pricing from a competitor seeking the business;
- engineering and development investments relating to new product introductions, and the expansion of manufacturing, outsourcing and engineering operations in Asia;
- provisions for excess and obsolete inventory relating to the lack of demand for and the discontinuance of products;
- impairment charges for certain long-lived and intangible assets, and goodwill;
- an increase in the leasing of our products to customers;
- disruption caused by health pandemics, such as the coronavirus;
- our ability to expand our global distribution channel for our collaborative and mobile robots;
- parallel or multi-site testing which could lead to a decrease in the ultimate size of the market for our semiconductor and electronic test products; and
- the ability of our suppliers and subcontractors to meet product quality or delivery requirements needed to satisfy customer orders for our products, especially if consolidated revenues increase.

As a result of the foregoing and other factors, we have experienced and may continue to experience material fluctuations in future operating results on a quarterly or annual basis which could materially and adversely affect our business, financial condition, operating results or stock price.

If our suppliers do not meet product or delivery requirements, we could have reduced revenues and earnings.

Certain components, including semiconductor chips, may be in short supply from time to time because of high industry demand or the inability of some vendors to consistently meet our quality or delivery requirements. If any of our suppliers were to cancel contracts or commitments or fail to meet the quality or delivery requirements needed to satisfy customer orders for our products, we could lose time-sensitive customer orders, have significantly decreased revenues and earnings and be subject to contractual penalties, which would have a material adverse effect on our business, results of operations and financial condition. In addition, we rely on contract manufacturers for certain subsystems used in our products, and our ability to meet customer orders for those products depends upon the timeliness and quality of the work performed by these subcontractors, over whom we do not exercise any control.

To a certain extent, we are dependent upon the ability of our suppliers and contract manufacturers to help meet increased product or delivery requirements. It may be difficult for certain suppliers to meet delivery requirements in a period of rapid growth, therefore impacting our ability to meet our customers' demands.

Our suppliers are subject to trade regulations, including tariffs and export restrictions imposed by the United States Government and by the governments of other countries. These regulations could impact our suppliers' ability to provide us with components for our products or could increase the price of those components.

We rely on the financial strength of our suppliers. There can be no assurance that the loss of suppliers either as a result of financial viability, bankruptcy or otherwise will not have a material adverse effect on our business, results of operations or financial condition.

Our operations may be adversely impacted if our outsourced contract manufacturers or service providers fail to perform.

We depend on Flex Ltd. ("Flex") to manufacture and test our FLEX and J750 family of products from its facility in China, Plexus Corp. ("Plexus") to manufacture and test our Magnum and ETS family of products from its facility in Malaysia, and on other contract manufacturers to manufacture other products. If for any reason these contract manufacturers cannot provide us with these products in a timely fashion, or at all, we may not be able to sell these products to our customers until we enter a similar arrangement with an alternative contract manufacturer. The Flex facility in China may be impacted by the ongoing trade dispute between the United States and China, by regulations implemented by the United States or China, or disruption caused by health pandemics, such as the coronavirus.

If we experience a problem with our supply of products from Flex, Plexus, or our other contract manufacturers, it may take us significant time to either manufacture the product or find an alternate contract manufacturer, which could result in substantial expense and disruption to our business.

We have also outsourced certain general and administrative functions to reputable service providers, many of which are in foreign countries, sometimes impacting communication with them because of language and time differences. Their presence in foreign countries also increases the risk they could be exposed to political risk. Additionally, there may be difficulties encountered in coordinating the outsourced operations with existing functions and operations. If we fail in successfully coordinating and managing the outsourced service providers, it may cause an adverse effect on our operations which could have a material adverse effect on our business, results of operations or financial condition.

Our business may suffer if we are unable to attract and retain key employees.

Competition for employees with skills we require is intense in the high technology industry. Our success will depend on our ability to attract and retain key technical employees. The loss of one or more key or other employees, a decrease in our ability to attract additional qualified employees, or the delay in hiring key personnel could each have a material adverse effect on our business, results of operations or financial condition.

Our operations, and the operations of our customers and suppliers, are subject to risks of natural catastrophic events, widespread health epidemics, acts of war, terrorist attacks and the threat of domestic and international terrorist attacks, any one of which could result in cancellation of orders, delays in deliveries or other business activities, or loss of customers and could negatively affect our business and results of operations.

Our business is international in nature, with our sales, service and administrative personnel and our customers and suppliers located in numerous countries throughout the world. Our operations, and those of our customers and suppliers, are subject to disruption for a variety of reasons, including work stoppages, acts of war, terrorism, health epidemics, fires, earthquakes, hurricanes, volcanic eruptions, energy shortages, telecommunication failures, tsunamis, flooding or other natural disasters. Such disruption could materially increase our costs and expenses as well as cause delays in, among other things, shipments of products to our customers, our ability to perform services requested by our customers, or the installation and acceptance of our products at customer sites. Any of these conditions could have a material adverse effect on our business, financial condition or results of operations.

Risks Related to Intellectual Property (“IP”) and Cybersecurity

Third parties may claim we are infringing their intellectual property and we could suffer significant litigation costs, licensing expenses or be prevented from selling our products.

We have been sued for patent infringement in the past and receive notifications from time to time that we may be in violation of patents held by others. An assertion of patent infringement against us, if successful, could have a material adverse effect on our ability to sell our products or it could force us to seek a license to the intellectual property rights of others or alter such products so that they no longer infringe the intellectual property rights of others. A license could be very expensive to obtain or may not be available at all. Similarly, changing our products or processes to avoid infringing the rights of others may be costly or impractical. Additionally, patent litigation could require a significant use of management resources and involve a lengthy and expensive defense, even if we eventually prevail. If we do not prevail, we might be forced to pay significant damages, obtain licenses, modify our products, or stop making our products; each of which could have a material adverse effect on our financial condition, operating results or cash flows.

If we are unable to protect our IP, we may lose a valuable asset or may incur costly litigation to protect our rights.

We protect the technology that is incorporated in our products in several ways, including through patent, copyright, trademark and trade secret protection and by contractual agreement. However, even with these protections, our IP may still be challenged, invalidated or subject to other infringement actions. While we believe that our IP has value in the aggregate, no single element of our IP is in itself essential. If a significant portion of our IP is invalidated or ineffective, our business could be materially adversely affected.

A breach of our operational or security systems could negatively affect our business and results of operations.

We rely on various information technology networks and systems to process, transmit and store electronic information, including proprietary and confidential data, and to carry out and support a variety of business activities, including manufacturing, research and development, supply chain management, sales and accounting. We have experienced several attempted cyber-attacks of our network. None of the attempted attacks has caused a

disruption to our operations or had a material adverse effect on our business or financial results. As a result of the attempts, we have taken further preventive security measures to protect our systems. Despite these preventative security measures we have implemented, we may continue to be vulnerable to attempts by third parties to gain unauthorized access to our networks or sabotage our systems. These attempts, which might be related to criminal hackers, industrial espionage or state-sponsored intrusions, include trying to covertly introduce malware to our computers, networks and systems and impersonating authorized users. In addition, third party suppliers and service providers that we rely on to manage our networks and systems and process and store our proprietary and confidential data may also be subject to similar attacks. Such attempts could result in the misappropriation, theft, misuse, disclosure or loss or destruction of the intellectual property, or the proprietary, confidential or personal information, of Teradyne or our employees, customers, suppliers or other third parties, as well as damage to or disruptions in our information technology networks and systems. These threats are constantly evolving, thereby increasing the difficulty of defending against them or implementing adequate preventative measures. While we seek to detect and investigate all security incidents and to prevent their recurrence, attempts to gain unauthorized access to our information technology networks and systems may be successful, and in some cases, we might be unaware of an incident or its magnitude and effects. For example, we recently became aware that one of our vendors providing IT infrastructure management software, *SolarWinds* Corporation, had been compromised by cyber-attacks. Although we have not identified any compromise of our IT systems due to the use of *SolarWinds* software to date, we continue to monitor our network for any potential impact related to the *SolarWinds* cyber-attack. A failure in or a breach of our operational or security systems or infrastructure, or those of our suppliers and other service providers, including as a result of the *SolarWinds* or any other cyber-attacks, could have a material adverse effect on our business or financial results, disrupt our business, result in the disclosure or misuse of proprietary or confidential information, damage our reputation, cause losses and increase our costs. We expect to continue to devote significant resources to the security of our information technology networks and systems.

A breach of the security of our products could negatively affect our business and results of operations.

We may be subject to security breaches of certain of our products caused by viruses, illegal break-ins or hacking, sabotage, or acts of vandalism by third parties or our employees or contractors. A breach of our product security systems could have a material adverse effect on our business or financial results, disrupt our business, result in the disclosure or misuse of proprietary or confidential information, damage our reputation, cause losses, and increase our costs. We expect to continue to devote significant resources to the security of our products.

Risks Related to Legal and Regulatory Compliance

The implementation of tariffs on our products may have a material impact on our business.

Our business operations and supply chain are global and may be disrupted by the implementation of tariffs.

In 2018, the United States Trade Representative imposed a 25% tariff on many lists of products, including certain Teradyne products that are made in China and imported into the United States. We have implemented operational changes that mitigate the impact of the 25% tariff on the import of our impacted products into the United States. As a result, the existing tariff has not had a material adverse effect on our business, financial condition or results of operations. The implementation of additional tariffs by the United States could have a material adverse effect on our business, financial condition or results of operations.

In addition to the actions taken by the United States, China has implemented retaliatory tariffs on products made in the United States and imported into China, including certain Teradyne products. We have implemented, if appropriate, operational changes that would mitigate the impact of the retaliatory tariffs. However, notwithstanding our efforts, the retaliatory tariffs or other trade restrictions implemented by China could disrupt our business operations, sales and supply chain and, therefore, have a material adverse effect on our business, financial condition or results of operations.

Trade regulations and restrictions impact our ability to sell products to and support certain customers, which may materially adversely affect our sales and results of operations.

We are subject to U.S. laws and regulations that limit and restrict the export of some of our products and services and may restrict our transactions with certain customers, business partners and other persons. In certain circumstances, export control and economic sanctions regulations prohibit the export of certain products, services and technologies, and in other circumstances we may be required to obtain an export license before exporting the controlled item. We must also comply with export restrictions and laws imposed by other countries affecting trade and investments. We maintain an export compliance program but there are risks that the compliance controls could be circumvented, exposing us to legal liabilities. Compliance with these laws has not significantly limited our sales but could significantly limit them in the future. Changes in, and responses to, U.S. trade policy could reduce the competitiveness of our products and cause our sales to drop, which could have a material adverse effect on our business, financial condition or results of operations.

In 2018, the United States Department of Commerce announced that it has commenced a review of new export controls focusing on emerging and foundational technologies. The new export controls could cover technologies used in one or more Teradyne products and therefore could impact the sales of certain Teradyne products.

The U.S. government from time to time has issued export restrictions that prohibit U.S. companies from exporting U.S. manufactured products, foreign manufactured products with more than 25% controlled U.S. content, as well as U.S. origin technology. For example, the U.S. Department of Commerce has restricted the access of U.S. origin technologies to certain Chinese companies by adding those companies to the Entity List under U.S. Export Administration Regulations (“EAR”).

On May 16, 2019, Huawei and 68 of its affiliates, including HiSilicon, were added to the U.S. Department of Commerce Entity List under the EAR. This action by the U.S. Department of Commerce imposes new export licensing requirements on exports, re-exports, and in-country transfers of all U.S. regulated products, software and technology to the designated Huawei entities. While most of our products are not subject to the EAR and therefore not affected by the Entity List restrictions, certain of our products are currently manufactured in the U.S. and thus subject to the Entity List restrictions. The addition of Huawei entities, including HiSilicon, to the Entity List in May 2019 did not have a material adverse effect on our business, financial condition or results of operations.

On August 17, 2020, the U.S. Department of Commerce published final regulations expanding the scope of the U.S. EAR to include additional products that would become subject to export restrictions relating to Huawei entities including HiSilicon. These new regulations restrict the sale to Huawei and the designated Huawei entities of certain non-U.S. made items, such as semiconductor devices, manufactured for or sold to Huawei entities including HiSilicon under specific, detailed conditions set forth in the new regulations. These new regulations have impacted our sales to Huawei, HiSilicon and their suppliers. We are taking appropriate actions, including filing license applications and obtaining licenses from the U.S. Department of Commerce as well as working with the U.S. regulators to clarify the scope of the restrictions. However, we cannot be certain that the actions we take will mitigate the risks associated with the new export controls that impact our business. It is uncertain the extent these new regulations and any other additional regulations that may be implemented by the U.S. Department of Commerce or other government agency may have on our business and financial results. Also, our controls related to Entity List compliance could be circumvented, exposing us to legal liabilities. Even if such restrictions are lifted, any financial or other penalties or continuing export restrictions imposed on Huawei could have a material adverse effect on our business, financial condition or results of operations.

On April 28, 2020, the U.S. Department of Commerce published new export control regulations for certain U.S. products and technology sold to military end users or for military end-use in China, Russia and Venezuela. The definition of military end user is broad. The regulations went into effect on June 29, 2020. In December 2020, the U.S. Department of Commerce issued a list of companies in China and other countries that it considered to be military end users. We do not expect that compliance with the new export controls will

significantly impact our ability to sell products to our customers in China or to manufacture products in China. The new export controls, however, could disrupt our supply chain, increase our compliance costs and impact the demand for our products in China and, thus, have a material adverse impact on our business, financial condition or results of operations. In addition, while we maintain an export compliance program, our compliance controls could be circumvented, exposing us to legal liabilities. We will continue to assess the potential impact of the new export controls on our business and operations and take appropriate actions, including filing for licenses with the U.S. Department of Commerce, to minimize any disruption. However, we cannot be certain that the actions we take will mitigate all the risks associated with the new export controls that may impact our business.

In response to the regulations issued by the U.S. Department of Commerce, the Chinese government has passed new laws, including blocking legislation, which may impact our business activities in China. The Company is assessing the potential impact of these new Chinese laws and monitoring relevant laws and regulations issued by the Chinese government. The impact of these new Chinese laws on our business activities in China remains uncertain at this time.

We may be subject to product recalls and warranty and product liability claims.

We invest significant resources in the design, manufacture and testing of our products. However, we may discover design or manufacturing defects in our products after they have been shipped and, as a result, we may incur development and remediation costs and be required to settle warranty and product liability claims. In addition, if any of our products contain defects or have reliability, quality or safety issues, we may need to conduct a product recall which could result in significant repair or replacement costs and substantial delays in product shipments and may damage our reputation which could make it more difficult to sell our products. Any of these results could have a material adverse effect on our business, results of operations or financial condition.

We may incur significant liabilities if we fail to comply with environmental regulations.

We are subject to both domestic and international environmental regulations and statutory strict liability relating to the use, storage, discharge, site cleanup and disposal of hazardous chemicals used in our manufacturing processes. If we fail to comply with present and future regulations, or are required to perform site remediation, we could be subject to future liabilities or cost, including penalties or the suspension of production. Present and future regulations may also:

- restrict our ability to expand facilities;
- restrict our ability to ship certain products;
- require us to modify our operations logistics;
- require us to acquire costly equipment; or
- require us to incur other significant costs and expenses.

Pursuant to present regulations and agreements, we are conducting groundwater and subsurface assessment and monitoring and are implementing remediation and corrective action plans for facilities located in Massachusetts and New Hampshire which are no longer conducting manufacturing operations. As of December 31, 2020, we have not incurred material costs as a result of the monitoring and remediation steps taken at the Massachusetts and New Hampshire sites.

The directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (the “RoHS Directive”) and the directive on Waste Electrical and Electronic Equipment (the “WEEE Directive”) altered the form and manner in which electronic equipment is imported, sold and handled in the European Union. Other jurisdictions, such as China, have followed the European Union’s lead in enacting legislation with respect to hazardous substances and waste removal. Ensuring compliance with the RoHS Directive, the WEEE Directive and similar legislation in other jurisdictions, and integrating compliance activities

with our suppliers and customers could result in additional costs and disruption to operations and logistics and thus, could have a negative impact on our business, operations or financial condition.

We currently are, and in the future may be, subject to litigation or regulatory proceedings that could have an adverse effect on our business.

From time to time, we may be subject to litigation or other administrative, regulatory or governmental proceedings, including tax audits and resulting claims that could require significant management time and resources and cause us to incur expenses and, in the event of an adverse decision, pay damages or incur costs in an amount that could have a material adverse effect on our financial position or results of operations.

We may face risks associated with shareholder activism.

We may become subject to campaigns by shareholders advocating corporate actions such as financial restructuring, increased borrowing, special dividends, stock repurchases or divestitures. Such activities could interfere with our ability to execute our business plans, be costly and time-consuming, disrupt our operations, divert the attention of management, or result in our initiating borrowing or increasing our share repurchase plan or dividend, any of which could have an adverse effect on our business or stock price.

Provisions of our charter and by-laws and Massachusetts law may make a takeover of Teradyne more difficult.

There are provisions in our basic corporate documents and under Massachusetts law that could discourage, delay or prevent a change in control, even if a change in control may be regarded as beneficial to some or all of our stockholders.

Item 1B: *Unresolved Staff Comments*

None.

Item 2: *Properties*

Our corporate headquarters is located in North Reading, Massachusetts in buildings that we own consisting of approximately 422,000 square feet. We conduct manufacturing, engineering, sales and marketing, service, corporate administration and other operations in many locations worldwide. We own approximately 600,000 square feet and lease over 1,500,000 square feet of office space for these operations. We believe our existing facilities and planned expansions noted below are adequate to meet our current and reasonably foreseeable requirements. We regularly evaluate our expected facility needs and periodically make adjustments based on these evaluations. In 2020, we purchased land in San Jose, Costa Rica primarily for our Semiconductor Test and System Test operations. The new building of approximately 110,000 square feet is expected to be completed in 2021. We have purchased land in Denmark and plan to build a new building over the next two years for our Industrial Automation operations.

Item 3: *Legal Proceedings*

We are subject to legal proceedings, claims and investigations that arise in the ordinary course of business such as, but not limited to, patent, employment, commercial and environmental matters. We believe that we have meritorious defenses against all pending claims and intend to vigorously contest them. While it is not possible to predict or determine the outcomes of any pending claims or to provide possible ranges of losses that may arise, we believe the potential losses associated with all of these actions are unlikely to have a material adverse effect on our results of operations, financial condition or cash flows.

Item 4: *Mine Safety Disclosure*

Not Applicable.

PART II

Item 5: *Market for Registrant’s Common Equity, Related Shareholder Matters and Issuer Purchases of Equity Securities*

Our common stock is traded on the Nasdaq Global Select Market under the trading symbol “TER.” As of February 16, 2021, there were approximately 1,362 holders of record of shares of our common stock.

See “Item 7: Management’s Discussion and Analysis of Financial Condition and Results of Operations,” for information on the frequency and amounts of our quarterly cash dividends, equity compensation plans and performance graph.

The following table includes information with respect to repurchases we made of our common stock during the three months ended December 31, 2020 (in thousands except per share price):

<u>Period</u>	<u>(a) Total Number of Shares (or Units) Purchased</u>	<u>(b) Average Price Paid per Share (or Unit)</u>	<u>(c) Total Number of Shares (or Units) Purchased as Part of Publicly Announced Plans or Programs</u>	<u>(d) Maximum Number (or Approximate Dollar Value) of Shares (or Units) that may Yet Be Purchased Under the Plans or Programs</u>
September 28, 2020 – October 25, 2020	1	\$ 79.59	—	\$911,535
October 26, 2020 – November 22, 2020	2	\$ 89.70	—	\$911,535
November 23, 2020 – December 31, 2020	—	\$116.15	—	\$911,535
	<u>3(1)</u>	<u>\$ 90.74(1)</u>	<u>—</u>	

(1) Includes approximately three thousand shares at an average price of \$90.74 withheld from employees for the payment of taxes.

We satisfy U.S. federal and state minimum withholding tax obligations due upon the vesting and the conversion of restricted stock units into shares of our common stock, by automatically withholding from the shares being issued, a number of shares with an aggregate fair market value on the date of such vesting and conversion that would satisfy the minimum withholding amount due.

Item 6: *Selected Financial Data*

Teradyne has early adopted the amendment to Regulation S-K Item 301, which became effective on February 10, 2021.

Item 7: *Management’s Discussion and Analysis of Financial Condition and Results of Operations*

Overview

We are a leading global supplier of automation equipment for test and industrial applications. We design, develop, manufacture and sell automatic test systems used to test semiconductors, wireless products, data storage and complex electronics systems in many industries including consumer electronics, wireless, automotive, industrial, computing, communications, and aerospace and defense industries. Our industrial automation products include collaborative robotic arms, autonomous mobile robots (“AMRs”) and advanced robotic control software used by global manufacturing, logistics and light industrial customers to improve quality, increase manufacturing and material handling efficiency and decrease manufacturing and logistics costs. Our automatic test equipment and industrial automation products and services include:

- semiconductor test (“Semiconductor Test”) systems;
- storage and system level test (“Storage Test”) systems, defense/aerospace (“Defense/Aerospace”) test instrumentation and systems and circuit-board test and inspection (“Production Board Test”) systems (collectively these products represent “System Test”);

- wireless test (“Wireless Test”) systems; and
- industrial automation (“Industrial Automation”) products.

The market for our test products is concentrated with a limited number of significant customers accounting for a substantial portion of the purchases of test equipment. A few customers drive significant demand for our test products both through direct sales and sales to the customers’ supply partners. We expect that sales of our test products will continue to be concentrated with a limited number of significant customers for the foreseeable future.

We have grown our Industrial Automation business through acquisitions, including Mobile Industrial Robots A/S (“MiR”), a leading maker of collaborative autonomous mobile robots (“AMRs”) for industrial applications, in 2018 and AutoGuide, LLC (“AutoGuide”), a maker of high payload AMRs, in 2019. The market for our industrial automation products is dependent on the adoption of new automation technologies by large manufacturers as well as small and medium enterprises (SMEs) throughout the world. In 2020, our Industrial Automation businesses were negatively impacted by the global industrial downturn as well as the COVID-19 pandemic.

In 2020, revenue in our test businesses exceeded our plan as a result of Semiconductor Test demand by our largest customer, early 5G test investments and strength in our System Test businesses. The revenue of our Industrial Automation business was below our plan. In 2021, we expect strong momentum in our test businesses and return to growth for Industrial Automation.

Our strategy is to focus on profitably growing market share in our test businesses the introduction of differentiated products that target growth segments, and accelerating growth through continued investment in our Industrial Automation businesses. We plan to execute on our strategy while balancing capital allocations between returning capital to our shareholders through dividends and stock repurchases and using capital for with opportunistic acquisitions.

Impact of the COVID-19 Pandemic on our Business

The novel coronavirus (COVID-19) pandemic has resulted in government authorities implementing numerous measures in an effort to contain the spread of the virus, such as travel bans and restrictions, limitations on gatherings or social distancing requirements, quarantines, shelter-in-place orders, and business limitations and shutdowns. These measures have impacted our day-to-day operations and disrupted our business, workforce and operations, as well as the operations of our customers, contract manufacturers and suppliers. We are continuing to monitor the rapidly evolving situation regarding the COVID-19 pandemic and the availability and impact of vaccinations. However, we are unable to accurately predict the full impact of COVID-19, which will depend on future developments that are highly uncertain and cannot be predicted with accuracy, including, but not limited to, any new surges in areas where we do business, the availability of vaccinations, any further government actions to contain the virus or treat its impact, and how quickly and to what extent normal economic and operating conditions can resume.

Health and Safety

In response to the COVID-19 pandemic, we have taken proactive, aggressive action to protect the health and safety of our employees, customers, contract manufacturers and suppliers and we have complied with all government orders around the globe. The spread of COVID-19 has caused us to modify our business practices, including implementing social distancing protocols, suspending employee travel, requiring most employees to work remotely, cancelling physical participation in meetings, and extensively and frequently disinfecting our workspaces. Around the world, the majority of our employees are working from home. However, some of our engineering, operations, supply line and customer support teams must be on-site at our or our customers’

facilities. We are providing those on-site employees with the necessary protective resources and procedures to minimize their exposure risk. We may take further actions as may be required or recommended by government authorities or that we determine are in the best interests of our employees, customers, contract manufacturers and suppliers.

Operations

We believe the COVID-19 pandemic, and the numerous measures implemented by authorities in response, has adversely impacted our results of operations, including by increasing costs and decreasing demand in our Industrial Automation businesses, but we cannot accurately estimate the amount of the impact to our 2020 financial results or to our future financial results. In addition, the pandemic has disrupted our contract manufacturers and suppliers, and has resulted in some instances in short-term cost increases to meet customer demand. While the duration and severity of the pandemic may further impact our workforce and operations, as well as those of our customers, contract manufacturers and suppliers, we expect that our manufacturing facilities will remain operational, at sufficient capacity to support production demand. We are monitoring our operations closely in an effort to avoid any potential productivity loss caused by responses to the COVID-19 pandemic.

Supply

We have not experienced any significant impacts or interruptions to our supply chain as a result of the COVID-19 pandemic. However, our suppliers have faced and may continue to face difficulties maintaining operations in light of government-ordered restrictions, including social distancing requirements and shelter-in-place mandates. Our supply chain team, and our suppliers, overcame numerous supply, production, and logistics obstacles in 2020, but there is no assurance we or they will be able to do so in the future. Although we regularly monitor the financial health of companies in our supply chain, financial hardship on our suppliers or sub-suppliers caused by the COVID-19 pandemic could disrupt our ability to obtain components required to manufacture our products, adversely affecting our operations and in some instances result in higher costs and delays, both for obtaining components and shipping finished goods to customers, which could harm our profitability, make our products less competitive, or cause our customers to seek alternative suppliers.

Demand

The COVID-19 pandemic has significantly increased economic uncertainty in our markets. Demand for our Test products was strong throughout 2020. While there was incremental softening in the automotive sector in 2020, there was strengthening demand in mobility, 5G, and memory test. Our Industrial Automation business, however, experienced a significant decline in demand through first half of 2020 due to COVID-19 related shutdowns affecting global manufacturing but demand recovered in the second half of 2020 from the low point in the second quarter. The COVID-19 pandemic could cause further global economic disruption that could cause demand for our products to decline, which would adversely affect our business.

Liquidity

Although there is continued uncertainty related to the impact of the COVID-19 pandemic on our future results, we believe our business model and our current cash reserves leave us well-positioned to manage our business through this crisis. We have a strong balance sheet as well as an operating model that we believe is capable of flexing up and down with extreme demand swings while still remaining profitable. Based on our analysis, we believe our existing balances of cash and cash equivalents and our currently anticipated operating cash flows will be sufficient to meet our working capital needs and other capital and liquidity requirements for the next twelve months. However, due to the uncertainty related to the future impact of the COVID-19 pandemic,

in order to bolster our liquidity position, on May 1, 2020 we entered into a credit agreement providing for a three-year, senior secured revolving credit facility of \$400 million as further described in Note J: “Debt.” As of February 22, 2020, we have not borrowed any funds under the credit facility.

We are continuing to monitor the evolving situation regarding the COVID-19 pandemic, the availability of vaccinations where we do business and guidance from government authorities around the world. In these circumstances, there may be developments outside our control requiring us to adjust our operating plan. As a result, given the uncertain nature of this situation, we are not able to accurately predict the full extent of the impact of COVID-19 on our business, financial condition, results of operations, liquidity, or cash flows in the future. In addition, see Part II—Item 1A, “Risk Factors,” included herein for updates to our risk factors regarding risks associated with the COVID-19 pandemic.

Critical Accounting Policies and Estimates

We have identified the policies discussed below as critical to understanding our business and our results of operations and financial condition. The impact and any associated risks related to these policies on our business operations is discussed throughout Management’s Discussion and Analysis of Financial Condition and Results of Operations where such policies affect our reported and expected financial results.

Due to the COVID-19 pandemic, there has been uncertainty and disruption in the global economy and our markets. We are not aware of any specific event or circumstance that would require an update to our estimates or judgments or a revision of the carrying value of our assets or liabilities as of February 22, 2021, the date of issuance of this Annual Report on Form 10-K.

These estimates may change, as new events occur, and additional information is obtained. Actual results could differ significantly from these estimates under different assumptions or conditions.

Revenue from Contracts with Customers

In accordance with ASC 606, “*Revenue from Contracts with Customers*” (“ASC 606”), we recognize revenues, when or as control is transferred to a customer. Our determination of revenue is dependent upon a five step process outlined below.

- We account for a contract with a customer when there is written approval, the contract is committed, the rights of the parties, including payment terms, are identified, the contract has commercial substance and consideration is probable of collection.
- We periodically enter into contracts with customers in which a customer may purchase a combination of goods and services, such as products with extended warranty obligations. We determine performance obligations by assessing whether the products or services are distinct from the other elements of the contract. In order to be distinct, the product or service must perform either on its own or with readily available resources and must be separate within the context of the contract.
- We consider the amount stated on the face of the purchase order to be the transaction price. We do not have variable consideration which could impact the stated purchase price agreed to by us and the customer.
- Transaction price is allocated to each individual performance obligation based on the standalone selling price of that performance obligation. We use standalone transactions when available to value each performance obligation. If standalone transactions are not available, we will estimate the standalone selling price through market assessments or cost plus a reasonable margin analysis. Any discounts from standalone selling price are spread proportionally to each performance obligation.

- In order to determine the appropriate timing for revenue recognition, we first determine if the transaction meets any of three criteria for over time recognition. If the transaction meets the criteria for over time recognition, we recognize revenue as the good or service is delivered. We use input variables such as hours or months utilized or costs incurred to determine the amount of revenue to recognize in a given period. Input variables are used as they best align consumption with benefit to the customer. For transactions that do not meet the criteria for over time recognition, we will recognize revenue at a point in time based on an assessment of the five criteria for transfer of control. We have concluded that revenue should be recognized when shipped or delivered based on contractual terms. Typically, acceptance of our products and services is a formality as we deliver similar systems, instruments and robots to standard specifications. In cases where acceptance is not deemed a formality, we will defer revenue recognition until customer acceptance.

Translation of Non-U.S. Currencies

The functional currency for all non-U.S. subsidiaries is the U.S. dollar, except for Universal Robots, MiR and Lemsys for which the local currency is its functional currency. All foreign currency denominated monetary assets and liabilities are remeasured on a monthly basis into the functional currency using exchange rates in effect at the end of the period. All foreign currency denominated non-monetary assets and liabilities are remeasured into the functional currency using historical exchange rates. Net foreign exchange gains and losses resulting from remeasurement are included in other (income) expense, net. For Universal Robots, MiR and Lemsys, assets and liabilities are translated into U.S. dollars using exchange rates in effect at the end of the period. Revenues and expense amounts are translated using an average of exchange rates in effect during the period. Translation adjustments are recorded within accumulated other comprehensive income (loss) on the balance sheet.

Retirement and Postretirement Plans

We recognize net actuarial gains and losses and the change in the fair value of the plan assets in our operating results in the year in which they occur or upon any interim remeasurement of the plans. We calculate the expected return on plan assets using the fair value of the plan assets. Actuarial gains and losses are generally measured annually as of December 31 and, accordingly, recorded during the fourth quarter of each year or upon any interim remeasurement of the plans.

In March 2017, the Financial Accounting Standards Board (“FASB”) issued ASU 2017-07, “*Compensation—Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost.*” We retrospectively adopted the new accounting guidance on presentation of net periodic pension costs and net periodic postretirement benefit costs in the first quarter of 2018. This guidance requires the service cost component of net benefit costs to be reported in the same line item in the consolidated statement of operations as other employee compensation costs. The non-service components of net benefit costs such as interest cost, expected return on assets, amortization of prior service cost, and actuarial gains or losses, are required to be reported separately outside of income or loss from operations. Following the adoption of this guidance, we continue to record the service cost component in the same line item as other employee compensation costs and the non-service components of net benefit costs such as interest cost, expected return on assets, amortization of prior service cost, and actuarial gains or losses are reported within other (income) expense, net.

Inventories

Inventories are stated at the lower of cost using a standard costing system which approximates cost based on a first-in, first-out basis or net realizable value. On a quarterly basis, we use consistent methodologies to evaluate all inventories for net realizable value. We record a provision for both excess and obsolete inventory when such

write-downs or write-offs are identified through the quarterly review process. The inventory valuation is based upon assumptions about future demand, product mix, and possible alternative uses.

Equity Incentive and Stock Purchase Plans

Stock-based compensation expense is based on the grant-date fair value estimated in accordance with the provisions of ASC 718, “*Compensation—Stock Compensation*.” Upon adoption of ASU 2016-09, “*Compensation-Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting*,” in the first quarter of 2017, we made an accounting policy election to continue accounting for forfeitures by applying an estimated forfeiture rate and recognizing compensation costs only for those stock-based compensation awards expected to vest. In accordance with ASU 2016-09, excess tax benefits or tax deficiencies are recognized as a discrete tax benefit or discrete tax expense to the current income tax provision in our consolidated statements of operations and are reported as cash flows from operating activities. All cash payments made to taxing authorities on the employees’ behalf for withheld shares are presented as financing activities on the statement of cash flows. In 2020, 2019 and 2018, we recognized a discrete tax benefit of \$9.6 million, \$4.9 million and \$7.6 million, respectively, related to net excess tax benefit.

Income Taxes

Deferred tax assets and liabilities are determined based on differences between financial reporting and tax basis of assets and liabilities and are measured using the enacted tax rates and laws that will be in effect when the differences are expected to reverse. The measurement of deferred tax assets is reduced by a valuation allowance if it is more likely than not that some or all of the deferred tax assets will not be realized. We performed the required assessment of positive and negative evidence regarding the realization of the net deferred tax assets in accordance with ASC 740, “*Accounting for Income Taxes*.” This assessment included the evaluation of scheduled reversals of deferred tax liabilities, estimates of projected future taxable income and tax-planning strategies. Although realization is not assured, based on our assessment, we concluded that it is more likely than not that such assets, net of the existing valuation allowance, will be realized.

Investments

We account for our investments in debt and equity securities in accordance with the provisions of ASC 320-10, “*Investments—Debt and Equity Securities*.” On a quarterly basis, we review our investments to identify and evaluate those that have an indication of a potential other-than-temporary impairment. Factors considered in determining whether a loss is other-than-temporary include:

- The length of time and the extent to which the market value has been less than cost;
- The financial condition and near-term prospects of the issuer; and
- The intent and ability to retain the investment in the issuer for a period of time sufficient to allow for any anticipated recovery in market value.

Investment in Other Companies

We account for investments in other companies at cost and evaluate for impairment or an indication of changes in fair value resulting from observable price changes in orderly transactions for the identical or similar investment of the same issuer on a quarterly basis.

Financial Assets and Financial Liabilities

In January 2016, the FASB issued ASU 2016-01, “*Financial Instruments—Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities*.” We adopted the new accounting

guidance in the first quarter of 2018 using the modified retrospective approach. This guidance requires that changes in fair value of equity marketable securities be accounted for directly in earnings. Previously, the changes in fair value of equity marketable securities were recorded in accumulated other comprehensive income on the balance sheet. We continue to record realized gains in interest income and realized losses in interest expense. The adoption of this new accounting guidance increased the January 1, 2018 retained earnings balance by \$3.1 million and decreased the accumulated other comprehensive income balance by the same amount.

Credit Losses

In June 2016, the FASB issued ASU 2016-13, “Financial Instruments-Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments.” This standard introduced the expected credit losses methodology for the measurement of credit losses on financial assets that are not measured at fair value through net income and replaces the “incurred loss” model with an “expected credit loss” model that requires consideration of a broader range of information to estimate expected credit losses over the lifetime of the asset. We adopted this standard on January 1, 2020 on a modified retrospective basis. The adoption of ASU 2016-13 did not have a material impact on our consolidated statement of operations, balance sheets, cash flows, or earnings per share.

Goodwill, Intangible and Long-Lived Assets

On January 26, 2017, the Financial Accounting Standards Board (“FASB”) issued ASU 2017-04, “Intangibles—Goodwill and Other (Topic 350): Simplifying the Accounting for Goodwill Impairment.” The new guidance removes Step 2 of the goodwill impairment test, which requires a hypothetical purchase price allocation. We adopted this standard on January 1, 2020, on a prospective basis. The adoption of ASU 2017-04 did not have a material impact on the consolidated statement of operations, cash flows, or earnings per share. We assess goodwill for impairment at least annually in the fourth quarter, as of December 31, on a reporting unit basis, or more frequently, when events and circumstances occur indicating that the recorded goodwill may be impaired. Under ASU 2017-04, goodwill impairment will be the amount by which a reporting unit’s carrying value exceeds its fair value, not to exceed the carrying amount of goodwill. All other goodwill impairment guidance will remain largely unchanged. Entities will continue to have the option to perform a qualitative assessment to determine if a quantitative impairment test is necessary. The same one-step impairment test will be applied to goodwill at all reporting units, even those with zero or negative carrying amounts. Entities will be required to disclose the amount of goodwill at reporting units with zero or negative carrying amounts. No goodwill impairment was identified in 2020, 2019 and 2018.

We assess the impairment of intangible and long-lived assets whenever events or changes in circumstances indicate that the carrying value may not be recoverable. Factors we consider important in the determination of an impairment include significant underperformance relative to historical or projected future operating results, significant changes in the manner that we use the acquired asset and significant negative industry or economic trends.

Business Combination

We recognize the tangible and intangible assets acquired and liabilities assumed based on their estimated fair values at the date of acquisition. The fair value of identifiable intangible assets is based on detailed cash flows valuations that use information and assumptions provided by management. We estimate the fair value of contingent consideration at the time of the acquisition using all pertinent information known to us at the time to assess the probability of payment of contingent amounts or through the use of a Monte Carlo simulation model. We allocate any excess purchase price over the fair value of the net tangible and intangible assets acquired and liabilities assumed to goodwill. The assumptions used in the valuations for our acquisitions may differ materially from actual results depending on performance of the acquired businesses and other factors. While we believe the

assumptions used were appropriate, different assumptions in the valuation of assets acquired and liabilities assumed could have a material impact on the timing and extent of impact on our statements of operations. Goodwill is assigned to reporting units as of the date of the related acquisition.

Results of Operations

Information pertaining to fiscal year 2018 results of operations, including a year-to-year comparison against fiscal year 2019, was included in our Annual Report on Form 10-K for the year ended December 31, 2019 under Part II, Item 7, “Management’s Discussion and Analysis of Financial Position and Results of Operations,” which was filed with the SEC on March 2, 2020. This information is incorporated by reference herein.

The following table sets forth the percentage of total net revenues included in our consolidated statements of operations:

	Years Ended December 31,	
	2020	2019
Percentage of revenues:		
Revenues:		
Products	86.2%	82.3%
Services	<u>13.8</u>	<u>17.7</u>
Total revenues	100.0	100.0
Cost of revenues:		
Cost of products	37.1	34.1
Cost of services	<u>5.7</u>	<u>7.5</u>
Total cost of revenues (exclusive of acquired intangible assets amortization shown separately below)	<u>42.8</u>	<u>41.6</u>
Gross profit	57.2	58.4
Operating expenses:		
Selling and administrative	14.9	19.0
Engineering and development	12.0	14.1
Acquired intangible assets amortization	1.0	1.7
Restructuring and other	<u>(0.4)</u>	<u>(0.6)</u>
Total operating expenses	<u>27.5</u>	<u>34.3</u>
Income from operations	29.7	24.1
Non-operating (income) expenses:		
Interest income	(0.2)	(0.7)
Interest expense	0.8	1.0
Other (income) expense, net	<u>0.3</u>	<u>1.0</u>
Income before income taxes	28.9	22.9
Income tax provision	<u>3.7</u>	<u>2.5</u>
Net income	<u>25.1%</u>	<u>20.4%</u>

Revenues

Revenues for our reportable segments were as follows:

	<u>2020</u>	<u>2019</u>	<u>2019-2020</u> <u>Dollar</u> <u>Change</u>
		(in millions)	
Semiconductor Test	\$2,259.6	\$1,552.6	\$707.0
System Test	409.7	287.5	122.2
Industrial Automation	279.7	298.1	(18.4)
Wireless Test	173.0	157.3	15.7
Corporate and Other	(0.6)	(0.5)	(0.1)
	<u>\$3,121.5</u>	<u>\$2,295.0</u>	<u>\$826.5</u>

The increase in Semiconductor Test revenues of \$707.0 million, or 45.5%, was driven primarily by an increase in semiconductor mobility test sales resulting from increased complexity of cell phone silicon which drives demand for testers, and an increase in memory test sales of flash and DRAM testers. The increase in System Test revenues of \$122.2 million, or 42.5%, was primarily due to higher sales in Storage Test of system level and hard disk drive testers, and higher sales in Defense/Aerospace test instrumentation and systems, partially offset by lower sales in Production Board Test due to lower automotive electronics demand. The decrease in Industrial Automation revenues of \$18.4 million, or 6.2%, was primarily due to lower demand for collaborative robotic arms in the automotive and manufacturing markets amplified by the impacts of COVID-19. The increase in Wireless Test revenues of \$15.7 million, or 10.0%, was primarily due to increased sales of 5G, WiFi 6 and WiFi 6E testers.

Our reportable segments accounted for the following percentages of consolidated revenues:

	<u>2020</u>	<u>2019</u>
Semiconductor Test	72%	68%
System Test	13	13
Industrial Automation	9	13
Wireless Test	<u>6</u>	<u>7</u>
	<u>100%</u>	<u>100%</u>

Revenues by country as a percentage of total revenues were as follows (1):

	<u>2020</u>	<u>2019</u>
Taiwan	38%	21%
China	15	22
Korea	13	10
United States	10	15
Europe	7	10
Japan	5	8
Thailand	4	4
Singapore	2	4
Malaysia	2	3
Philippines	2	2
Rest of the World	<u>2</u>	<u>2</u>
	<u>100%</u>	<u>100%</u>

(1) Revenues attributable to a country are based on the location of the customer site.

The breakout of product and service revenues was as follows:

	<u>2020</u>	<u>2019</u>	<u>2019-2020</u> <u>Dollar</u> <u>Change</u>
	(in millions)		
Product revenues	\$2,690.9	\$1,887.7	\$803.2
Service revenues	430.6	407.3	23.3
	<u>\$3,121.5</u>	<u>\$2,295.0</u>	<u>\$826.5</u>

Our product revenues increased \$803.2 million, or 42.5%, primarily due to higher sales in Semiconductor Test mobility test segment, higher sales of flash and DRAM testers, higher sales in Storage Test of system level and hard disk drive testers, and higher sales in Wireless Test of 5G, WiFi 6 and WiFi 6E testers, partially offset by a decrease in sales in Industrial Automation. Service revenues increased \$23.3 million or 5.7%.

In 2020, revenues from Taiwan Semiconductor Manufacturing Company Ltd., a customer of our Semiconductor Test segment, accounted for 15% of our consolidated revenues. In 2019, no single direct customer accounted for more than 10% of our consolidated revenues. In 2020 and 2019, our five largest direct customers in aggregate accounted for 36% and 27% of our consolidated revenues, respectively.

We estimate consolidated revenues driven by one OEM customer, combining direct sales to that customer with sales to the customer's OSATs, accounted for approximately 25% and 10% of our consolidated revenues in 2020 and 2019, respectively. We estimate consolidated revenues driven by Huawei Technologies Co. Ltd. ("Huawei"), combining direct sales to that customer with sales to the customer's OSATs, accounted for approximately 3% and 11% of our consolidated revenues in 2020 and 2019, respectively.

Gross Profit

	<u>2020</u>	<u>2019</u>	<u>2019-2020</u> <u>Dollar /</u> <u>Point</u> <u>Change</u>
	(dollars in millions)		
Gross profit	\$1,785.7	\$1,339.8	\$445.9
Percent of total revenues	57.2%	58.4%	(1.2)

Gross profit as a percent of total revenues decreased by 1.2 points, primarily due to product mix in Semiconductor Test.

The breakout of product and service gross profit was as follows:

	<u>2020</u>	<u>2019</u>	<u>2019-2020</u> <u>Dollar /</u> <u>Point</u> <u>Change</u>
	(dollars in millions)		
Product gross profit	\$1,533.4	\$1,105.6	\$427.8
Percent of product revenues	57.0%	58.6%	(1.6)
Service gross profit	\$ 252.3	\$ 234.2	\$ 18.1
Percent of service revenues	58.6%	57.5%	1.1

We assess the carrying value of our inventory on a quarterly basis by estimating future demand and comparing that demand against on-hand and on-order inventory positions. Forecasted revenues information is obtained from the sales and marketing groups and incorporates factors such as backlog and future consolidated

revenues. This quarterly process identifies obsolete and excess inventory. Obsolete inventory, which represents items for which there is no demand, is fully reserved. Excess inventory, which represents inventory items that are not expected to be consumed during the next twelve quarters for our Semiconductor Test, Industrial Automation and System Test segments and next four quarters for our Wireless Test segment, is written-down to estimated net realizable value.

During the year ended December 31, 2020, we recorded an inventory provision of \$17.5 million included in cost of revenues, primarily due to downward revisions to previously forecasted demand levels for certain products. Of the \$17.5 million of total excess and obsolete provisions, \$11.0 million was related to Semiconductor Test, \$4.8 million was related to Wireless Test, \$0.9 million was related to System Test, and \$0.8 million was related to Industrial Automation.

During the year ended December 31, 2019, we recorded an inventory provision of \$15.2 million included in cost of revenues, primarily due to downward revisions to previously forecasted demand levels for certain products. Of the \$15.2 million of total excess and obsolete provisions, \$8.7 million was related to Semiconductor Test, \$4.0 million was related to Wireless Test, \$2.0 million was related to System Test, and \$0.5 million was related to Industrial Automation.

During the years ended December 31, 2020 and 2019, we scrapped \$7.7 million and \$9.2 million of inventory, respectively, and sold \$2.3 million and \$3.2 million of previously written-down or written-off inventory, respectively. As of December 31, 2020, we had inventory related reserves for amounts which had been written-down or written-off totaling \$110.6 million. We have no pre-determined timeline to scrap the remaining inventory.

Selling and Administrative

Selling and administrative expenses were as follows:

	<u>2020</u>	<u>2019</u>	<u>2019-2020</u> <u>Change</u>
	(dollars in millions)		
Selling and administrative	\$464.8	\$437.1	\$27.7
Percent of total revenues	14.9%	19.0%	

The increase of \$27.7 million in selling and administrative expenses was primarily due to higher variable compensation.

Engineering and Development

Engineering and development expenses were as follows:

	<u>2020</u>	<u>2019</u>	<u>2019-2020</u> <u>Change</u>
	(dollars in millions)		
Engineering and development	\$375.0	\$322.8	\$52.1
Percent of total revenues	12.0%	14.1%	

The increase of \$52.1 million in engineering and development expenses was primarily due to higher variable compensation and higher spending across all segments.

Restructuring and Other

During the year ended December 31, 2020, we recorded a \$19.7 million gain for the decrease in the fair value of the AutoGuide contingent consideration liability, and a \$3.5 million gain for the decrease in the fair

value of the MiR contingent consideration liability, partially offset by a \$4.0 million contract termination settlement charge, \$2.5 million of acquisition related compensation and expenses, \$2.3 million of severance charges primarily in Industrial Automation, and \$1.2 million of other expenses.

During the year ended December 31, 2019, we recorded a \$22.2 million gain for the decrease in the fair value of the MiR contingent consideration liability, partially offset by a \$3.0 million gain for the increase in the fair value of the AutoGuide contingent consideration, \$2.9 million of severance charges related to headcount reductions primarily in Semiconductor Test and Industrial Automation, and \$2.5 million for acquisition related expenses and compensation.

The remaining accrual for severance of \$0.5 million is reflected in the accrued employees' compensation and withholdings on the balance sheet and is expected to be paid by March 2021.

Interest and Other

	<u>2020</u>	<u>2019</u>	<u>2019-2020</u>
		(in millions)	Change
Interest income	\$(6.0)	\$(17.0)	\$ 11.0
Interest expense	24.2	22.2	2.0
Other (income) expense, net	9.2	22.6	(13.5)

Interest income decreased by \$11.0 million primarily due to lower interest rates in 2020 compared to 2019. Interest expense increased by \$2.0 million primarily due to interest expense related to our convertible senior notes and revolving credit facility costs. Other (income) expense, net decreased by \$13.5 million primarily due to a \$15.0 million charge for the impairment of the investment in RealWear in 2019, partially offset by a \$2.1 million increase in pension actuarial losses from \$8.2 million losses in 2019 to \$10.3 million losses in 2020.

Income (Loss) Before Income Taxes

	<u>2020</u>	<u>2019</u>	<u>2019-2020</u>
		(in millions)	Change
Semiconductor Test	\$739.7	\$417.0	\$322.7
System Test	152.1	93.5	58.6
Wireless Test	42.0	35.6	6.4
Industrial Automation	(24.0)	(5.9)	(18.1)
Corporate and Other (1)	(8.7)	(14.4)	5.7
	<u>\$901.0</u>	<u>\$525.8</u>	<u>\$375.3</u>

(1) Included in Corporate and Other are: contingent consideration adjustments, investment impairment, employee severance charges, interest (income) and expense, net foreign exchange (gains) and losses, pension and postretirement plan actuarial (gains) and losses and settlement charges, intercompany eliminations, and certain acquisition related charges and compensation.

The increase in income before income taxes in Semiconductor Test was driven primarily by an increase in semiconductor mobility test sales resulting from increased complexity of cell phone silicon which drives demand for testers, and an increase in memory test sales of flash and DRAM testers. The increase in income before income taxes in System Test was primarily due to higher sales in Storage Test of system level and hard disk drive testers, and higher sales in Defense/Aerospace test of instrumentation and systems, partially offset by lower sales in Production Board due to lower automotive electronics demand. The increase in income before income taxes in Wireless Test was primarily due to increased sales of 5G, WiFi 6 and WiFi 6E testers. The decrease in income before income taxes in Industrial Automation was primarily due to lower demand for collaborative robotic arms in the automotive and manufacturing markets amplified by the impacts of COVID-19.

Income Taxes

Income tax expense for 2020, 2019 and 2018 totaled \$116.9 million, \$58.3 million and \$16.0 million, respectively. The effective tax rate for 2020, 2019 and 2018 was 13.0%, 11.1% and 3.4%, respectively.

The increase in the effective tax rate from 2019 to 2020 is primarily attributable to a reduction in the benefit from releases of reserves for uncertain tax positions and a reduction in the benefit from foreign tax credits. These increases in expense were partially offset by a decrease in the transition tax on the mandatory deemed repatriation of foreign earnings and shift in the geographic distribution of income, which increases the income subject to taxation in lower tax rate jurisdictions relative to higher tax rate jurisdictions.

In the fourth quarter of 2017, we recorded \$186.0 million of additional income tax expense which represented our best estimate of the impact of the Tax Reform Act in accordance with our understanding of the Tax Reform Act and available guidance as of that date. The \$186.0 million was primarily composed of expense of \$161.0 million related to the one-time transition tax on the mandatory deemed repatriation of foreign earnings, \$33.6 million of expense related to the remeasurement of certain deferred tax assets and liabilities based on the rates at which they are expected to reverse in the future, and benefit of \$10.3 million associated with the impact of correlative adjustments on uncertain tax positions. In accordance with the requirements of SEC Staff Accounting Bulletin (“SAB”) No. 118, “Income Tax Accounting Implications of the Tax Cuts and Jobs Act”, in the fourth quarter of 2018, we completed our analysis of the effect of the Tax Reform Act based on the application of the guidance available as of December 31, 2018 and recorded \$49.5 million of net income tax benefit. The net benefit consisted of \$51.7 million of benefit resulting from a reduction in the estimate of the one-time transition tax on the mandatory deemed repatriation of foreign earnings and an expense of \$2.2 million associated with the impact of correlative adjustments on uncertain tax positions.

The increase in the effective tax rate from 2018 to 2019 is primarily attributable to increases in expense associated with U.S. global intangible low-taxed income and U.S. transition tax on the mandatory deemed repatriation of foreign earnings. These increases in expense were partially offset by increased benefit from the U.S. foreign derived intangible income deduction, an increase in the benefit from foreign tax credits and the benefit from a net reduction in reserves for uncertain tax positions.

We qualify for a tax holiday in Singapore by fulfilling the requirements of an agreement with the Singapore Economic Development Board under which certain headcount and spending requirements must be met. The tax savings attributable to the Singapore tax holiday for the years ended December 31, 2020, 2019 and 2018 were \$29.9 million or \$0.16 per diluted share, \$15.1 million or \$0.08 per diluted share and \$11.9 million or \$0.06 per diluted share, respectively. In November 2020, we entered into an agreement with the Singapore Economic Development Board which extended our Singapore tax holiday under substantially similar terms to the agreement which expired on December 31, 2020. The new tax holiday is scheduled to expire on December 31, 2025.

Contractual Obligations

The following table reflects our contractual obligations as of December 31, 2020:

	Payments Due by Period					
	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years	Other
	(in thousands)					
Purchase obligations	\$ 603,464	\$592,058	\$ 11,406	\$ —	\$ —	\$ —
Convertible debt	459,971	37,397	422,574	—	—	—
Retirement plans contributions	156,592	5,551	10,598	10,426	130,017	—
Transition tax payable (1)	82,820	7,889	15,795	34,540	24,596	—
Operating lease obligations	71,457	22,631	27,371	13,839	7,616	—
Interest on long term debt	15,928	5,364	10,564	—	—	—
Fair value of contingent consideration	7,227	—	7,227	—	—	—
Other long-term liabilities reflected on the balance sheet under GAAP (2)	88,532	—	51,165	6,787	407	30,173
Total	<u>\$1,485,991</u>	<u>\$670,890</u>	<u>\$556,700</u>	<u>\$65,592</u>	<u>\$162,636</u>	<u>\$30,173</u>

- (1) Represents the transition tax liability associated with our accumulated foreign earnings as a result of enactment of the Tax Reform Act on December 22, 2017.
- (2) Included in other long-term liabilities are liabilities for customer advances, extended warranty, uncertain tax positions, deferred tax liabilities and other obligations. For certain long-term obligations, we are unable to provide a reasonably reliable estimate of the timing of future payments relating to these obligations and therefore we included these amounts in the column marked “Other.”

Liquidity and Capital Resources

Our cash, cash equivalents and marketable securities balance increased by \$539 million in 2020 to \$1,554 million.

Operating activities during 2020 provided cash of \$868.9 million. Changes in operating assets and liabilities used cash of \$69.4 million. This was due to a \$202.3 million increase in operating assets and a \$132.9 million increase in operating liabilities.

The increase in operating assets was due to a \$129.5 million increase in accounts receivable due to increased sales, an \$8.4 million increase in inventories, and a \$64.4 million increase in prepayments and other assets.

The increase in operating liabilities was due to a \$54.7 million increase in accrued employee compensation, a \$40.0 million increase in deferred revenue and customer advance payments, a \$25.2 million increase in income taxes, a \$12.8 million increase in other accrued liabilities, and a \$5.7 million increase in accounts payable, partially offset by \$5.4 million of retirement plan contributions.

Investing activities during 2020 used cash of \$569.8 million, due to \$900.2 million used for purchases of marketable securities, and \$185.0 million used for purchases of property, plant and equipment, partially offset by \$480.0 million and \$35.0 million in proceeds from maturities and sales of marketable securities, respectively, and proceeds from life insurance of \$0.5 million related to the cash surrender value from the cancellation of Teradyne owned life insurance policy.

Financing activities during 2020 used cash of \$158.3 million, due to \$88.5 million used for the repurchase of 1.5 million shares of common stock at an average price of \$58.33 per share, \$66.5 million used for dividend payments, \$23.0 million used for payments related to net settlement of employee stock compensation awards, and \$8.9 million used for payment related to MiR acquisition contingent consideration, partially offset by \$28.5 million from the issuance of common stock under employee stock purchase and stock option plans.

Operating activities during 2019 provided cash of \$578.8 million. Changes in operating assets and liabilities used cash of \$51.7 million. This was due to a \$121.6 million increase in operating assets and a \$69.9 million increase in operating liabilities.

The increase in operating assets was due to a \$70.4 million increase in accounts receivable due to increased sales, a \$27.4 million increase in inventories, and a \$23.8 million increase in prepayments and other assets.

The increase in operating liabilities was due to a \$39.3 million increase in deferred revenue and customer advance payments, a \$24.8 million increase in accounts payable, a \$15.3 million increase in accrued employee compensation and a \$9.2 million increase in other accrued liabilities, partially offset by a \$13.6 million decrease in income taxes, and \$5.1 million of retirement plan contributions.

Investing activities during 2019 used cash of \$156.7 million, due to \$662.7 million used for purchases of marketable securities, \$134.6 million used for purchases of property, plant and equipment, \$57.8 million, net of cash acquired, used for the acquisition of AutoGuide, \$15.0 million used for an investment in RealWear, and \$7.0 million, net of cash acquired, used for the acquisition of Lemsys, partially offset by \$611.9 million and \$105.6 million in proceeds from maturities and sales of marketable securities, respectively, and proceeds from life insurance of \$2.9 million related to the cash surrender value from the cancellation of Teradyne owned life insurance policies.

Financing activities during 2019 used cash of \$574.3 million, due to \$500.0 million used for the repurchase of 10.9 million shares of common stock at an average price of \$45.89 per share, \$61.3 million used for dividend payments, \$27.6 million used for payments related to MiR and Universal Robots acquisition contingent consideration and \$14.7 million used for payments related to net settlement of employee stock compensation awards, partially offset by \$29.3 million from the issuance of common stock under employee stock purchase and stock option plans.

In January 2020, May 2020, August 2020 and November 2020, our Board of Directors declared a quarterly cash dividend of \$0.10 per share. Total dividend payments in 2020 were \$66.5 million.

In January 2019, May 2019, August 2019 and November 2019, our Board of Directors declared a quarterly cash dividend of \$0.09 per share. Total dividend payments in 2019 were \$61.3 million.

In January 2021, our Board of Directors declared a quarterly cash dividend of \$0.10 per share to be paid on March 19, 2021 to shareholders of record as of February 19, 2021. Payment of future cash dividends are subject to the discretion of our Board of Directors and will depend, among other things, upon our earnings, capital requirements and financial condition.

In January 2020, our Board of Directors cancelled the January 2018 stock repurchase program and approved a new stock repurchase program for up to \$1.0 billion in common stock. On April 1, 2020, we suspended the share repurchase program. In 2020, we repurchased 1.5 million shares of common stock for \$88.5 million at an average price per share of \$58.33. In 2019, we repurchased 10.9 million shares of common stock for \$500.0 million at an average price per share of \$45.89. The cumulative repurchases as of December 31, 2019, for the 2018 stock repurchase program, totaled 32.5 million shares of common stock for \$1,323.0 million at an average price per share of \$40.68. In January 2021, our Board of Directors cancelled the January 2020 repurchase program and approved a new repurchase program for up to \$2.0 billion of common stock. Unless terminated by resolution of our Board of Directors, the repurchase program will expire when we have repurchased all shares authorized for repurchase under the share repurchase program. We intend to repurchase a minimum of \$600 million in 2021.

While we declared a quarterly cash dividend and authorized a share repurchase program, we may reduce or eliminate the cash dividend or share repurchase program in the future. Future cash dividends and stock repurchases are subject to the discretion of our Board of Directors, which will consider, among other things, our earnings, capital requirements and financial condition.

On May 1, 2020, we entered into a credit agreement providing a three-year, senior secured revolving credit facility of \$400 million. As of February 22, 2021, we have not borrowed any funds under the credit facility.

We believe our cash, cash equivalents and marketable securities balance will be sufficient to pay our quarterly dividend and meet our working capital and expenditure needs for at least the next twelve months. Inflation has not had a significant long-term impact on earnings. At this time, the COVID-19 pandemic has not had an impact on our liquidity, but there is no assurance that continued impacts resulting from the pandemic will not have an adverse effect in the future.

Retirement Plans

ASC 715-20, “*Compensation—Retirement Benefits—Defined Benefit Plans*,” requires an employer with defined benefit plans or other postretirement benefit plans to recognize an asset or a liability on its balance sheet for the overfunded or underfunded status of the plans as defined by ASC 715-20. The pension asset or liability represents the difference between the fair value of the pension plans’ assets and the projected benefit obligation as of December 31. For other postretirement benefit plans, the liability is the difference between the fair value of the plan’s assets and the accumulated postretirement benefit obligation as of December 31.

For the year ended December 31, 2020, our pension expense, which includes the U.S. Qualified Pension Plan (“U.S. Plan”), certain qualified plans for non-U.S. subsidiaries, and a U.S. Supplemental Executive Defined Benefit Plan, was approximately \$13.9 million. Pension expense is calculated based upon a number of actuarial assumptions. Discount rate and expected return on assets are two assumptions which are important elements of pension plan expense and asset/liability measurement. We evaluate our discount rate and expected rate of return on assets assumptions annually on a plan and country specific basis. We evaluate other assumptions related to demographic factors, such as retirement age, mortality and turnover periodically, and update them to reflect our experience and expectations for the future.

In developing the expected return on U.S. Plan assets assumption, we evaluated input from our investment manager and pension consultants, including their forecast of asset class return expectations. We believe that 3.0% was an appropriate rate of return on assets to use for 2020. The December 31, 2020 asset allocation for our U.S. Plan was 94% invested in fixed income securities, 5% invested in equity securities, and 1% invested in other securities. Our investment manager regularly reviews the actual asset allocation and periodically rebalances the portfolio to ensure alignment with our target allocations.

We recognize net actuarial gains and losses and the change in the fair value of plan assets in our operating results in the year in which they occur or upon any interim remeasurement of the plans. We calculate the expected return on plan assets using the fair value of the plan assets. Actuarial gains and losses are generally measured annually as of December 31 and, accordingly, recorded during the fourth quarter of each year or upon any interim remeasurement of the plans.

The discount rate that we utilized for determining future pension obligations for the U.S. Plan is based on the FTSE Pension Index adjusted for the U.S. Plan’s expected cash flows and was 2.3% at December 31, 2020, down from 3.1% at December 31, 2019. We estimate that in 2021 we will recognize approximately \$0.9 million of pension expense for the U.S. Plan. The U.S. Plan pension expense estimate for 2021 is based on a 2.3% discount rate and a 2.4% return on assets. Future pension expense or income will depend on future investment performance, changes in future discount rates and various other factors related to the employee population participating in our pension plans.

As of December 31, 2020, our pension plans had no unrecognized pension prior service cost.

The assets of the U.S. Plan consist substantially of fixed income securities. U.S. Plan assets have decreased from \$166.9 million at December 31, 2019 to \$158.9 million at December 31, 2020, while the U.S. Plan’s

liability decreased from \$148.5 million at December 31, 2019 to \$141.4 million at December 31, 2020. In 2020, the decrease in plan assets and plan liability was primarily due to a retiree annuity purchase. In 2020, the accrued pension obligations for approximately 115 retiree participants were transferred to an insurance company and resulted in a \$24.4 million reduction in the pension benefit obligation and pension assets. We recorded \$2.2 million of pension actuarial loss and a settlement loss of \$0.5 million related to the retiree group annuity transaction.

Our funding policy is to make contributions to our pension plans in accordance with local laws and to the extent that such contributions are tax deductible. During 2020, we made contributions of \$3.1 million to the U.S. supplemental executive defined benefit pension plan, and \$1.1 million to certain qualified plans for non-U.S. subsidiaries. In 2021, we expect to contribute approximately \$3.3 million to the U.S. supplemental executive defined benefit pension plan. Contributions to be made in 2021 to certain qualified plans for non-U.S. subsidiaries are based on local statutory requirements and are estimated at approximately \$1.1 million.

Equity Compensation Plans

In addition to our 1996 Employee Stock Purchase Plan discussed in Note Q: “*Stock-Based Compensation*” in Notes to Consolidated Financial Statements, we have a 2006 Equity and Cash Compensation Incentive Plan (the “2006 Equity Plan”) under which equity securities are authorized for issuance. The 2006 Equity Plan was initially approved by stockholders on May 25, 2006.

At our annual meeting of stockholders held May 21, 2013, our stockholders approved an amendment to the 2006 Equity Plan to increase the number of shares issuable thereunder by 10.0 million, for an aggregate of 32.0 million shares issuable thereunder, and our stockholders also approved an amendment to our 1996 Employee Stock Purchase Plan to increase the number of shares issuable thereunder by 5.0 million, for an aggregate of 30.4 million shares issuable thereunder. At our annual meeting of stockholders held May 12, 2015, our stockholders approved an amendment to the 2006 Equity Plan to extend its term until May 12, 2025.

The following table presents information about these plans as of December 31, 2020 (share numbers in thousands):

<u>Plan category</u>	<u>Number of securities to be issued upon exercise of outstanding options, warrants and rights</u>	<u>Weighted-average exercise price of outstanding options, warrants and rights</u>	<u>Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column one)</u>
Equity plans approved by shareholders	1,943(1)	\$37.31	7,563(2)
Equity plans not approved by shareholders (3)	6	3.77	—
Total	<u>1,949</u>	<u>37.21</u>	<u>7,563</u>

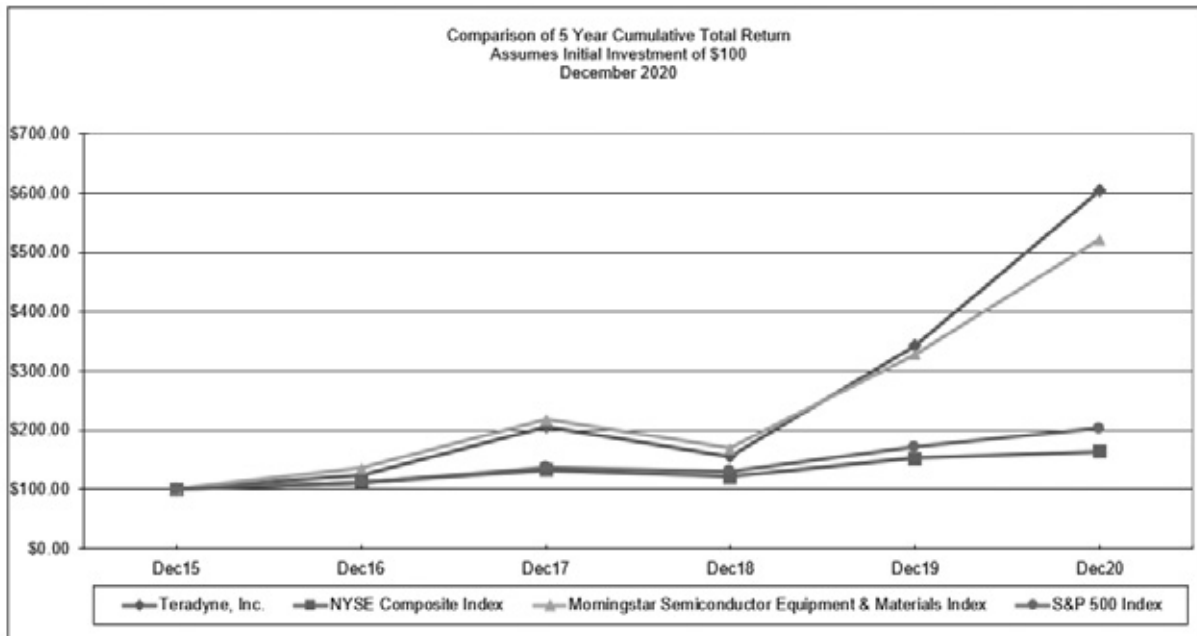
- (1) Includes 1,789,217 shares of restricted stock units that are not included in the calculation of the weighted average exercise price.
- (2) Consists of 6,122,630 securities available for issuance under the 2006 Equity Plan and 1,440,073 of securities available for issuance under the Employee Stock Purchase Plan.
- (3) In connection with the 2011 acquisition of LitePoint Corporation (the “LitePoint Acquisition”), we assumed the options granted under the LitePoint Corporation 2002 Stock Plan (the “LitePoint Plan”). Upon the consummation of the LitePoint Acquisition, these options were converted automatically into options to purchase an aggregate of 2,828,344 shares of our common stock. No additional awards were granted under the LitePoint Plan. As of December 31, 2020, there were outstanding options exercisable for an aggregate of 6,125 shares of our common stock pursuant to the LitePoint Plan, with a weighted average exercise price of \$3.77 per share.

The purpose of the 2006 Equity Plan is to motivate employees, officers and directors by providing equity ownership and compensation opportunities in Teradyne. The aggregate number of shares available under the 2006 Equity Plan as of December 31, 2020 was 6,122,630 shares of our common stock. The 2006 Equity Plan authorizes the grant of stock-based awards in the form of (1) non-qualified and incentive stock options, (2) stock appreciation rights, (3) restricted stock awards and restricted stock unit awards, (4) phantom stock, and (5) other stock-based awards. Awards may be tied to time-based vesting schedules and/or performance-based vesting measured by reference to performance criteria chosen by the Compensation Committee of the Board of Directors, which administers the 2006 Equity Plan. Awards may be made to any employee, officer, consultant and advisor of Teradyne and our subsidiaries, as well as, to our directors. The maximum number of shares of stock-based awards that may be granted to one participant during any one fiscal year is 2,000,000 shares of common stock.

As of December 31, 2020, total unrecognized compensation expense related to non-vested restricted stock units and options was \$44 million and is expected to be recognized over a weighted average period of 2.4 years.

Performance Graph

The following graph compares the change in our cumulative total shareholder return in our common stock with (i) the NYSE Composite Index and (ii) the Morningstar Semiconductor Equipment & Materials Industry Group (compiled by Morningstar, Inc.), and (iii) the Standard & Poor’s 500 Index. The comparison assumes \$100.00 was invested on December 31, 2015 in our common stock and in each of the foregoing indices and assumes reinvestment of dividends, if any. Historic stock price performance is not necessarily indicative of future price performance. This is the last year that we will compare ourselves to the NYSE Composite Index. Going forward, we will compare ourselves to (i) Standard & Poor’s 500 Index, as a result of Teradyne being added, on September 21, 2020, to the Standard & Poor’s 500 Index, and (ii) the Morningstar Semiconductor Equipment & Materials Industry Group (compiled by Morningstar, Inc.)



Recently Issued Accounting Pronouncements

In August 2020, the FASB issued ASU 2020-06—“Debt—Debt with Conversion and Other Options and Derivatives and Hedging—Contracts in Entity’s Own Equity,” which simplifies the accounting for convertible

debt instruments by reducing the number of accounting models and the number of embedded conversion features that could be recognized separately from the primary contract. This ASU requires a convertible debt instrument to be accounted for as a single liability measured at its amortized cost, as long as no other features require bifurcation and recognition as derivatives. This ASU requires an entity to use the if-converted method in the diluted earnings per share calculation for convertible instruments. This ASU will be effective for Teradyne on January 1, 2022, with early adoption permitted beginning on January 1, 2021. This ASU permits the use of either the modified retrospective or fully retrospective method of transition. Teradyne is evaluating the timing and effects of the adoption of this ASU on its financial statements.

Item 7A: Quantitative and Qualitative Disclosures about Market Risks

Concentration of Credit Risk

Financial instruments which potentially subject us to concentrations of credit risk consist principally of cash equivalents, marketable securities, forward currency contracts and accounts receivable. Our cash equivalents consist primarily of money market funds invested in U.S. Treasuries and government agencies. Our fixed income available-for-sale marketable securities have a minimum rating of AA by one or more of the major credit rating agencies. We place forward currency contracts with high credit-quality financial institutions in order to minimize credit risk exposure. Concentrations of credit risk with respect to accounts receivable are limited due to the large number of geographically dispersed customers. We perform ongoing credit evaluations of our customers' financial condition and from time to time may require customers to provide a letter of credit from a bank to secure accounts receivable. As of December 31, 2020, a customer of our Semiconductor Test segment, JA Mitsui Leasing, Ltd., accounted for 25% of our accounts receivable balance. The balance was paid in full as of February 22, 2021. There were no customers who accounted for 10% or more of our accounts receivable balance as of December 31, 2019.

In addition to market risks, we have an equity price risk related to the fair value of our convertible senior unsecured notes issued in December 2016. In December 2016, Teradyne issued \$460 million aggregate principal amount of 1.25% convertible senior unsecured notes (the "Notes") due December 15, 2023. As of December 31, 2020, the Notes had a fair value of \$1,740 million. The table below provides a sensitivity analysis of hypothetical 10% changes of Teradyne's stock price as of the end of 2020 and the estimated impact on the fair value of the Notes. The selected scenarios are not predictions of future events, but rather are intended to illustrate the effect such event may have on the fair value of the Notes. The fair value of the Notes is subject to equity price risk due to the convertible feature. The fair value of the Notes will generally increase as Teradyne's common stock price increases and will generally decrease as the common stock price declines in value. The change in stock price affects the fair value of the convertible senior notes, but does not impact Teradyne's financial position, cash flows or results of operations due to the fixed nature of the debt obligation. Additionally, we carry the Notes at face value less unamortized discount on our balance sheet, and we present the fair value for required disclosure purposes only. In connection with the offering of the Notes we also sold warrants to the option counterparties. These transactions have been accounted for as an adjustment to our shareholders' equity. The convertible note hedge transactions are expected to reduce the potential equity dilution upon conversion of the Notes. The warrants along with any shares issuable upon conversion of the Notes will have a dilutive effect on our earnings per share to the extent that the average market price of our common stock for a given reporting period exceeds the applicable strike price or conversion price of the warrants or Notes, respectively.

<u>Hypothetical Change in Teradyne Stock Price</u>	<u>Fair Value</u>	<u>Estimated change in fair value</u>	<u>Hypothetical percentage increase (decrease) in fair value</u>
10% Increase	\$1,917,955	\$ 178,402	10.3%
No Change	1,739,553	—	—
10% Decrease	1,569,357	(170,196)	(9.8)

See Note J: "Debt" for further information.

Exchange Rate Risk Management

We regularly enter into foreign currency forward contracts to hedge the value of our monetary assets and liabilities in Japanese Yen, British Pound, Korean Won, Taiwan Dollar, Singapore Dollar, Euro, Philippine Peso and Chinese Yuan. These foreign currency forward contracts have maturities of approximately one month. These contracts are used to minimize the effect of exchange rate fluctuations associated with the remeasurement of monetary assets and liabilities. We do not engage in currency speculation.

We performed a sensitivity analysis assuming a hypothetical 10% fluctuation in foreign exchange rates to the hedging contracts and the underlying exposures described above. As of December 31, 2020 and 2019, the analysis indicated that these hypothetical market movements would not have a material effect on our consolidated financial position, results of operations or cash flows.

Interest Rate Risk Management

We are exposed to potential losses due to changes in interest rates. Our interest rate exposure is primarily related to short-term and long-term marketable securities.

In order to estimate the potential loss due to interest rate risk, a fluctuation in interest rates of 25 basis points was assumed. Market risk for the short and long-term marketable securities was estimated as the potential change in the fair value resulting from a hypothetical change in interest rates for securities contained in the investment portfolio. The potential change in the fair value from changes in interest rates is immaterial as of December 31, 2020 and 2019.

Item 8: Financial Statements and Supplementary Data

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders of Teradyne, Inc.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Teradyne, Inc. and its subsidiaries (the “Company”) as of December 31, 2020 and 2019, and the related consolidated statements of operations, comprehensive income, convertible common shares and shareholders’ equity and cash flows for each of the three years in the period ended December 31, 2020, including the related notes and schedule of valuation and qualifying accounts for each of the three years in the period ended December 31, 2020 appearing under Item 15(c) (collectively referred to as the “consolidated financial statements”). We also have audited the Company’s internal control over financial reporting as of December 31, 2020, 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, 2020 and 2019, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2020 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, 2020, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Changes in Accounting Principles

As discussed in Note B to the consolidated financial statements, the Company changed the manner in which it accounts for leases in 2019 and the manner in which it accounts for revenue from contracts with customers in 2018.

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.

Valuation of Contingent Consideration payable related to the acquisition of AutoGuide, LLC

As described in Notes D, H and O to the consolidated financial statements, the Company completed its acquisition of AutoGuide, LLC on November 13, 2019. The total purchase price was approximately \$81.6 million, which included contingent consideration payable upon achievement of certain performance targets, extending potentially through 2022. As of December 31, 2020, the maximum contingent consideration that could be paid is \$100.2 million and management estimated the fair value of the contingent consideration to be approximately \$7.2 million based on forecasted results, after recording \$19.7 million in restructuring and other expenses during the year ended December 31, 2020. The valuation of contingent consideration is remeasured at each financial reporting date from the acquisition date through the date of final settlement using the Monte Carlo simulation model, and it is dependent on the following assumptions: forecasted revenues, revenue volatility, earnings before interest and taxes, and discount rate at each reporting date.

The principal considerations for our determination that performing procedures relating to the valuation of contingent consideration payable related to the acquisition of AutoGuide, LLC is a critical audit matter are (i) the high degree of auditor judgment and subjectivity in performing procedures relating to the fair value measurement of the contingent consideration due to the significant judgment by management when developing the fair value estimate; (ii) significant audit effort in evaluating the significant assumptions related to forecasted revenues and earnings before interest and taxes used in the Monte Carlo simulation model; 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 management's valuation of contingent consideration, including controls over the development of the forecasted revenues and earnings before interest and taxes used in the valuation of the contingent consideration. These procedures also included, among others, (i) testing management's process for developing the fair value estimate; (ii) evaluating the appropriateness of the Monte Carlo simulation model; (iii) evaluating the reasonableness of the significant assumptions related to forecasted revenues and earnings before interest and taxes; and (iv) testing the completeness, accuracy and relevance of the underlying data used in the model. Evaluating management's assumptions related to forecasted revenues and earnings before interest and taxes involved evaluating whether the assumptions were reasonable considering historical results and consistency with external industry and market data. Professionals with specialized skill and knowledge were used to assist in the evaluation of the appropriateness of the Monte Carlo simulation model, as well as the reasonableness of certain assumptions.

/s/ PricewaterhouseCoopers LLP
Boston, Massachusetts
February 22, 2021

We have served as the Company's auditor since 1968.

TERADYNE, INC.
CONSOLIDATED BALANCE SHEETS

	2020	2019
	(in thousands, except per share information)	
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 914,121	\$ 773,924
Marketable securities	522,280	137,303
Accounts receivable, less allowance for doubtful accounts of \$2,034 and \$1,736 in 2020 and 2019, respectively	497,506	362,368
Inventories, net	222,189	196,691
Prepayments and other current assets	259,338	188,598
Total current assets	2,415,434	1,658,884
Property, plant and equipment, net	394,800	320,216
Operating lease right-of-use assets, net	54,569	57,539
Marketable securities	117,980	104,490
Deferred tax assets	87,913	75,185
Retirement plans assets	17,468	18,457
Other assets	9,384	10,332
Acquired intangible assets, net	100,939	125,480
Goodwill	453,859	416,431
Total assets	\$3,652,346	\$2,787,014
LIABILITIES		
Current liabilities:		
Accounts payable	\$ 133,663	\$ 126,617
Accrued employees' compensation and withholdings	220,321	163,883
Deferred revenue and customer advances	134,662	104,876
Other accrued liabilities	77,581	70,871
Operating lease liabilities	20,573	19,476
Contingent consideration	—	9,106
Income taxes payable	80,728	44,200
Current debt	33,343	—
Total current liabilities	700,871	539,029
Retirement plans liabilities	151,140	134,471
Long-term deferred revenue and customer advances	58,359	45,974
Long-term contingent consideration	7,227	30,599
Deferred tax liabilities	10,821	14,070
Long-term other accrued liabilities	19,352	19,535
Long-term operating lease liabilities	42,073	45,849
Long-term income taxes payable	74,930	82,642
Debt	376,768	394,687
Total liabilities	1,441,541	1,306,856
Commitments and contingencies (Note M)		
Mezzanine equity:		
Convertible common shares	3,787	—
SHAREHOLDERS' EQUITY		
Common stock, \$0.125 par value, 1,000,000 shares authorized, 166,123 and 166,410 shares issued and outstanding at December 31, 2020 and 2019, respectively	20,765	20,801
Additional paid-in capital	1,765,323	1,720,129
Accumulated other comprehensive income (loss)	33,516	(18,854)
Retained earnings (accumulated deficit)	387,414	(241,918)
Total shareholders' equity	2,207,018	1,480,158
Total liabilities, convertible common shares and shareholders' equity	\$3,652,346	\$2,787,014

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

TERADYNE, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS

	<u>Years Ended December 31,</u>		
	<u>2020</u>	<u>2019</u>	<u>2018</u>
	(in thousands, except per share amounts)		
Revenues:			
Products	\$2,690,906	\$1,887,674	\$1,729,621
Services	430,563	407,291	371,181
Total revenues	<u>3,121,469</u>	<u>2,294,965</u>	<u>2,100,802</u>
Cost of revenues:			
Cost of products	1,157,476	782,047	727,138
Cost of services	178,252	173,089	153,270
Total cost of revenues (exclusive of acquired intangible assets amortization shown separately below)	<u>1,335,728</u>	<u>955,136</u>	<u>880,408</u>
Gross profit	1,785,741	1,339,829	1,220,394
Operating expenses:			
Selling and administrative	464,769	437,084	390,669
Engineering and development	374,964	322,824	301,505
Acquired intangible assets amortization	30,803	40,147	39,191
Restructuring and other	(13,202)	(13,880)	15,232
Total operating expenses	<u>857,334</u>	<u>786,175</u>	<u>746,597</u>
Income from operations	928,407	553,654	473,797
Non-operating (income) expenses:			
Interest income	(5,982)	(16,990)	(20,458)
Interest expense	24,182	22,224	21,780
Other (income) expense, net	9,192	22,648	4,674
Income before income taxes	901,015	525,772	467,801
Income tax provision	116,868	58,304	16,022
Net income	<u>\$ 784,147</u>	<u>\$ 467,468</u>	<u>\$ 451,779</u>
Net income per common share:			
Basic	<u>\$ 4.72</u>	<u>\$ 2.74</u>	<u>\$ 2.41</u>
Diluted	<u>\$ 4.28</u>	<u>\$ 2.60</u>	<u>\$ 2.35</u>
Weighted average common shares—basic	<u>166,120</u>	<u>170,425</u>	<u>187,672</u>
Weighted average common shares—diluted	<u>183,042</u>	<u>179,459</u>	<u>192,605</u>

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

TERADYNE, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

	Years Ended December 31,		
	2020	2019	2018
	(in thousands)		
Net income	\$784,147	\$467,468	\$451,779
Other comprehensive income, net of tax:			
Foreign currency translation adjustment, net of tax of \$0, \$0, \$0	48,903	(10,991)	(28,442)
Available-for-sale marketable securities:			
Unrealized gains (losses) on marketable securities arising during period, net of tax of \$1,629, \$1,659, \$(722), respectively	5,839	6,015	(2,110)
Less: Reclassification adjustment for (gains) losses included in net income, net of tax of \$(665), \$(192), \$(21), respectively	(2,365)	(690)	1,337
	3,474	5,325	(773)
Defined benefit pension and post-retirement plans:			
Amortization of prior service benefit included in net periodic pension and post-retirement benefit, net of tax \$(2), \$(43), \$(71), respectively	(7)	(148)	(245)
Other comprehensive income (loss)	52,370	(5,814)	(29,460)
Comprehensive income	\$836,517	\$461,654	\$422,319

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

TERADYNE, INC.

**CONSOLIDATED STATEMENTS OF CONVERTIBLE COMMON SHARES
AND SHAREHOLDERS' EQUITY**

	Shareholders' Equity						
	Convertible Common Shares	Common Stock Shares	Common Stock Par Value	Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Retained Earnings (Accumulated Deficit)	Total Shareholders' Equity
	(in thousands)						
Year Ended December 31, 2017 ..	\$ —	195,548	\$24,444	\$1,638,413	\$ 18,776	\$ 272,013	\$1,953,646
Net issuance of common stock under stock-based plans		1,613	201	(72)			129
Stock-based compensation expense				33,304			33,304
Repurchase of common stock		(21,639)	(2,705)			(829,651)	(832,356)
Cash dividends (\$0.09 per share) ...						(67,367)	(67,367)
Net income						451,779	451,779
Other comprehensive loss					(29,460)		(29,460)
Reclassification of unrealized gains on equity securities					(3,125)	3,125	—
Reclassification of tax effects resulting from the Tax Reform Act					769	(769)	—
Cumulative effect of changes in accounting principle related to revenue recognition						12,679	12,679
Year Ended December 31, 2018 ..	<u>—</u>	<u>175,522</u>	<u>21,940</u>	<u>1,671,645</u>	<u>(13,040)</u>	<u>(158,191)</u>	<u>1,522,354</u>
Net issuance of common stock under stock-based plans		1,784	223	10,399			10,622
Stock-based compensation expense				38,085			38,085
Repurchase of common stock		(10,896)	(1,362)			(489,840)	(491,202)
Cash dividends (\$0.09 per share) ...						(61,355)	(61,355)
Net income						467,468	467,468
Other comprehensive loss					(5,814)		(5,814)
Year Ended December 31, 2019 ..	<u>—</u>	<u>166,410</u>	<u>20,801</u>	<u>1,720,129</u>	<u>(18,854)</u>	<u>(241,918)</u>	<u>1,480,158</u>
Net issuance of common stock under stock-based plans		1,230	154	4,696			4,850
Stock-based compensation expense				44,285			44,285
Repurchase of common stock		(1,517)	(190)			(88,275)	(88,465)
Cash dividends (\$0.10 per share) ...						(66,540)	(66,540)
Convertible common shares	3,787			(3,787)			(3,787)
Net income						784,147	784,147
Other comprehensive income					52,370		52,370
Year Ended December 31, 2020 ..	<u>\$3,787</u>	<u>166,123</u>	<u>\$20,765</u>	<u>\$1,765,323</u>	<u>\$ 33,516</u>	<u>\$ 387,414</u>	<u>\$2,207,018</u>

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

TERADYNE, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Years Ended December 31,		
	2020	2019	2018
	(in thousands)		
Cash flows from operating activities:			
Net income	\$ 784,147	\$ 467,468	\$ 451,779
Adjustments to reconcile net income from operations to net cash provided by operating activities:			
Depreciation	80,119	70,834	67,415
Amortization	46,624	49,821	45,809
Stock-based compensation	44,906	37,897	33,577
Provision for excess and obsolete inventory	17,534	15,244	11,242
Retirement plans actuarial losses (gains)	10,284	8,176	(3,316)
Contingent consideration fair value adjustment	(23,271)	(19,257)	987
Deferred taxes	(15,688)	(9,456)	28,340
(Gains) losses on investments	(7,898)	(6,033)	3,494
Investment impairment	—	15,000	—
Other	1,557	766	1,083
Changes in operating assets and liabilities, net of businesses acquired:			
Accounts receivable	(129,451)	(70,440)	(17,938)
Inventories	(8,438)	(27,408)	(29,498)
Prepayments and other assets	(64,418)	(23,784)	(58,402)
Accounts payable and other accrued expenses	73,167	49,279	13,693
Deferred revenue and customer advances	39,974	39,313	13,379
Retirement plan contributions	(5,382)	(5,086)	(4,334)
Income taxes	25,169	(13,584)	(80,429)
Net cash provided by operating activities	<u>868,935</u>	<u>578,750</u>	<u>476,881</u>
Cash flows from investing activities:			
Purchases of property, plant and equipment	(184,977)	(134,642)	(114,379)
Proceeds from government subsidy for property, plant and equipment	—	—	7,920
Purchases of marketable securities	(900,196)	(662,701)	(918,744)
Proceeds from maturities of marketable securities	479,678	611,927	1,270,439
Proceeds from sales of marketable securities	35,006	105,586	846,122
Proceeds from insurance	546	2,912	1,126
Purchase of investment and acquisition of businesses, net of cash acquired	149	(79,742)	(169,474)
Net cash (used for) provided by investing activities	<u>(569,794)</u>	<u>(156,660)</u>	<u>923,010</u>
Cash flows from financing activities:			
Issuance of common stock under stock purchase and stock option plans	28,527	29,312	20,973
Repurchase of common stock	(88,465)	(500,000)	(823,478)
Dividend payments	(66,482)	(61,305)	(67,322)
Payments related to net settlement of employee stock compensation awards	(23,014)	(14,741)	(20,023)
Payments of contingent consideration	(8,852)	(27,615)	(13,571)
Net cash used for financing activities	<u>(158,286)</u>	<u>(574,349)</u>	<u>(903,421)</u>
Effects of exchange rate changes on cash and cash equivalents	(658)	(569)	439
Increase (decrease) in cash and cash equivalents	140,197	(152,828)	496,909
Cash and cash equivalents at beginning of year	773,924	926,752	429,843
Cash and cash equivalents at end of year	<u>\$ 914,121</u>	<u>\$ 773,924</u>	<u>\$ 926,752</u>
Supplementary disclosure of cash flows information:			
Cash paid for:			
Interest	\$ 6,435	\$ 5,996	\$ 6,205
Income taxes	\$ 106,577	\$ 81,410	\$ 72,811
Non-cash investing activities:			
Capital expenditures incurred but not yet paid:	\$ 3,666	\$ 4,068	\$ 2,537

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

TERADYNE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

A. THE COMPANY

Teradyne, Inc. (“Teradyne”) is a leading global supplier of automation equipment for test and industrial applications. Teradyne designs, develops, manufactures and sells automatic test systems used to test semiconductors, wireless products, data storage and complex electronics systems in many industries including consumer electronics, wireless, automotive, industrial, computing, communications, and aerospace and defense industries. Teradyne’s industrial automation products include collaborative robotic arms, autonomous mobile robots, and advanced robotic control software used by global manufacturing, logistics and light industrial customers to improve quality, increase manufacturing and material handling efficiency and decrease manufacturing and logistics costs. Teradyne’s automatic test equipment and industrial automation products and services include:

- semiconductor test (“Semiconductor Test”) systems;
- storage and system level test (“Storage Test”) systems, defense/aerospace (“Defense/Aerospace”) test instrumentation and systems, and circuit-board test and inspection (“Production Board Test”) systems (collectively these products represent “System Test”);
- wireless test (“Wireless Test”) systems; and
- industrial automation (“Industrial Automation”) products.

On February 26, 2018, Teradyne acquired Energid Technologies Corporation (“Energid”) for a total purchase price of approximately \$27.6 million. Energid’s technology enables and simplifies the programming of complex robotic motions used in a wide variety of end markets, ranging from heavy industry to healthcare, utilizing both traditional robots and collaborative robots. Energid was merged with Universal Robots which is part of Teradyne’s Industrial Automation segment.

On April 25, 2018, Teradyne acquired Mobile Industrial Robots ApS (“MiR”), a Danish limited liability company. MiR is a leading maker of collaborative autonomous mobile robots (“AMRs”) for industrial applications. The total purchase price was approximately \$197.8 million, which included cash paid of approximately \$145.2 million and \$52.6 million in fair value of contingent consideration payable upon achievement of certain thresholds and targets for revenue and earnings before interest and taxes through 2020. Contingent consideration for 2018 was \$30.8 million and was paid in March 2019. Contingent consideration for 2019 was \$8.9 million and was paid in March 2020. MiR is included in Teradyne’s Industrial Automation segment.

On January 30, 2019, Teradyne acquired all of the issued and outstanding shares of Lemsys SA (“Lemsys”) for a total purchase price of approximately \$9.1 million. Lemsys strengthens Teradyne’s position in the electrification of vehicles, solar and wind power, and industrial applications. Lemsys is included in Teradyne’s Semiconductor Test segment.

On June 3, 2019, Teradyne invested \$15.0 million in RealWear, Inc. (“RealWear”). RealWear, a private company, develops and sells advanced wearable technology including industrial, hands-free, head-mounted augmented reality devices that make the workplace safer and more productive. On February 28, 2020, RealWear’s debt holder demanded repayment of its \$25.0 million loan to RealWear. As a result, in the fourth quarter of 2019, Teradyne recorded an impairment charge of \$15.0 million to reduce its investment in RealWear to zero as of December 31, 2019.

On November 13, 2019, Teradyne acquired 100% of the membership interests of AutoGuide, LLC (“AutoGuide”), a maker of high payload AMRs, an emerging and fast growing segment of the global forklift

market. The total purchase price was approximately \$81.6 million, which included cash paid of approximately \$57.6 million and \$24.0 million in fair value of contingent consideration payable upon achievement of certain performance targets, extending potentially through 2022. At December 31, 2020, the maximum contingent consideration that could be paid is \$100.2 million. AutoGuide's AMRs are used for material transport of payloads up to 4,500 kg in manufacturing, warehouse and logistics applications. These products complement MiR's lower payload products. AutoGuide is included in our Industrial Automation segment.

B. ACCOUNTING POLICIES

The consolidated financial statements include the accounts of Teradyne and its wholly-owned subsidiaries. All significant intercompany balances and transactions are eliminated. Certain prior years' amounts were reclassified to conform to the current year presentation.

Preparation of Financial Statements and Use of Estimates

The preparation of consolidated financial statements requires management to make estimates and judgments 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 inventories, investments, goodwill, intangible and other long-lived assets, accounts receivable, income taxes, deferred tax assets and liabilities, pensions, warranties, contingent consideration liabilities, and loss contingencies. Management bases its estimates on historical experience and on appropriate and customary assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Due to the COVID-19 pandemic, there has been uncertainty and disruption in the global economy and our markets. Management is not aware of any specific event or circumstance that would require an update to its estimates or judgments or a revision of the carrying value of its assets or liabilities as of February 22, 2021, the date of issuance of this Annual Report on Form 10-K. These estimates may change, as new events occur and additional information is obtained. Actual results may differ significantly from these estimates under different assumptions or conditions.

Revenue Recognition

Revenue from Contracts with Customers

Teradyne adopted Accounting Standard Codification ("ASC") 606 "Revenue from Contracts with Customers" on January 1, 2018 using the modified retrospective method for all contracts not completed as of the date of adoption.

In accordance with ASC 606, Teradyne recognizes revenues, when or as control is transferred to a customer. Teradyne's determination of revenue is dependent upon a five step process outlined below.

- Teradyne accounts for a contract with a customer when there is written approval, the contract is committed, the rights of the parties, including payment terms, are identified, the contract has commercial substance and consideration is probable of collection.
- Teradyne periodically enters into contracts with customers in which a customer may purchase a combination of goods and services, such as products with extended warranty obligations. Teradyne determines performance obligations by assessing whether the products or services are distinct from the other elements of the contract. In order to be distinct, the product or service must perform either on its own or with readily available resources and must be separate within the context of the contract.
- Teradyne considers the amount stated on the face of the purchase order to be the transaction price. Teradyne does not have material variable consideration which could impact the stated purchase price agreed to by Teradyne and the customer.

- Transaction price is allocated to each individual performance obligation based on the standalone selling price of that performance obligation. Teradyne uses standalone transactions when available to value each performance obligation. If standalone transactions are not available, Teradyne will estimate the standalone selling price through market assessments or cost plus a reasonable margin analysis. Any discounts from standalone selling price are spread proportionally to each performance obligation.
- In order to determine the appropriate timing for revenue recognition, Teradyne first determines if the transaction meets any of three criteria for over time recognition. If the transaction meets the criteria for over time recognition, Teradyne recognizes revenue as the good or service is delivered. Teradyne uses input variables such as hours or months utilized or costs incurred to determine the amount of revenue to recognize in a given period. Input variables are used as they best align consumption with benefit to the customer. For transactions that do not meet the criteria for over time recognition, Teradyne will recognize revenue at a point in time based on an assessment of the five criteria for transfer of control. Teradyne has concluded that revenue should be recognized when shipped or delivered based on contractual terms. Typically, acceptance of Teradyne’s products and services is a formality as Teradyne delivers similar systems, instruments and robots to standard specifications. In cases where acceptance is not deemed a formality, Teradyne will defer revenue recognition until customer acceptance.

Performance Obligations

Products

Teradyne products consist primarily of semiconductor test systems and instruments, defense/aerospace test instrumentation and systems, storage test systems and instruments, circuit-board test and inspection systems and instruments, wireless test systems and industrial automation products. Teradyne’s hardware is recognized at a point in time upon transfer of control to the customer.

Services

Teradyne services consist of extended warranties, training and application support, service agreements, post contract customer support (“PCS”) and replacement parts. Each service is recognized based on relative standalone selling price. Extended warranty, training and support, service agreements and PCS are recognized over time based on the period of service. Replacement parts are recognized at a point in time upon transfer of control to the customer.

Teradyne does not allow customer returns or provide refunds to customers for any products or services. Teradyne products include a standard 12-month warranty. This warranty is not considered a distinct performance obligation because it does not obligate Teradyne to provide a separate service to the customer and it cannot be purchased separately. Cost related to warranty are included in cost of revenues when product revenues are recognized.

As of December 31, 2020 and 2019, deferred revenue and customer advances consisted of the following and are included in the short and long-term deferred revenue and customer advances:

	<u>2020</u>	<u>2019</u>
	(in thousands)	
Maintenance, service and training	\$ 77,654	\$ 63,815
Customer advances, undelivered elements and other	63,438	56,358
Extended warranty	<u>51,929</u>	<u>30,677</u>
Total deferred revenue and customer advances	<u>\$193,021</u>	<u>\$150,850</u>

Product Warranty

Teradyne generally provides a one-year warranty on its products, commencing upon installation, acceptance or shipment. A provision is recorded upon revenue recognition to cost of revenues for estimated warranty expense based on historical experience. Related costs are charged to the warranty accrual as incurred. The balance below is included in other accrued liabilities:

	<u>Amount</u> (in thousands)
Balance at December 31, 2017	\$ 8,200
Acquisition	41
Accruals for warranties issued during the period	13,045
Accruals related to pre-existing warranties	921
Settlements made during the period	<u>(14,298)</u>
Balance at December 31, 2018	7,909
Acquisition	14
Accruals for warranties issued during the period	14,106
Accruals related to pre-existing warranties	4,026
Settlements made during the period	<u>(17,059)</u>
Balance at December 31, 2019	8,996
Accruals for warranties issued during the period	28,490
Accruals related to pre-existing warranties	821
Settlements made during the period	<u>(21,674)</u>
Balance at December 31, 2020	<u>\$ 16,633</u>

When Teradyne receives revenue for extended warranties, beyond one year, it is deferred and recognized on a straight-line basis over the contract period. Related costs are expensed as incurred. The balance below is included in short and long-term deferred revenue and customer advances:

	<u>Amount</u> (in thousands)
Balance at December 31, 2017	\$ 24,438
Deferral of new extended warranty revenue	23,753
Recognition of extended warranty deferred revenue	<u>(20,769)</u>
Balance at December 31, 2018	27,422
Deferral of new extended warranty revenue	23,271
Recognition of extended warranty deferred revenue	<u>(20,016)</u>
Balance at December 31, 2019	30,677
Deferral of new extended warranty revenue	41,694
Recognition of extended warranty deferred revenue	<u>(20,442)</u>
Balance at December 31, 2020	<u>\$ 51,929</u>

Accounts Receivable and Allowance for Doubtful Accounts

Trade accounts receivable are recorded at the invoiced amount and do not bear interest. Teradyne maintains allowances for doubtful accounts for estimated losses resulting from the inability of its customers to make required payments. Estimated allowances for doubtful accounts are reviewed periodically taking into account the customer's recent payment history, the customer's current financial statements and other information regarding the customer's credit worthiness. Account balances are written off against the allowance when it is determined the receivable will not be recovered.

Teradyne sells certain trade accounts receivables on a non-recourse basis to third-party financial institutions pursuant to factoring agreements. Teradyne accounts for these transactions as sales of receivables and presents cash proceeds as a cash provided by operating activities in the consolidated statements of cash flows. Total trade accounts receivable sold under the factoring agreements were \$131.1 million and \$143.6 million during 2020 and 2019, respectively. Factoring fees for the sales of receivables are recorded in interest expense and are not material.

Inventories

Inventories are stated at the lower of cost (first-in, first-out basis) or net realizable value. On a quarterly basis, Teradyne uses consistent methodologies to evaluate all inventories for net realizable value. Teradyne records a provision for both excess and obsolete inventory when such write-downs or write-offs are identified through the quarterly review process. The inventory valuation is based upon assumptions about future demand, product mix and possible alternative uses.

Investments

Teradyne accounts for its investments in debt and equity securities in accordance with the provisions of ASC 320-10, "*Investments—Debt and Equity Securities*." ASC 320-10 requires that certain debt and equity securities be classified into one of three categories; trading, available-for-sale or held-to-maturity securities. On a quarterly basis, Teradyne reviews its investments to identify and evaluate those that have an indication of a potential other-than-temporary impairment. Factors considered in determining whether a loss is other-than-temporary include:

- The length of time and the extent to which the market value has been less than cost;
- The financial condition and near-term prospects of the issuer; and
- The intent and ability to retain the investment in the issuer for a period of time sufficient to allow for any anticipated recovery in market value.

Teradyne uses the market and income approach techniques to value its financial instruments and there were no changes in valuation techniques during the twelve months ended December 31, 2020 and 2019. As defined in ASC 820-10, "*Fair Value Measurements and Disclosures*," fair value is the price that would be received from the sale of an asset or paid to transfer a liability in an orderly transaction between market participants. ASC 820-10 requires that assets and liabilities carried at fair value be classified and disclosed in one of the following three categories:

Level 1: Quoted prices in active markets for identical assets as of the reporting date;

Level 2: Inputs other than Level 1, that are observable either directly or indirectly as of the reporting date. For example, a common approach for valuing fixed income securities is the use of matrix pricing. Matrix pricing is a mathematical technique used to value securities by relying on the securities' relationship to other benchmark quoted prices, and is considered a Level 2 input; or

Level 3: Unobservable inputs that are not supported by market data. Unobservable inputs are developed based on the best information available, which might include Teradyne's own data.

In accordance with ASC 820-10, Teradyne measures its debt and equity investments at fair value. Teradyne's debt investments are classified as Level 2, and equity investments are classified as Level 1. Acquisition-related contingent consideration is classified as Level 3. Teradyne determines the fair value of acquisition-related contingent consideration using a Monte Carlo simulation model. Assumptions utilized in the model include forecasted revenues, revenue volatility, earnings before interest and taxes, and discount rate.

Financial Assets and Financial Liabilities

In January 2016, the Financial Accounting Standards Board (“FASB”) issued ASU 2016-01, “*Financial Instruments—Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities.*” Teradyne adopted the new accounting guidance in the first quarter of 2018 using the modified retrospective approach. This guidance requires that changes in fair value of equity securities be accounted for directly in earnings. Previously, the changes in fair value were recorded in accumulated other comprehensive income on the balance sheet. Teradyne records realized gains and losses in other (income) expense, net. The adoption of this new accounting guidance increased the January 1, 2018 retained earnings balance by \$3.1 million and decreased the accumulated other comprehensive income balance by the same amount.

Prepayments

Prepayments consist of the following and are included in prepayments and other current assets on the balance sheet:

	<u>2020</u>	<u>2019</u>
	(in thousands)	
Contract manufacturer and supplier prepayments	\$212,286	\$143,392
Prepaid taxes	9,361	8,046
Prepaid maintenance and other services	13,116	8,503
Other prepayments	<u>15,329</u>	<u>16,753</u>
Total prepayments	<u>\$250,092</u>	<u>\$176,694</u>

Retirement and Postretirement Plans

Teradyne recognizes net actuarial gains and losses and the change in the fair value of the plan assets in its operating results in the year in which they occur or upon any interim remeasurement of the plans. Teradyne calculates the expected return on plan assets using the fair value of the plan assets. Actuarial gains and losses are generally measured annually as of December 31 and, accordingly, recorded during the fourth quarter of each year or upon any interim remeasurement of the plans.

Retirement Benefits

In March 2017, the FASB issued ASU 2017-07, “*Compensation—Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost.*” Teradyne retrospectively adopted the new accounting guidance on presentation of net periodic pension costs and net periodic postretirement benefit costs in the first quarter of 2018. This guidance requires the service cost component of net benefit costs to be reported in the same line item in the consolidated statement of operations as other employee compensation costs. The non-service components of net benefit costs such as interest cost, expected return on assets, amortization of prior service cost, and actuarial gains or losses, are required to be reported separately outside of income or loss from operations. Following the adoption of this guidance, Teradyne continues to record the service cost component in the same line item as other employee compensation costs and the non-service components of net benefit costs such as interest cost, expected return on assets, amortization of prior service cost, and actuarial gains or losses are reported within other (income) expense, net.

Goodwill, Intangible and Long-Lived Assets

Teradyne accounts for goodwill and intangible assets in accordance with ASC 350-10, “*Intangibles—Goodwill and Other.*” Intangible assets are amortized over their estimated useful economic life and are carried at cost less accumulated amortization. Goodwill is assessed for impairment at least annually in the fourth quarter, as

of December 31, on a reporting unit basis, or more frequently when events and circumstances occur indicating that the recorded goodwill may be impaired. In accordance with ASC 350-10, Teradyne has the option to perform a qualitative assessment to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount. If Teradyne determines this is the case, Teradyne is required to perform a quantitative goodwill impairment test to identify potential goodwill impairment and measure the amount of goodwill impairment loss to be recognized. If Teradyne determines that it is more likely than not that the fair value of the reporting unit is greater than its carrying amounts, a quantitative goodwill impairment test is not required.

In accordance with ASC 360-10, “*Impairment or Disposal of Long-Lived Assets*,” Teradyne reviews long-lived assets for impairment whenever events or changes in business circumstances indicate that the carrying amount of the assets may not be fully recoverable or that the useful lives of these assets are no longer appropriate. Each impairment test is based on a comparison of the estimated undiscounted cash flows to the recorded value of the asset. If impairment is indicated, the asset is written down to its estimated fair value based on a discounted cash flows analysis. The cash flows estimates used to determine the impairment, if any, contain management’s best estimates using appropriate assumptions and projections at that time.

Business Combination

Teradyne recognizes the tangible and intangible assets acquired and liabilities assumed based on their estimated fair values at the date of acquisition. The fair value of identifiable intangible assets is based on detailed cash flows valuations that use information and assumptions provided by management. Teradyne estimates the fair value of contingent consideration at the time of the acquisition using all pertinent information known to us at the time to assess the probability of payment of contingent amounts or through the use of a Monte Carlo simulation model. Teradyne allocates any excess purchase price over the fair value of the net tangible and intangible assets acquired and liabilities assumed to goodwill. The assumptions used in the valuations for our acquisitions may differ materially from actual results depending on performance of the acquired businesses and other factors. While Teradyne believes the assumptions used were appropriate, different assumptions in the valuation of assets acquired and liabilities assumed could have a material impact on the timing and extent of impact on our statements of operations. Goodwill is assigned to reporting units as of the date of the related acquisition.

Property, Plant and Equipment

Property, plant and equipment are stated at cost and depreciated over the estimated useful lives of the assets. Leasehold improvements and major renewals are capitalized and included in property, plant and equipment accounts, while expenditures for maintenance and repairs and minor renewals are charged to expense. When assets are retired, the assets and related accumulated depreciation are removed from the accounts and any resulting gain or loss is reflected in the consolidated statements of operations.

Teradyne provides for depreciation of its assets principally on the straight-line method with the cost of the assets being charged to expense over their useful lives as follows:

Buildings	40 years
Building improvements	5 to 10 years
Leasehold improvements	Lesser of lease term or 10 years
Furniture and fixtures	10 years
Test systems manufactured internally	6 years
Machinery, equipment and software	3 to 5 years

Test systems manufactured internally are used by Teradyne for customer evaluations and manufacturing and support of its customers. Teradyne depreciates the test systems manufactured internally over a six-year life to cost of revenues, engineering and development, and selling and administrative expenses. Teradyne often sells

internally manufactured test equipment to customers. Upon the sale of an internally manufactured test system, the net book value of the system is transferred to inventory and expensed as cost of revenues. The net book value of internally manufactured test systems sold in the years ended December 31, 2020, 2019, and 2018 was \$7.3 million, \$5.0 million, and \$3.8 million, respectively.

Leases

Teradyne adopted Accounting Standards Update (“ASU”) 2016-02, “*Leases (Topic 842)*” (“Topic 842”) and the related amendments (collectively “ASC 842”) on January 1, 2019 and utilized the modified retrospective approach provided by ASU 2018-11, “*Leases (Topic 842): Targeted Improvements*,” that allowed for a cumulative effect adjustment in the period of adoption.

Under ASC 842, a contract is or contains a lease when Teradyne has the right to control the use of an identified asset. Teradyne determines if an arrangement is a lease at inception of the contract, which is the date on which the terms of the contract are agreed to and the agreement creates enforceable rights and obligations. The commencement date of the lease is the date that the lessor makes an underlying asset available for use by Teradyne. As of December 31, 2020, Teradyne does not have material leases that have not yet commenced.

Teradyne determines if the lease is an operating or finance lease at the lease commencement date based upon the terms of the lease and the nature of the asset. The lease term used to calculate the lease liability includes options to extend or terminate the lease when it is reasonably certain that the option will be exercised.

For leases commencing after January 1, 2019, the lease liability is measured at the present value of future lease payments, discounted using the discount rate for the lease at the commencement date. As Teradyne is typically unable to determine the implicit rate, Teradyne uses an incremental borrowing rate based on the lease term and economic environment at commencement date. Teradyne initially measures payments based on an index by using the applicable rate at lease commencement. Variable payments that do not depend on an index are not included in the lease liability and are recognized as they are incurred. The ROU asset is initially measured as the amount of lease liability, adjusted for any initial lease costs, prepaid lease payments, and reduced by any lease incentives.

Teradyne’s contracts often include non-lease components such as common area maintenance. Teradyne elected the practical expedient to account for the lease and non-lease components as a single lease component. For leases with a term of one year or less Teradyne has elected not to record the lease asset or liability. The lease payments are recognized in the consolidated statement of earnings on a straight-line basis over the lease term. Teradyne includes lease costs within cost of revenues and operating expenses. See Note I: “Leases.”

Engineering and Development Costs

Teradyne’s products are highly technical in nature and require a large and continuing engineering and development effort. Software development costs incurred prior to the establishment of technological feasibility are charged to expense. Software development costs incurred subsequent to the establishment of technological feasibility are capitalized until the product is available for release to customers. To date, the period between achieving technological feasibility and general availability of the product has been short and software development costs eligible for capitalization have not been material. Engineering and development costs are expensed as incurred and consist primarily of salaries, contractor fees including non-recurring engineering charges related to product design, allocated facility costs, depreciation, and tooling costs.

Stock Compensation Plans and Employee Stock Purchase Plan

Stock-based compensation expense is based on the grant-date fair value estimated in accordance with the provisions of ASC 718-10, “*Compensation-Stock Compensation*.”

Excess tax benefits or tax deficiencies are recognized as a discrete tax benefit or discrete tax expense to the current income tax provision in Teradyne’s consolidated statements of operations, all excess tax benefits related

to share-based payments are reported as cash flows from operating activities, and all cash payments made to taxing authorities on the employees' behalf for withheld shares are presented as financing activities on the statement of cash flows.

Teradyne elects to account for forfeitures by applying an estimated forfeiture rate and recognizes compensation costs only for those stock-based compensation awards expected to vest.

Under its stock compensation plans, Teradyne has granted stock options, restricted stock units and performance-based restricted stock units, and employees are eligible to purchase Teradyne's common stock through its Employee Stock Purchase Plan ("ESPP").

Income Taxes

Deferred tax assets and liabilities are determined based on differences between financial reporting and tax basis of assets and liabilities and are measured using the enacted tax rates and laws that will be in effect when the differences are expected to reverse. The measurement of deferred tax assets is reduced by a valuation allowance if it is more likely than not that some or all of the deferred tax assets will not be realized. Teradyne performed the required assessment of positive and negative evidence regarding the realization of the net deferred tax assets in accordance with ASC 740, "*Accounting for Income Taxes*." This assessment included the evaluation of scheduled reversals of deferred tax liabilities, estimates of projected future taxable income and tax-planning strategies. Although realization is not assured, based on its assessment, Teradyne concluded that it is more likely than not that such assets, net of the existing valuation allowance, will be realized.

Advertising Costs

Teradyne expenses all advertising costs as incurred. Advertising costs were \$12.8 million, \$16.6 million and \$15.4 million in 2020, 2019 and 2018, respectively.

Translation of Non-U.S. Currencies

The functional currency for all non-U.S. subsidiaries is the U.S. dollar, except for Universal Robots, MiR and Lemsys for which the local currency is its functional currency. All foreign currency denominated monetary assets and liabilities are remeasured on a monthly basis into the functional currency using exchange rates in effect at the end of the period. All foreign currency denominated non-monetary assets and liabilities are remeasured into the functional currency using historical exchange rates. Net foreign exchange gains and losses resulting from remeasurement are included in other (income) expense, net. For Universal Robots, MiR and Lemsys, assets and liabilities are translated into U.S. dollars using exchange rates in effect at the end of the period. Revenues and expense amounts are translated using an average of exchange rates in effect during the period. Translation adjustments are recorded within accumulated other comprehensive income (loss) on the balance sheet.

Net foreign exchange gains and losses resulting from remeasurement are included in other (income) expense, net. For the years ended December 31, 2020, 2019, and 2018, losses (gains) from the remeasurement of the monetary assets and liabilities denominated in foreign currencies were \$2.6 million, \$(1.6) million, and \$(2.5) million, respectively.

These amounts do not reflect the corresponding (gains) losses from foreign exchange contracts. See Note H: "Financial Instruments" regarding foreign exchange contracts.

Net Income (Loss) per Common Share

Basic net income (loss) per common share is calculated by dividing net income (loss) by the weighted average number of common shares outstanding during the period. Except where the result would be anti-dilutive, diluted net income (loss) per common share is calculated by dividing net income (loss) by the sum of the weighted average number of common shares plus common stock equivalents, if applicable.

With respect to its convertible debt issued in 2016, Teradyne has determined that it has the ability and intent to settle the principal of the convertible debt in cash; accordingly, the principal amount is excluded from the determination of diluted earnings per share. As a result, Teradyne is accounting for the conversion spread using the treasury stock method.

Comprehensive Income (Loss)

Comprehensive income (loss) includes net income, unrealized pension and postretirement prior service costs and benefits, unrealized gains and losses on investments in debt marketable securities and foreign currency translation adjustment. Prior to 2018, comprehensive income (loss) included unrealized gains and losses on investments in equity marketable securities.

C. RECENTLY ISSUED ACCOUNTING PRONOUNCEMENTS

In August 2020, the FASB issued ASU 2020-06—“*Debt—Debt with Conversion and Other Options and Derivatives and Hedging—Contracts in Entity’s Own Equity*,” which simplifies the accounting for convertible debt instruments by reducing the number of accounting models and the number of embedded conversion features that could be recognized separately from the primary contract. This ASU requires a convertible debt instrument to be accounted for as a single liability measured at its amortized cost, as long as no other features require bifurcation and recognition as derivatives. This ASU requires an entity to use the if-converted method in the diluted earnings per share calculation for convertible instruments. This ASU will be effective for Teradyne on January 1, 2022, with early adoption permitted beginning on January 1, 2021. This ASU permits the use of either the modified retrospective or fully retrospective method of transition. Teradyne is evaluating the timing and effects of the adoption of this ASU on its financial statements.

D. ACQUISITIONS AND INVESTMENT IN OTHER COMPANY

Acquisitions

AutoGuide LLC

On November 13, 2019, Teradyne acquired 100% of the membership interests of AutoGuide, LLC (“AutoGuide”), a maker of high-payload AMRs, based in Chelmsford, MA, an emerging and fast growing segment of the global forklift market. The total purchase price was approximately \$81.6 million, which included cash paid of approximately \$57.6 million and \$24.0 million in fair value of contingent consideration payable upon achievement of certain performance targets, extending potentially through 2022. At December 31, 2020, the maximum contingent consideration that could be paid is \$100.2 million.

The contingent consideration is payable upon achievement of certain thresholds and targets for revenue and earnings before interest and taxes for periods from January 1, 2019 to December 31, 2020, January 1, 2019 to December 31, 2021, and January 1, 2019 to December 31, 2022.

The valuation of the contingent consideration is dependent on the following assumptions: forecasted revenues, revenue volatility, earnings before interest and taxes, and discount rate. These assumptions were estimated based on a review of the historical and projected results.

The AutoGuide acquisition was accounted for as a business combination and, accordingly, the results have been included in Teradyne’s consolidated results of operations from the date of acquisition. AutoGuide’s AMRs are used for material transport of payloads up to 4,500 kg in manufacturing, warehouse and logistics applications. These products complement Mobile Industrial Robots A/S (“MiR”) lower payload products and expand the Industrial Automation segment, which is a key component of Teradyne’s growth strategy.

The allocation of the total purchase price to AutoGuide’s net tangible assets and identifiable intangible assets was based on their fair values as of the acquisition date. The excess of the purchase price over the

identifiable intangible assets and net tangible assets in the amount of \$41.2 million was allocated to goodwill, which is deductible for tax purposes. AutoGuide’s results have been included in Teradyne’s Industrial Automation segment from the date of acquisition.

The following table represents the final allocation of the purchase price:

	<u>Purchase Price Allocation</u> (in thousands)
Goodwill	\$41,223
Intangible assets	37,660
Tangible assets acquired and liabilities assumed:	
Other current assets	3,661
Non-current assets	1,227
Accounts payable and current liabilities	(1,223)
Long-term other liabilities	(949)
Total purchase price	<u>\$81,599</u>

Teradyne estimated the fair value of intangible assets using the income approach. Forecasted revenues is the key assumption for estimating the fair value. Acquired intangible assets are amortized on a straight-line basis over their estimated useful lives. Components of these intangible assets and their estimated useful lives at the acquisition date are as follows:

	<u>Fair Value</u> (in thousands)	<u>Estimated Useful Life</u> (in years)
Developed technology	\$24,590	6.0
Customer relationships	7,360	6.0
Trademarks and tradenames	5,450	7.0
Backlog	260	0.3
Total intangible assets	<u>\$37,660</u>	6.1

For the period from November 13, 2019 to December 31, 2019, AutoGuide contributed \$1.4 million of revenues and had a \$(0.9) million loss before income taxes.

Lemsys SA

On January 30, 2019, Teradyne acquired all of the issued and outstanding shares of Lemsys SA (“Lemsys”) for a total purchase price of approximately \$9.1 million. Lemsys strengthens Teradyne’s position in the electrification trends of vehicles, solar and wind power, and industrial applications. The Lemsys acquisition was accounted for as a business combination and, accordingly, the results have been included in Teradyne’s Semiconductor Test segment from the date of acquisition. Teradyne’s final allocation of the purchase price was goodwill of \$1.4 million, which is not deductible for tax purposes, acquired intangible assets of \$4.6 million with an average estimated useful life of 5.2 years, and \$3.1 million of net tangible assets. The acquisition was not material to Teradyne’s consolidated financial statements.

Mobile Industrial Robots

On April 25, 2018, Teradyne acquired all of the issued and outstanding shares of MiR, a Danish limited liability company located in Odense, Denmark. MiR is a leading maker of collaborative autonomous mobile robots for industrial applications.

The total purchase price of \$197.8 million included \$145.2 million of cash paid and \$52.6 million of contingent consideration measured at fair value. The contingent consideration is payable in Euros upon the achievement of certain thresholds and targets for revenue and earnings before interest and taxes for periods from January 1, 2018 to December 31, 2018; January 1, 2018 to December 31, 2019; and January 1, 2018 to December 31, 2020. Contingent consideration for the period from January 1, 2018 to December 31, 2018 was \$31.0 million and was paid in March 2019. Contingent consideration for the period from January 1, 2018 to December 31, 2019 was \$9.1 million, based on the results during the period and modification of the earn-out structure, and was paid in March 2020. No contingent consideration will be paid out against the period from December 31, 2018 through December 31, 2020.

The valuation of the contingent consideration is dependent on the following assumptions: forecasted revenues, revenue volatility, earnings before interest and taxes, and discount rate. These assumptions were estimated based on a review of the historical and projected results.

The MiR acquisition was accounted for as a business combination and, accordingly, the results have been included in Teradyne's consolidated results of operations from the date of acquisition. MiR's products will help expand the Industrial Automation segment, which is a key component of our growth strategy. The allocation of the total purchase price to MiR's net tangible liabilities and identifiable intangible assets was based on their estimated fair values as of the acquisition date. The excess of the purchase price over the identifiable intangible assets and net tangible liabilities in the amount of \$136.0 million was allocated to goodwill, which is not deductible for tax purposes. MiR's results have been included in Teradyne's Industrial Automation segment from the date of acquisition.

The following table represents the final allocation of the purchase price:

	<u>Purchase Price Allocation</u> (in thousands)
Goodwill	\$135,976
Intangible assets	80,670
Tangible assets acquired and liabilities assumed:	
Current assets	6,039
Non-current assets	1,336
Accounts payable and current liabilities	(7,336)
Long-term deferred tax liabilities	(18,007)
Other long-term liabilities	(900)
Total purchase price	<u>\$197,778</u>

Teradyne estimated the fair value of intangible assets using the income and cost approaches. Acquired intangible assets are amortized on a straight-line basis over their estimated useful lives.

Components of these intangible assets and their estimated useful lives at the acquisition date are as follows:

	<u>Fair Value</u> (in thousands)	<u>Estimated Useful Life</u> (in years)
Developed technology	\$58,900	7.0
Trademarks and tradenames	13,240	11.0
Customer relationships	8,500	2.5
Backlog	30	0.2
Total intangible assets	<u>\$80,670</u>	7.2

Energid Technologies Corporation

On February 26, 2018, Teradyne acquired all of the issued and outstanding shares of Energid for a total purchase price of approximately \$27.6 million. Energid's technology enables and simplifies the programming of complex robotic motions used in a wide variety of end markets, ranging from heavy industry to healthcare, utilizing both traditional robots and collaborative robots. The Energid acquisition was accounted for as a business combination and, accordingly, Energid's results have been included in Teradyne's Industrial Automation segment from the date of acquisition. As of the acquisition date, Teradyne's purchase price allocation was goodwill of \$14.4 million which is deductible for tax purposes, acquired intangible assets of \$12.3 million with an average estimated useful life of 7.7 years, and \$1.0 million of net tangible assets. The acquisition was not material to Teradyne's consolidated financial statements.

Pro Forma Information

The following unaudited pro forma information gives effect to the acquisition of AutoGuide as if the acquisition occurred on January 1, 2018 and the acquisition of MiR as if the acquisition occurred on January 1, 2017. The unaudited pro forma results are not necessarily indicative of what actually would have occurred had the acquisition been in effect for the periods presented:

	<u>December 31, 2019</u>	<u>December 31, 2018</u>
	(in thousands, except per share amount)	
Revenues	\$2,303,737	\$2,111,373
Net income	\$ 464,602	\$ 442,082
Net income per common share:		
Basic	<u>\$ 2.73</u>	<u>\$ 2.36</u>
Diluted	<u>\$ 2.59</u>	<u>\$ 2.30</u>

Pro forma results for the year ended December 31, 2019 were adjusted to exclude \$1.2 million of AutoGuide acquisition related costs and \$0.1 million of AutoGuide non-recurring expense related to fair value adjustment to acquisition-date inventory.

Pro forma results for the year ended December 31, 2018 were adjusted to include \$1.2 million of AutoGuide acquisition related costs and \$0.1 million of AutoGuide non-recurring expense related to fair value adjustment to acquisition-date inventory.

Pro forma results for the year ended December 31, 2018 were adjusted to exclude \$2.9 million of MiR acquisition related costs and \$0.4 million of MiR non-recurring expense related to fair value adjustment to acquisition-date inventory.

Investment in Other Company

On June 3, 2019, Teradyne invested \$15.0 million in RealWear, Inc. ("RealWear"). RealWear, a private company, develops and sells advanced wearable technology including industrial, hands-free, head-mounted augmented reality devices that make the workplace safer and more productive. The investment was recorded at cost and is evaluated for impairment or an indication of changes in fair value resulting from observable price changes in orderly transactions for the identical or similar investment of the same issuer on a quarterly basis. On February 28, 2020, RealWear's debt holder demanded repayment of its \$25.0 million loan to RealWear. As a result, in the fourth quarter of 2019, Teradyne recorded an impairment charge of \$15.0 million to reduce its investment in RealWear to zero as of December 31, 2019.

E. REVENUE

Disaggregation of Revenue

The following table provides information about disaggregated revenue by timing of revenue recognition, primary geographical market, and major product lines.

	Semiconductor Test			Industrial Automation			Wireless Test	Corporate and Other	Total
	System on-a-chip	Memory	System Test	Universal Robots	Mobile Industrial Robots	AutoGuide			
(in thousands)									
For the Year Ended December 31, 2020 (1)									
<i>Timing of Revenue Recognition</i>									
Point in Time	\$1,659,414	\$363,324	\$348,454	\$214,212	\$44,622	\$10,911	\$163,834	\$ (604)	\$2,804,166
Over Time	217,975	18,884	61,275	7,269	211	2,506	9,182	—	317,302
Total	\$1,877,389	\$382,208	\$409,729	\$221,481	\$44,833	\$13,417	\$173,016	\$ (604)	\$3,121,469
<i>Geographical Market</i>									
Asia Pacific	\$1,744,593	\$364,000	\$258,521	\$ 60,277	\$ 6,471	\$ —	\$143,969	\$ —	\$2,577,831
Americas	77,671	12,999	128,482	64,164	16,769	13,417	22,544	(604)	335,441
Europe, Middle East and Africa	55,125	5,209	22,726	97,040	21,593	—	6,503	—	208,196
Total	\$1,877,389	\$382,208	\$409,729	\$221,481	\$44,833	\$13,417	\$173,016	\$ (604)	\$3,121,469
For the Year Ended December 31, 2019 (1)									
<i>Timing of Revenue Recognition</i>									
Point in Time	\$1,070,375	\$247,221	\$237,686	\$244,515	\$44,329	\$ 1,144	\$148,322	\$ (515)	\$1,993,077
Over Time	216,065	18,910	49,769	7,843	74	234	8,993	—	301,888
Total	\$1,286,440	\$266,131	\$287,455	\$252,358	\$44,403	\$ 1,378	\$157,315	\$ (515)	\$2,294,965
<i>Geographical Market</i>									
Asia Pacific	\$1,152,881	\$238,714	\$132,826	\$ 68,027	\$ 9,513	\$ —	\$126,549	\$ —	\$1,728,510
Americas	73,257	23,826	129,840	71,926	14,438	1,378	24,234	(515)	338,384
Europe, Middle East and Africa	60,302	3,591	24,789	112,405	20,452	—	6,532	—	228,071
Total	\$1,286,440	\$266,131	\$287,455	\$252,358	\$44,403	\$ 1,378	\$157,315	\$ (515)	\$2,294,965
For the Year Ended December 31, 2018 (1)									
<i>Timing of Revenue Recognition</i>									
Point in Time	\$1,010,493	\$259,366	\$167,418	\$232,448	\$24,115	\$ —	\$122,536	\$(1,205)	\$1,815,171
Over Time	208,456	14,102	48,714	4,889	—	—	9,470	—	285,631
Total	\$1,218,949	\$273,468	\$216,132	\$237,337	\$24,115	\$ —	\$132,006	\$(1,205)	\$2,100,802
<i>Geographical Market</i>									
Asia Pacific	\$1,067,879	\$245,264	\$ 90,989	\$ 58,492	\$ 5,950	\$ —	\$107,872	\$ —	\$1,576,446
Americas	78,498	17,353	96,763	70,478	7,326	—	19,166	(1,205)	288,379
Europe, Middle East and Africa	72,572	10,851	28,380	108,367	10,839	—	4,968	—	235,977
Total	\$1,218,949	\$273,468	\$216,132	\$237,337	\$24,115	\$ —	\$132,006	\$(1,205)	\$2,100,802

(1) Includes \$10.0 million, \$8.4 million and \$12.0 million in 2020, 2019 and 2018, respectively, for leases of Teradyne's systems recognized outside of ASC 606: "Revenue from Contracts with Customers."

Contract Balances

For the years ended December 31, 2020, 2019 and 2018, Teradyne recognized \$91.0 million, \$65.6 million and \$69.9 million, respectively, that was included within the deferred revenue and customer advances balances at the beginning of the period. This revenue primarily relates to undelivered hardware, extended warranties, training, application support, and post contract support. Each of these represents a distinct performance obligation. As of December 31, 2020, Teradyne has \$929.6 million of unsatisfied performance obligations. Teradyne

expects to recognize 92% of the remaining performance obligation in the next 12 months, 8% in 1-3 years, and the remainder thereafter.

F. INVENTORIES

Inventories, net consisted of the following at December 31, 2020 and 2019:

	<u>2020</u>	<u>2019</u>
	(in thousands)	
Raw material	\$114,133	\$118,595
Work-in-process	25,408	32,695
Finished goods	82,648	45,401
	<u>\$222,189</u>	<u>\$196,691</u>

Inventory reserves for the years ended December 31, 2020 and 2019 were \$110.6 million and \$103.6 million, respectively.

G. PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment, net consisted of the following at December 31, 2020 and 2019:

	<u>2020</u>	<u>2019</u>
	(in thousands)	
Land	\$ 17,207	\$ 16,561
Buildings	108,221	107,282
Machinery, equipment and software	956,035	834,970
Furniture and fixtures	28,487	29,157
Leasehold improvements	61,276	59,378
Construction in progress	13,098	2,537
	<u>1,184,324</u>	<u>1,049,885</u>
Less: accumulated depreciation	<u>789,524</u>	<u>729,669</u>
	<u>\$ 394,800</u>	<u>\$ 320,216</u>

Depreciation of property, plant and equipment for the years ended December 31, 2020, 2019, and 2018 was \$80.1 million, \$70.8 million, and \$67.4 million, respectively. As of December 31, 2020 and 2019, the gross book value included in machinery and equipment for internally manufactured test systems being leased by customers was \$23.4 million and \$5.4 million, respectively. As of December 31, 2020 and 2019, the accumulated depreciation on these test systems was \$7.5 million and \$5.1 million, respectively.

H. FINANCIAL INSTRUMENTS

Cash Equivalents

Teradyne considers all highly liquid investments with maturities of three months or less at the date of acquisition to be cash equivalents.

Marketable Securities

Teradyne recognizes the changes in fair value of equity securities directly in earnings. Teradyne's available-for-sale debt securities are classified as Level 2, and equity and debt mutual funds are classified as Level 1. Contingent consideration is classified as Level 3. The vast majority of Level 2 securities are fixed income

securities priced by third party pricing vendors. These pricing vendors utilize the most recent observable market information in pricing these securities or, if specific prices are not available, use other observable inputs like market transactions involving identical or comparable securities.

During the years ended December 31, 2020 and 2019, there were no transfers in or out of Level 1, Level 2, or Level 3 financial instruments.

Realized gains recorded in 2020, 2019, and 2018 were \$4.6 million, \$1.3 million, and \$4.0 million, respectively. Realized losses recorded in 2020, 2019, and 2018 were \$0.3 million, \$0.2 million, and \$1.6 million, respectively. Realized gains and losses are included in other (income) expense, net.

Unrealized gains on equity securities recorded during the years ended December 31, 2020 and 2019 were \$9.6 million and \$5.3 million, respectively. Unrealized losses on equity securities recorded during the years ended December 31, 2020 and 2019 were \$6.0 million and \$0.4 million, respectively. Unrealized gains and losses on equity securities are included in other (income) expense, net. Unrealized gains and losses on available-for-sale debt securities are included in accumulated other comprehensive income (loss) on the balance sheet.

The cost of securities sold is based on the first-in first out method.

The following table sets forth by fair value hierarchy Teradyne's financial assets and liabilities that were measured at fair value on a recurring basis as of December 31, 2020 and 2019:

	December 31, 2020			Total
	Quoted Prices in Active Markets for Identical Instruments (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	
	(in thousands)			
Assets				
Cash	\$443,166	\$ —	\$ —	\$ 443,166
Cash equivalents	347,768	123,187	—	470,955
Available for sale securities:				
U.S. Treasury securities	—	258,304	—	258,304
Commercial paper	—	254,413	—	254,413
Corporate debt securities	—	83,615	—	83,615
Debt mutual funds	8,565	—	—	8,565
U.S. government agency securities	—	4,339	—	4,339
Certificates of deposit and time deposits	—	979	—	979
Non-U.S. government securities	—	625	—	625
Equity securities:				
Mutual funds	29,420	—	—	29,420
Total	\$828,919	\$725,462	\$ —	\$1,554,381
Derivative assets	—	95	—	95
Total	<u>\$828,919</u>	<u>\$725,557</u>	<u>\$ —</u>	<u>\$1,554,476</u>
Liabilities				
Contingent consideration	\$ —	\$ —	\$7,227	\$ 7,227
Derivative liabilities	—	504	—	504
Total	<u>\$ —</u>	<u>\$ 504</u>	<u>\$7,227</u>	<u>\$ 7,731</u>

Reported as follows:

	<u>(Level 1)</u>	<u>(Level 2)</u>	<u>(Level 3)</u>	<u>Total</u>
	(in thousands)			
Assets				
Cash and cash equivalents	\$790,934	\$123,187	\$ —	\$ 914,121
Marketable securities	—	522,280	—	522,280
Long-term marketable securities	37,985	79,995	—	117,980
Prepayments and other current assets	—	95	—	95
Total	<u>\$828,919</u>	<u>\$725,557</u>	<u>\$ —</u>	<u>\$1,554,476</u>
Liabilities				
Other current liabilities	\$ —	\$ 504	\$ —	\$ 504
Long-term contingent consideration	—	—	7,227	7,227
Total	<u>\$ —</u>	<u>\$ 504</u>	<u>\$7,227</u>	<u>\$ 7,731</u>

	December 31, 2019			
	Quoted Prices in Active Markets for Identical Instruments (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
	(in thousands)			
Assets				
Cash	\$311,975	\$ —	\$ —	\$ 311,975
Cash equivalents	410,285	51,664	—	461,949
Available for sale securities:				
Corporate debt securities	—	97,307	—	97,307
Commercial paper	—	54,149	—	54,149
U.S. Treasury securities	—	42,382	—	42,382
U.S. government agency securities	—	9,952	—	9,952
Debt mutual funds	6,888	—	—	6,888
Certificates of deposit and time deposits	—	4,751	—	4,751
Non-U.S. government securities	—	592	—	592
Equity securities:				
Mutual funds	25,772	—	—	25,772
Total	<u>\$754,920</u>	<u>\$260,797</u>	<u>\$ —</u>	<u>\$1,015,717</u>
Derivative assets	—	528	—	528
Total	<u>\$754,920</u>	<u>\$261,325</u>	<u>\$ —</u>	<u>\$1,016,245</u>
Liabilities				
Contingent consideration	\$ —	\$ —	\$39,705	\$ 39,705
Derivative liabilities	—	203	—	203
Total	<u>\$ —</u>	<u>\$ 203</u>	<u>\$39,705</u>	<u>\$ 39,908</u>

Reported as follows:

	<u>(Level 1)</u>	<u>(Level 2)</u>	<u>(Level 3)</u>	<u>Total</u>
	(in thousands)			
Assets				
Cash and cash equivalents	\$722,260	\$ 51,664	\$ —	\$ 773,924
Marketable securities	—	137,303	—	137,303
Long-term marketable securities	32,660	71,830	—	104,490
Prepayments and other current assets	—	528	—	528
Total	<u>\$754,920</u>	<u>\$261,325</u>	<u>\$ —</u>	<u>\$1,016,245</u>
Liabilities				
Other current liabilities	\$ —	\$ 203	\$ —	\$ 203
Contingent consideration	—	—	9,106	9,106
Long-term contingent consideration	—	—	30,599	30,599
Total	<u>\$ —</u>	<u>\$ 203</u>	<u>\$39,705</u>	<u>\$ 39,908</u>

Changes in the fair value of Level 3 contingent consideration for the years ended December 31, 2020 and 2019 were as follows:

	<u>Contingent Consideration</u>
	(in thousands)
Balance at December 31, 2018	\$ 70,543
Acquisition of AutoGuide	23,976
Foreign currency impact	(967)
Payments (1)	(34,590)
Fair value adjustment (2)	<u>(19,257)</u>
Balance at December 31, 2019	39,705
Foreign currency impact	(355)
Payments (3)	(8,852)
Fair value adjustment (4)	<u>(23,271)</u>
Balance at December 31, 2020	<u>\$ 7,227</u>

- (1) During the year ended December 31, 2019, Teradyne paid \$30.8 million and \$3.8 million of contingent consideration for the earn-outs in connection with the acquisitions of MiR and Universal Robots A/S (“Universal Robots”), respectively.
- (2) During the year ended December 31, 2019, the fair value of contingent consideration for the earn-out in connection with the acquisition of MiR was decreased by \$22.2 million primarily due to a decrease in forecasted revenues partially offset by the impact from modification of the earn-out structure. During the year ended December 31, 2019, the fair value of contingent consideration for the earn-out in connection with the acquisition of AutoGuide was increased by \$3.0 million primarily due to an increase in forecasted revenues.
- (3) During the year ended December 31, 2020, Teradyne paid \$8.9 million of contingent consideration for the earn-out in connection with the acquisition of MiR.
- (4) During the year ended December 31, 2020, the fair value of contingent consideration for the earn-out in connection with the acquisition of AutoGuide was decreased by \$19.7 million primarily due to a decrease in forecasted revenues and earnings before interest and taxes. Teradyne has received a letter from the sellers of AutoGuide alleging non-compliance with the earn-out provisions of the AutoGuide acquisition agreement. Teradyne disputes the allegation of non-compliance. The ultimate amount of contingent consideration for the earn-outs in connection with the acquisition of AutoGuide may be affected by the outcome of the dispute. During the year ended December 31, 2020, the fair value of contingent consideration for the earn-out in connection with the acquisition of MiR was decreased by \$3.5 million primarily due to a decrease in forecasted revenues.

The following table provides quantitative information associated with the fair value measurement of Teradyne's Level 3 financial instrument:

<u>Liability</u>	<u>December 31, 2020 Fair Value</u>	<u>Valuation Technique</u>	<u>Unobservable Inputs</u>	<u>Weighted Average</u>
	(in thousands)			
Contingent consideration (AutoGuide)	\$7,227	Monte Carlo simulation	Revenue Volatility	16.5%
			Discount Rate	1.0%

As of December 31, 2020, the significant unobservable inputs used in the Monte Carlo simulation to fair value the AutoGuide contingent consideration include forecasted revenues, revenue volatility, earnings before interest and taxes and discount rate. Increases or decreases in the inputs would result in a higher or lower fair value measurement. As of December 31, 2020, the maximum amount of contingent consideration that could be paid in connection with the acquisition of AutoGuide is \$100.2 million. No payment was made related to the period ending December 31, 2020. The remaining earn-out periods end on December 31, 2021 and December 31, 2022.

The carrying amounts and fair values of Teradyne's financial instruments at December 31, 2020 and 2019 were as follows:

	<u>December 31, 2020</u>		<u>December 31, 2019</u>	
	<u>Carrying Value</u>	<u>Fair Value</u>	<u>Carrying Value</u>	<u>Fair Value</u>
	(in thousands)			
Assets				
Cash and cash equivalents	\$914,121	\$ 914,121	\$773,924	\$ 773,924
Marketable securities	640,260	640,260	241,793	241,793
Derivative assets	95	95	528	528
Liabilities				
Contingent consideration	7,227	7,227	39,705	39,705
Derivative liabilities	504	504	203	203
Convertible debt (1)	410,111	1,739,553	394,687	1,010,275

(1) The carrying value represents the bifurcated debt component only, while the fair value is based on quoted market prices for the convertible note which includes the equity conversion features.

The fair values of accounts receivable, net and accounts payable approximate the carrying amount due to the short term nature of these instruments.

The following tables summarize the composition of available-for-sale marketable securities at December 31, 2020 and 2019:

	December 31, 2020				
	Available-for-Sale				Fair Market Value of Investments with Unrealized Losses
	Cost	Unrealized Gain	Unrealized (Loss)	Fair Market Value	
	(in thousands)				
U.S. Treasury securities	\$257,132	\$1,330	\$(158)	\$258,304	\$17,243
Commercial paper	254,404	10	(1)	254,413	12,173
Corporate debt securities	76,129	7,539	(53)	83,615	39,896
Debt mutual funds	8,413	152	—	8,565	—
U.S. government agency securities	4,294	46	(1)	4,339	1,106
Certificates of deposit and time deposits	979	—	—	979	—
Non-U.S. government securities	625	—	—	625	—
	<u>\$601,976</u>	<u>\$9,077</u>	<u>\$(213)</u>	<u>\$610,840</u>	<u>\$70,418</u>

Reported as follows:

	Cost	Unrealized Gain	Unrealized (Loss)	Fair Market Value	Fair Market Value of Investments with Unrealized Losses
	(in thousands)				
	Marketable securities	\$522,228	\$ 92	\$ (40)	\$522,280
Long-term marketable securities	79,748	8,985	(173)	88,560	8,612
	<u>\$601,976</u>	<u>\$9,077</u>	<u>\$(213)</u>	<u>\$610,840</u>	<u>\$70,418</u>

	December 31, 2019				
	Available-for-Sale				Fair Market Value of Investments with Unrealized Losses
	Cost	Unrealized Gain	Unrealized (Loss)	Fair Market Value	
	(in thousands)				
Corporate debt securities	\$ 93,267	\$4,081	\$ (41)	\$ 97,307	\$ 2,009
Commercial paper	54,124	26	(1)	54,149	1,391
U.S. Treasury securities	42,167	431	(216)	42,382	17,556
U.S. government agency securities	9,942	14	(4)	9,952	3,043
Debt mutual funds	6,753	135	—	6,888	—
Certificates of deposit and time deposits	4,751	—	—	4,751	—
Non-U.S. government securities	592	—	—	592	—
	<u>\$211,596</u>	<u>\$4,687</u>	<u>\$(262)</u>	<u>\$216,021</u>	<u>\$23,999</u>

Reported as follows:

	Cost	Unrealized Gain	Unrealized (Loss)	Fair Market Value	Fair Market Value of Investments with Unrealized Losses
	(in thousands)				
	Marketable securities	\$137,144	\$ 160	\$ (1)	\$137,303
Long-term marketable securities	74,452	4,527	(261)	78,718	21,077
	<u>\$211,596</u>	<u>\$4,687</u>	<u>\$(262)</u>	<u>\$216,021</u>	<u>\$23,999</u>

As of December 31, 2020, the fair market value of investments with unrealized losses less than one year totaled \$70.4 million.

As of December 31, 2019, the fair market value of investments with unrealized losses less than one year totaled \$23.6 million.

Teradyne reviews its investments to identify and evaluate investments that have an indication of possible impairment. Based on this review, Teradyne determined that the unrealized losses related to these investments at December 31, 2020 and 2019, were not other than temporary.

The contractual maturities of investments in available-for-sale marketable securities held at December 31, 2020 were as follows:

	<u>Cost</u>	<u>Fair Value</u>
	(in thousands)	
Due within one year	\$522,228	\$522,280
Due after 1 year through 5 years	24,829	25,245
Due after 5 years through 10 years	13,030	14,183
Due after 10 years	33,476	40,567
Total	<u>\$593,563</u>	<u>\$602,275</u>

Contractual maturities of investments in available-for-sale marketable securities held at December 31, 2020 exclude debt mutual funds with the fair market value of \$8.6 million as they do not have a contractual maturity date.

Derivatives

Teradyne conducts business in a number of foreign countries, with certain transactions denominated in local currencies. The purpose of Teradyne's foreign currency management is to minimize the effect of exchange rate fluctuations on certain foreign currency denominated monetary assets and liabilities. Teradyne does not use derivative financial instruments for trading or speculative purposes.

To minimize the effect of exchange rate fluctuations associated with the remeasurement of monetary assets and liabilities denominated in foreign currencies, Teradyne enters into foreign currency forward contracts. The change in fair value of these derivatives is recorded directly in earnings, and is used to offset the change in value of the monetary assets and liabilities denominated in foreign currencies.

At December 31, 2020 and 2019, Teradyne had the following contracts to buy and sell non-U.S. currencies for U.S. dollars and other non-U.S. currencies with the following notional amounts:

	<u>December 31, 2020</u>			<u>December 31, 2019</u>		
	<u>Buy Position</u>	<u>Sell Position</u>	<u>Net Total</u>	<u>Buy Position</u>	<u>Sell Position</u>	<u>Net Total</u>
	(in millions)					
Japanese Yen	\$(14.1)	\$ —	\$(14.1)	\$(29.3)	\$ —	\$(29.3)
Taiwan Dollar	(27.9)	—	(27.9)	(18.4)	—	(18.4)
Korean Won	(5.3)	—	(5.3)	(10.7)	—	(10.7)
British Pound Sterling	(1.0)	—	(1.0)	(3.8)	—	(3.8)
Singapore Dollar	—	52.3	52.3	—	25.3	25.3
Euro	—	43.9	43.9	—	47.8	47.8
Philippine Peso	—	5.0	5.0	—	5.2	5.2
Chinese Yuan	—	3.4	3.4	—	4.4	4.4
Total	<u>\$(48.3)</u>	<u>\$104.6</u>	<u>\$ 56.3</u>	<u>\$(62.2)</u>	<u>\$82.7</u>	<u>\$ 20.5</u>

The fair value of the outstanding contracts was a loss of \$0.4 million and a gain of \$0.3 million, respectively, at December 31, 2020 and 2019.

Gains and losses on foreign currency forward contracts and foreign currency remeasurement gains and losses on monetary assets and liabilities are included in other (income) expense, net.

The following table summarizes the fair value of derivative instruments as of December 31, 2020 and 2019:

	<u>Balance Sheet Location</u>	<u>December 31,</u>	<u>December 31,</u>
		<u>2020</u>	<u>2019</u>
		<u>(in thousands)</u>	
Derivatives not designated as hedging instruments:			
Foreign exchange contracts	Prepayments	\$ 95	\$ 528
Foreign exchange contracts	Other current liabilities	(504)	(203)
Total derivatives		<u>\$(409)</u>	<u>\$ 325</u>

The following table summarizes the effect of derivative instruments in the statements of operations recognized for the years ended December 31, 2020, 2019, and 2018.

	<u>Location of (Gains) Losses Recognized in Statement of Operations</u>	<u>December 31,</u>	<u>December 31,</u>	<u>December 31,</u>
		<u>2020</u>	<u>2019</u>	<u>2018</u>
		<u>(in thousands)</u>		
Derivatives not designated as hedging instruments:				
Foreign exchange contracts	Other (income) expense, net	\$3,515	\$5,960	\$7,386

- (1) The table does not reflect the corresponding gains and losses from the remeasurement of the monetary assets and liabilities denominated in foreign currencies.
- (2) For the years ended December 31, 2020, net losses from remeasurement of monetary assets and liabilities denominated in foreign currencies were \$2.6 million.
- (3) For the year ended December 31, 2019 and 2018, net gains from the remeasurement of monetary assets and liabilities denominated in foreign currencies were \$1.6 million and \$2.5 million, respectively.

See Note J: “Debt” regarding derivatives related to the convertible senior notes.

Concentration of Credit Risk

Financial instruments which potentially subject Teradyne to concentrations of credit risk consist principally of cash equivalents, marketable securities, forward currency contracts and accounts receivable. Teradyne’s cash equivalents consist primarily of money market funds invested in U.S. Treasuries and government agencies. Teradyne’s fixed income available-for-sale marketable securities have a minimum rating of AA by one or more of the major credit rating agencies. Teradyne places foreign currency forward contracts with high credit-quality financial institutions in order to minimize credit risk exposure. Concentrations of credit risk with respect to accounts receivable are limited due to the large number of geographically dispersed customers. Teradyne performs ongoing credit evaluations of its customers’ financial condition and from time to time may require customers to provide a letter of credit from a bank to secure accounts receivable. As of December 31, 2020, a customer of our Semiconductor Test segment, JA Mitsui Leasing, LTD, accounted for 25% of our accounts receivable balance. The balance was paid in full as of February 22, 2021. There were no customers who accounted for 10% or more of our accounts receivable balance as of December 31, 2019.

I. LEASES

Teradyne has facility and auto leases, which are accounted for as operating leases. Teradyne’s facility leases are primarily used for administrative functions, research and development, manufacturing, and storage and distribution. Remaining lease terms range from less than one year to twelve years.

Total lease expense for the year ended December 31, 2020 was \$38.5 million and included \$12.1 million of variable lease costs and \$3.4 million of costs related to short-term leases, which are not recorded on the consolidated balance sheets.

Total lease expense for the year ended December 31, 2019 was \$35.6 million and included \$11.1 million of variable lease costs and \$2.6 million of costs related to short-term leases, which are not recorded on the consolidated balance sheets.

At December 31, 2020, the weighted average remaining lease term and weighted average discount rate for operating leases was 4.2 years and 4.8%, respectively. At December 31, 2019, the weighted average remaining lease term and weighted average discount rate for operating leases was 4.5 years and 5.0%, respectively.

Supplemental cash flows information related to leases was as follows:

	<u>For the Year Ended December 31, 2020</u>
Cash paid for amounts included in the measurement of lease liabilities included in operating cash flows:	\$24,136
Right-of-use assets obtained in exchange for new lease obligations	14,801

Maturities of lease liabilities as of December 31, 2020 were as follows:

	<u>Operating Lease (in thousands)</u>
2021	\$22,451
2022	16,798
2023	9,727
2024	7,215
2025	5,715
Thereafter	<u>6,149</u>
Total lease payments	68,055
Less imputed interest	<u>(5,409)</u>
Total lease liabilities	<u><u>\$62,646</u></u>

J. DEBT

Convertible Senior Notes

On December 12, 2016, Teradyne completed a private offering of \$460.0 million aggregate principal amount of 1.25% convertible senior unsecured notes (the “Notes”) due December 15, 2023 and received net proceeds, after issuance costs, of approximately \$450.8 million, \$33.0 million of which was used to pay the net cost of the convertible note hedge transactions and \$50.1 million of which was used to repurchase 2.0 million shares of Teradyne’s common stock under its existing stock repurchase program from purchasers of the Notes in privately negotiated transactions effected through one of the initial purchasers or its affiliates conducted concurrently with the pricing of the Note offering. The Notes will mature on December 15, 2023, unless earlier repurchased or converted. The Notes bear interest at a rate of 1.25% per year payable semiannually in arrears on June 15 and December 15 of each year. The Notes will be convertible at the option of the noteholders at any time prior to the close of business on the business day immediately preceding September 15, 2023, only under the following circumstances: (1) during any calendar quarter beginning after March 31, 2017 (and only during such calendar quarter), if the closing sale price of Teradyne’s common stock, for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on the last trading day of the immediately preceding calendar quarter is greater than 130% of the conversion price on each applicable trading day;

(2) during the five business day period after any five consecutive trading day period (the “measurement period”) in which the trading price (as defined in the Indenture) per \$1,000 principal amount of Notes for each trading day of the measurement period was less than 98% of the product of the closing sale price of the Teradyne’s common stock and the conversion rate on each such trading day; and (3) upon the occurrence of specified corporate events. On or after September 15, 2023 until the close of business on the second scheduled trading day immediately preceding the maturity date, holders may convert their Notes at any time, regardless of the foregoing circumstances. Teradyne may satisfy its conversion obligation by paying or delivering cash, shares of its common stock or a combination of cash and shares of its common stock, at Teradyne’s election. As of December 31, 2020, the conversion price was approximately \$31.56 per share of Teradyne’s common stock. The conversion rate is subject to adjustment under certain circumstances. As of February 22, 2021, twenty-four holders had exercised the option to convert \$51.0 million worth of notes.

Concurrent with the offering of the Notes, Teradyne entered into convertible note hedge transactions (the “Note Hedge Transactions”) with the initial purchasers or their affiliates (the “Option Counterparties”). The Note Hedge Transactions cover, subject to customary anti-dilution adjustments, the number of shares of the common stock that underlie the Notes, with a strike price equal to the conversion price of the Notes of \$31.56. The Note Hedge Transactions cover, subject to customary anti-dilution adjustments, approximately 14.6 million shares of Teradyne’s common stock.

Separately and concurrent with the pricing of the Notes, Teradyne entered into warrant transactions with the Option Counterparties (the “Warrant Transactions”) in which it sold net-share-settled (or, at its election subject to certain conditions, cash-settled) warrants to the Option Counterparties. The Warrant Transactions cover, subject to customary anti-dilution adjustments, approximately 14.6 million shares of common stock. As of December 31, 2020, the strike price of the warrants was approximately \$39.60 per share. The strike price is subject to adjustment under certain circumstances. The Warrant Transactions could have a dilutive effect to Teradyne’s common stock to the extent that the market price per share of Teradyne’s common stock, as measured under the terms of the Warrant Transactions, exceeds the applicable strike price of the warrants.

The Note Hedge Transactions are expected to reduce the potential dilution to Teradyne’s common stock upon any conversion of the Notes. However, the Warrant Transactions could separately have a dilutive effect to the extent that the market value per share of Teradyne’s common stock exceeds the applicable strike price of the warrant. The net cost of the Note Hedge Transactions, after being partially offset by the proceeds from the sale of the warrants, was approximately \$33.0 million.

In connection with establishing their initial hedge of these convertible note hedge and warrant transactions, the Option Counterparties have entered into various derivative transactions with respect to Teradyne’s common stock and/or purchased shares of Teradyne’s common stock or other securities, including the Notes, concurrent with, or shortly after, the pricing of the Notes. In addition, the Option Counterparties may modify their hedge positions by entering into or unwinding various derivative transactions with respect to Teradyne’s common stock or by selling Teradyne’s common stock or other securities, including the Notes, in secondary market transactions (and may do so during any observation period related to the conversion of the Notes). These activities could adversely affect the value of Teradyne’s common stock and the Notes.

Teradyne considered the guidance of ASC 815-40, “*Derivatives and Hedging—Contracts in Entity’s Own Equity*,” and concluded that the convertible note hedge is both indexed to Teradyne’s stock and should be classified in stockholders’ equity in its statements of financial position. The convertible note hedge is considered indexed to Teradyne’s stock as the terms of the Note Hedge Transactions do not contain an exercise contingency and the settlement amount equals the difference between the fair value of a fixed number of Teradyne’s shares and a fixed strike price. Because the only variable that can affect the settlement amount is Teradyne’s stock price, which is an input to the fair value of a fixed-for-fixed option contract, the convertible note hedge is considered indexed to Teradyne’s stock.

Teradyne assessed whether the convertible note hedge should be classified as equity under ASC 815-40. In the Note Hedge Transactions contract the settlement terms permit net cash settlement or net share settlement, at the option of Teradyne. Therefore, the criteria as set forth in ASC 815-40 were evaluated by Teradyne. In reviewing the criteria, Teradyne noted the following: (1) the convertible note hedge does not require Teradyne to issue shares; (2) there is no requirement to net cash settle the convertible note hedge for failure to make timely filings with the SEC; (3) in the case of termination, the convertible note hedge is settled in the same consideration as the holders of the underlying stock; (4) the counterparty does not have rights that rank higher than those of a shareholder of the stock underlying the convertible note hedge; and (5) there is no requirement to post collateral. Based on its analysis of those criteria, Teradyne concluded that the convertible note hedge should be recorded in equity and no further adjustment should be made in future periods to adjust the value of the convertible note hedge.

Teradyne analyzed the Warrant Transactions under ASC 815-40, “*Derivatives and Hedging—Contracts in Entity’s Own Equity*,” and other relevant literature, and determined that it met the criteria for classification as an equity transaction and is considered indexed to Teradyne’s stock. As a result, Teradyne recorded the proceeds from the warrants as an increase to additional paid-in capital. Teradyne does not recognize subsequent changes in fair value of the warrants in its financial statements.

The provisions of ASC 470-20, “*Debt with Conversion and Other Options*,” are applicable to the Notes. ASC 470-20 requires Teradyne to separately account for the liability (debt) and equity (conversion feature) components of the Notes in a manner that reflects Teradyne’s nonconvertible debt borrowing rate at the date of issuance when interest cost is recognized in subsequent periods. Teradyne allocated \$100.8 million of the \$460.0 million principal amount of the Notes to the equity component, which represents a discount to the debt and will be amortized to interest expense using the effective interest method through December 2023. Accordingly, Teradyne’s effective annual interest rate on the Notes will be approximately 5.0%. The Notes are classified as long-term debt on the balance sheet based on their December 15, 2023 maturity date. Debt issuance costs of approximately \$7.2 million are being amortized to interest expense using the effective interest method over the seven-year term of the Notes. As of December 31, 2020, debt issuance costs were approximately \$3.3 million.

The below tables represent the key components of Teradyne’s convertible senior notes:

	December 31, 2020	December 31, 2019
	(in thousands)	
Debt principal	\$459,971	\$460,000
Unamortized discount	49,860	65,313
Net carrying amount of convertible debt	<u>\$410,111</u>	<u>\$394,687</u>

Reported as follows:

	December 31, 2020	December 31, 2019
	(in thousands)	
Current debt	\$ 33,343	\$ —
Long-term debt	<u>376,768</u>	<u>394,687</u>
Net carrying amount of convertible debt	<u>\$410,111</u>	<u>\$394,687</u>

	For the year ended	
	December 31, 2020	December 31, 2019
	(in thousands)	
Contractual interest expense on the coupon	\$ 5,750	\$ 5,750
Amortization of the discount component and debt issue fees recognized as interest expense	<u>15,454</u>	<u>14,706</u>
Total interest expense on the convertible debt	<u>\$21,204</u>	<u>\$20,456</u>

As of December 31, 2020, the unamortized discount was \$49.9 million, which will be amortized over three years using the effective interest rate method. The carrying amount of the equity component was \$100.8 million. As of December 31, 2020, the conversion price was approximately \$31.56 per share and if converted the value of the notes was \$1,747.5 million.

As of December 31, 2020, certain holders have elected to convert approximately \$37 million of debt principal. Conversions will occur in the first quarter of 2021. The related liability component is included in current debt and the portion of the equity component is included in convertible common shares.

Revolving Credit Facility

On June 27, 2019, Teradyne terminated its credit agreement, which Teradyne entered into with Barclays Bank PLC on April 27, 2015. The terminated credit agreement, which was undrawn at termination, provided for a five-year, senior secured revolving credit facility of up to \$350 million.

On May 1, 2020, Teradyne entered into a credit agreement (the “Credit Agreement”) with Truist Bank, as administrative agent and collateral agent, and the lenders party thereto. The Credit Agreement provides for a three-year, senior secured revolving credit facility of \$400.0 million (the “Credit Facility”). The Credit Agreement further provides that, subject to customary conditions, Teradyne may seek to obtain from existing or new lenders incremental commitments under the Credit Facility in an aggregate principal amount not to exceed \$150.0 million.

The interest rate applicable to loans under the Credit Facility are, at Teradyne’s option, equal to either a base rate plus a margin ranging from 0.50% to 1.25% per annum or LIBOR, a minimum of 0.75%, plus a margin ranging from 1.50% to 2.25% per annum, based on the consolidated leverage ratio of Teradyne. In addition, Teradyne will pay a commitment fee on the unused portion of the commitments under the Credit Facility ranging from 0.25% to 0.40% per annum, based on the then applicable consolidated leverage ratio.

Teradyne is not required to repay any loans under the Credit Facility prior to maturity, subject to certain customary exceptions. Teradyne is permitted to prepay all or any portion of the loans under the Credit Facility prior to maturity without premium or penalty, other than customary LIBOR breakage costs.

The Credit Agreement contains customary events of default, representations, warranties and affirmative and negative covenants that, among other things, limit Teradyne’s ability to sell assets, grant liens on assets, incur other secured indebtedness and make certain investments and restricted payments, all subject to exceptions set forth in the Credit Agreement. The Credit Agreement also requires Teradyne to satisfy two financial ratios measured as of the end of each fiscal quarter; a consolidated leverage ratio and an interest coverage ratio.

The Credit Facility is guaranteed by certain of Teradyne’s domestic subsidiaries and collateralized by assets of Teradyne and such subsidiaries, including a pledge of 65% of the capital stock of certain foreign subsidiaries.

As of December 31, 2020, Teradyne was in compliance with all covenants under the Credit Agreement.

K. ACCUMULATED OTHER COMPREHENSIVE (LOSS) INCOME

Changes in accumulated other comprehensive (loss) income, which is presented net of tax, consist of the following:

	Foreign Currency Translation Adjustment	Unrealized (Losses) Gains on Marketable Securities	Retirement Plans Prior Service Credit	Total
	(in thousands)			
Balance at December 31, 2018, net of tax of \$0, \$(521), \$(1,081)	\$(12,523)	\$(1,845)	\$1,328	\$(13,040)
Other comprehensive (loss) income before reclassifications, net of tax of \$0, \$1,659, \$0	(10,991)	6,015	—	(4,976)
Amounts reclassified from accumulated other comprehensive income, net of tax of \$0, \$(192), \$(43) ..	—	(690)	(148)	(838)
Net current period other comprehensive (loss) income, net of tax of \$0, \$1,467, \$(43)	(10,991)	5,325	(148)	(5,814)
Balance at December 31, 2019, net of tax of \$0, \$946, \$(1,124)	\$(23,514)	\$ 3,480	\$1,180	\$(18,854)
Other comprehensive income before reclassifications, net of tax of \$0, \$1,629, \$0	48,903	5,839	—	54,742
Amounts reclassified from accumulated other comprehensive income, net of tax of \$0, \$(665), \$(2) ...	—	(2,365)	(7)	(2,372)
Net current period other comprehensive income (loss), net of tax of \$0, \$964, \$(2)	48,903	3,474	(7)	52,370
Balance at December 31, 2020, net of tax of \$0, \$1,910, \$(1,126)	\$ 25,389	\$ 6,954	\$1,173	\$ 33,516

Reclassifications out of accumulated other comprehensive income to the statements of operations for the years ended December 31, 2020, 2019, and 2018, were as follows:

Details about Accumulated Other Comprehensive Income Components	For the year ended			Affected Line Item in the Statements of Operations
	December 31, 2020	December 31, 2019	December 31, 2018	
	(in thousands)			
Available-for-sale marketable securities				
Unrealized gains (losses), net of tax of \$665, \$192, \$21	\$2,365	\$690	\$(1,337)	Interest income (expense)
Defined benefit pension and postretirement plans:				
Amortization of prior service benefit, net of tax of \$2, \$43, \$71	7	148	245	(a)
Total reclassifications, net of tax of \$667, \$235, \$92	\$2,372	\$838	\$(1,092)	Net income

(a) The amortization of prior service credit is included in the computation of net periodic pension cost and postretirement benefit; see Note P: "Retirement Plans."

L. GOODWILL AND INTANGIBLE ASSETS

Goodwill

Teradyne performs its annual goodwill impairment test as required under the provisions of ASC 350-10, “*Intangibles—Goodwill and Other*,” on December 31 of each fiscal year unless interim indicators of impairment exist. Goodwill is considered to be impaired when the net book value of a reporting unit exceeds its estimated fair value.

Teradyne has the option to perform a qualitative assessment to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount. If Teradyne determines this is the case, Teradyne is required to perform a quantitative goodwill impairment test to identify potential goodwill impairment and measure the amount of goodwill impairment loss to be recognized. If Teradyne determines that it is more likely than not that the fair value of the reporting unit is greater than its carrying amounts, the quantitative goodwill impairment test is not required. In performing the quantitative goodwill impairment test, Teradyne determines the fair value of a reporting unit using the results derived from an income approach and a market approach, weighting the fair value determined under each approach to determine an estimated fair value for a reporting unit. The income approach is estimated through the discounted cash flows (“DCF”) analysis. Determining fair value requires the exercise of significant judgment, including judgments about appropriate discount rates, perpetual growth rates, and the amount and timing of expected future cash flows. Discount rates are based on a weighted average cost of capital (“WACC”), which represents the average rate a business must pay its providers of debt and equity, plus a risk premium. The WACC used to test goodwill is derived from a group of comparable companies. The cash flows employed in the DCF analysis are derived from internal forecasts and external market forecasts. The market approach estimates the fair value of the reporting unit by utilizing the market comparable method which is based on revenue and earnings multiples from comparable companies. If the estimated fair value of a reporting unit exceeds its carrying amount, goodwill of the reporting unit is not impaired. If the carrying amount of a reporting unit exceeds its estimated fair value, then the goodwill is written down by the amount that carrying value exceeds the fair value of the reporting unit, but not below zero.

On September 15, 2020, Teradyne announced the appointment of Gregory Smith as President of Teradyne’s Industrial Automation reportable segment effective October 1, 2020. With the appointment of Gregory Smith, the Industrial Automation reportable segment, which includes UR, MiR and AutoGuide, is considered one operating segment and one reporting unit. Teradyne performed a goodwill impairment test at the time of the change in operating segments, which indicated the fair value of Teradyne’s reporting units exceeded their carrying values. In the fourth quarter of 2020, Teradyne performed the annual goodwill impairment test, completing a qualitative assessment for the Wireless Test, System Test, and Industrial Automation reporting units. There was no impairment as a result of the annual test performed in the fourth quarter of 2020. Key assumptions in the goodwill valuation model are forecasted revenues, discount rate, earnings before interest and taxes, and revenue multiples from comparable companies. A change in any of these key assumptions could result in the reporting unit being impaired in a future period.

Based on Teradyne’s December 31, 2019 goodwill impairment test, the MiR reporting unit’s estimated fair value exceeded its carrying value by 14%. The MiR goodwill amount is \$123.6 million as of December 31, 2019. Key assumptions in the goodwill valuation model are forecasted revenues, discount rate, earnings before interest and taxes, and revenue multiples from comparable companies. A change in any of these key assumptions could result in the reporting unit being impaired in a future period.

In the fourth quarter of 2018, Teradyne performed the annual goodwill impairment test. Teradyne completed step one of the two-step impairment test for the Universal Robots reporting unit. Teradyne completed step zero for the Wireless Test and Defense/Aerospace, MiR, and Energid reporting units. There was no impairment as a result of the annual test performed in the fourth quarter of 2018.

	December 31, 2019			
	Gross Carrying Amount	Accumulated Amortization	Foreign Currency Translation Adjustment	Net Carrying Amount
	(in thousands)			
Developed technology	\$361,787	\$(279,000)	\$(5,709)	\$ 77,078
Customer relationships	75,669	(59,077)	(455)	16,137
Tradenames and trademarks	70,120	(36,671)	(1,184)	32,265
Backlog	260	(260)	—	—
Total intangible assets	<u>\$507,836</u>	<u>\$(375,008)</u>	<u>\$(7,348)</u>	<u>\$125,480</u>

(1) In 2020, \$98.9 million of amortizable intangible assets became fully amortized and have been eliminated from the gross carrying amount and accumulated amortization.

Aggregate intangible assets amortization expense for the years ended December 31, 2020, 2019, and 2018, was \$30.8 million, \$40.1 million, and \$39.2 million, respectively. Estimated intangible assets amortization expense for each of the five succeeding fiscal years is as follows:

<u>Year</u>	<u>Amortization Expense</u>
	(in thousands)
2021	\$21,893
2022	21,000
2023	20,504
2024	20,192
2025	11,922
Thereafter	5,428

M. COMMITMENTS AND CONTINGENCIES

Purchase Commitments

As of December 31, 2020, Teradyne had entered into non-cancelable purchase commitments for certain components and materials. The purchase commitments covered by the agreements aggregate to approximately \$603.5 million, of which \$592.1 million is for less than one year.

Legal Claims

Teradyne is subject to legal proceedings, claims and investigations that arise in the ordinary course of business such as, but not limited to, patent, employment, commercial and environmental matters. Teradyne believes that it has meritorious defenses against all pending claims and intends to vigorously contest them. While it is not possible to predict or determine the outcomes of any pending claims or to provide possible ranges of losses that may arise, Teradyne believes the potential losses associated with all of these actions are unlikely to have a material adverse effect on its business, financial position or results of operations.

Guarantees and Indemnification Obligations

Teradyne provides indemnification, to the extent permitted by law, to its officers, directors, employees and agents for liabilities arising from certain events or occurrences, while the officer, director, employee, or agent, is or was serving, at Teradyne's request in such capacity. Teradyne may enter into indemnification agreements with certain of its officers and directors. With respect to acquisitions, Teradyne provides indemnifications to or assumes indemnification obligations for the current and former directors, officers and employees of the acquired companies in accordance with the acquired companies' by-laws and charter. As a matter of practice, Teradyne has maintained directors' and officers' liability insurance coverage including coverage for directors and officers of acquired companies.

Teradyne enters into agreements in the ordinary course of business with customers, resellers, distributors, integrators and suppliers. Most of these agreements require Teradyne to defend and/or indemnify the other party against intellectual property infringement claims brought by a third party with respect to Teradyne's products. From time to time, Teradyne also indemnifies customers and business partners for damages, losses and liabilities they may suffer or incur relating to personal injury, personal property damage, product liability, breach of confidentiality obligations and environmental claims relating to the use of Teradyne's products and services or resulting from the acts or omissions of Teradyne, its employees, authorized agents or subcontractors. On occasion, Teradyne has also provided guarantees to customers regarding the delivery and performance of its products in addition to the warranty described below.

As a matter of ordinary course of business, Teradyne warrants that its products will substantially perform in accordance with its standard published specifications in effect at the time of delivery. Most warranties have a one-year duration commencing from installation. A provision is recorded upon revenue recognition to cost of revenue for estimated warranty expense based upon historical experience. When Teradyne receives revenue for extended warranties beyond the standard duration, the revenue is deferred and recognized on a straight-line basis over the contract period. Related costs are expensed as incurred. As of December 31, 2020, and 2019, Teradyne had a product warranty accrual of \$16.6 million and \$9.0 million, respectively, included in other accrued liabilities, and revenue deferrals related to extended warranties of \$51.9 million and \$30.7 million, respectively, included in short and long-term deferred revenue and customer advances.

In addition, in the ordinary course of business, Teradyne provides minimum purchase guarantees to certain vendors to ensure continuity of supply against the market demand. Although some of these guarantees provide penalties for cancellations and/or modifications to the purchase commitments as the market demand decreases, most of the guarantees do not. Therefore, as the market demand decreases, Teradyne re-evaluates these guarantees and determines what charges, if any, should be recorded.

With respect to its agreements covering product, business or entity divestitures and acquisitions, Teradyne provides certain representations, warranties and covenants to purchasers and agrees to indemnify and hold such purchasers harmless against breaches of such representations, warranties and covenants. Many of the indemnification claims have a definite expiration date while some remain in force indefinitely. With respect to its acquisitions, Teradyne may, from time to time, assume the liability for certain events or occurrences that took place prior to the date of acquisition.

As a matter of ordinary course of business, Teradyne occasionally guarantees certain indebtedness obligations of its subsidiary companies, limited to the borrowings from financial institutions, purchase commitments to certain vendors, and lease commitments to landlords.

Based on historical experience and information known as of December 31, 2020, and 2019, except for product warranty, Teradyne has not recorded any liabilities for these guarantees and obligations because the amount would be immaterial.

N. NET INCOME PER COMMON SHARE

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

	<u>2020</u>	<u>2019</u>	<u>2018</u>
	(in thousands, except per share amounts)		
Net income for basic and diluted net income per share	\$784,147	\$467,468	\$451,779
Weighted average common shares-basic	166,120	170,425	187,672
Effect of dilutive potential common shares:			
Incremental shares from assumed conversion of convertible notes (1)	8,528	4,909	2,749
Convertible note hedge warrant shares (2)	6,989	2,698	485
Restricted stock units	1,264	1,236	1,385
Stock options	131	178	278
Employee stock purchase rights	10	13	36
Dilutive potential common shares	<u>16,922</u>	<u>9,034</u>	<u>4,933</u>
Weighted average common shares-diluted	<u>183,042</u>	<u>179,459</u>	<u>192,605</u>
Net income per common share-basic	<u>\$ 4.72</u>	<u>\$ 2.74</u>	<u>\$ 2.41</u>
Net income per common share-diluted	<u>\$ 4.28</u>	<u>\$ 2.60</u>	<u>\$ 2.35</u>

- (1) Incremental shares from the assumed conversion of the convertible notes was calculated using the difference between the average Teradyne stock price for the period and the conversion price of \$31.56, multiplied by 14.6 million shares. The result of this calculation, representing the total intrinsic value of the convertible debt, was divided by the average Teradyne stock price for the period.
- (2) Convertible notes hedge warrant shares were calculated using the difference between the average Teradyne stock price for the period and the warrant price of \$39.60, multiplied by 14.6 million shares. The result of this calculation, representing the total intrinsic value of the warrant, was divided by the average Teradyne stock price for the period.

The computation of diluted net income per common share for 2020 excludes the effect of the potential exercise of stock options to purchase approximately 0.1 million shares and restricted stock units to purchase approximately 0.1 million shares because the effect would have been anti-dilutive.

The computation of diluted net income per common share for 2018 excludes the effect of the potential exercise of restricted stock units to purchase approximately 0.5 million shares because the effect would have been anti-dilutive.

O. RESTRUCTURING AND OTHER

During the year ended December 31, 2020, Teradyne recorded a \$19.7 million gain for the decrease in the fair value of the AutoGuide contingent consideration liability, and a \$3.5 million gain for the decrease in the fair value of the MiR contingent consideration liability, partially offset by a \$4.0 million contract termination settlement charge, \$2.5 million of acquisition related compensation and expenses, \$2.3 million of severance charges primarily in Industrial Automation, and \$1.2 million of other expenses.

During the year ended December 31, 2019, Teradyne recorded a \$22.2 million gain for the decrease in the fair value of the MiR contingent consideration liability, partially offset by a \$3.0 million gain for the increase in the fair value of the AutoGuide contingent consideration, \$2.9 million of severance charges related to headcount reductions primarily in Semiconductor Test and Industrial Automation, and \$2.5 million for acquisition related expenses and compensation.

The remaining accrual for severance of \$0.5 million is reflected in the accrued employees' compensation and withholdings on the balance sheet and is expected to be paid by March 2021.

P. RETIREMENT PLANS

ASC 715, “*Compensation—Retirement Benefits*,” requires an employer with defined benefit plans or other postretirement benefit plans to recognize an asset or a liability on its balance sheet for the overfunded or underfunded status of the plans as defined by ASC 715. The pension asset or liability represents a difference between the fair value of the pension plan’s assets and the projected benefit obligation at December 31. Teradyne uses a December 31 measurement date for all of its plans.

Defined Benefit Pension Plans

Teradyne has defined benefit pension plans covering a portion of domestic employees and employees of certain non-U.S. subsidiaries. Benefits under these plans are based on employees’ years of service and compensation. Teradyne’s funding policy is to make contributions to the plans in accordance with local laws and to the extent that such contributions are tax deductible. The assets of these plans consist primarily of fixed income and equity securities. In addition, Teradyne has an unfunded supplemental executive defined benefit plan in the United States to provide retirement benefits in excess of levels allowed by the Employment Retirement Income Security Act (“ERISA”) and the Internal Revenue Code (the “IRC”), as well as unfunded qualified foreign plans.

In 2020, Teradyne’s projected benefit obligations increased primarily due to actuarial losses of approximately \$27.6 million across all pension plans from decreases in discount rates, and approximately \$4.0 million from unfavorable foreign exchange effects for the German plan, partially offset by a transfer of obligations for approximately 115 retiree participants to an insurance company which resulted in a \$24.4 million reduction in the projected benefit obligations and pension assets. We also recorded a settlement loss of \$0.5 million related to the retiree group annuity transaction. In 2019, Teradyne’s projected benefit obligations increased primarily due to actuarial losses of approximately \$29.0 million across all pension plans from decreases in discount rates.

The December 31 balances of these defined benefit pension plans assets and obligations are shown below:

	2020		2019	
	United States	Foreign	United States	Foreign
	(in thousands)			
Assets and Obligations				
Change in benefit obligation:				
Projected benefit obligation:				
Beginning of year	\$203,791	\$ 43,952	\$178,237	\$ 39,146
Service cost	1,773	907	1,608	751
Interest cost	5,770	516	7,189	691
Actuarial loss	24,671	2,951	24,447	4,520
Benefits paid	(9,844)	(1,299)	(7,690)	(836)
Retiree annuity purchase	(24,379)	—	—	—
Liability loss due to settlement	451	—	—	—
Non-U.S. currency movement	—	3,961	—	(320)
End of year	<u>202,233</u>	<u>50,988</u>	<u>203,791</u>	<u>43,952</u>
Change in plan assets:				
Fair value of plan assets:				
Beginning of year	166,932	1,586	144,301	1,400
Actual return on plan assets	23,048	67	27,516	64
Company contributions	3,098	1,079	2,805	923
Benefits paid	(9,844)	(988)	(7,690)	(836)
Retiree annuity purchase	(24,379)	—	—	—
Non-U.S. currency movement	—	112	—	35
End of year	<u>158,855</u>	<u>1,856</u>	<u>166,932</u>	<u>1,586</u>
Funded status	<u>\$ (43,378)</u>	<u>\$(49,132)</u>	<u>\$ (36,859)</u>	<u>\$(42,366)</u>

The following table provides amounts recorded within the account line items of the statements of financial position as of December 31:

	2020		2019	
	<u>United States</u>	<u>Foreign</u>	<u>United States</u>	<u>Foreign</u>
	(in thousands)			
Retirement plans assets	\$ 17,468	\$ —	\$ 18,457	\$ —
Accrued employees' compensation and withholdings	(3,273)	(1,019)	(2,826)	(922)
Retirement plans liabilities	<u>(57,573)</u>	<u>(48,113)</u>	<u>(52,490)</u>	<u>(41,444)</u>
Funded status	<u><u>\$(43,378)</u></u>	<u><u>\$(49,132)</u></u>	<u><u>\$(36,859)</u></u>	<u><u>\$(42,366)</u></u>

The following table provides amounts recognized in accumulated other comprehensive income as of December 31:

	2020		2019	
	<u>United States</u>	<u>Foreign</u>	<u>United States</u>	<u>Foreign</u>
	(in thousands)			
Deferred taxes related to prior service cost recognized in other comprehensive income	<u>\$560</u>	<u>\$—</u>	<u>\$560</u>	<u>\$—</u>

The accumulated benefit obligation for the United States defined benefit pension plans was \$196.7 million and \$198.2 million at December 31, 2020 and 2019, respectively. The accumulated benefit obligation for foreign defined benefit pension plans was \$46.5 million and \$39.9 million at December 31, 2020 and 2019, respectively.

Information for pension plans with an accumulated benefit obligation in excess of plan assets as of December 31:

	2020		2019	
	<u>United States</u>	<u>Foreign</u>	<u>United States</u>	<u>Foreign</u>
	(in millions)			
Projected benefit obligation	\$60.8	\$51.0	\$55.3	\$44.0
Accumulated benefit obligation	58.5	46.5	53.2	39.9
Fair value of plan assets	—	1.9	—	1.6

Expense

For the years ended December 31, 2020, 2019, and 2018, Teradyne's net periodic pension cost (income) was comprised of the following:

	2020		2019		2018	
	United States	Foreign	United States	Foreign	United States	Foreign
(in thousands)						
Components of Net Periodic Pension Cost (Income):						
Service cost	\$ 1,773	\$ 907	\$ 1,608	\$ 751	\$ 2,196	\$ 786
Interest cost	5,770	516	7,189	691	8,940	687
Expected return on plan assets	(4,840)	(65)	(6,042)	(29)	(9,049)	(19)
Amortization of prior service cost	—	—	—	—	58	—
Net actuarial loss (gain)	6,463	2,949	2,973	4,485	(4,429)	743
Settlement loss	451	—	—	—	345	—
Total net periodic pension cost (income)	<u>\$ 9,617</u>	<u>\$4,307</u>	<u>\$ 5,728</u>	<u>\$5,898</u>	<u>\$(1,939)</u>	<u>\$2,197</u>
Changes in Plan Assets and Benefit Obligations						
Recognized in Other Comprehensive Income:						
Reversal of amortization items:						
Prior service cost	—	—	—	—	(58)	—
Total recognized in other comprehensive income	—	—	—	—	(58)	—
Total recognized in net periodic pension cost (income) and other comprehensive income	<u>\$ 9,617</u>	<u>\$4,307</u>	<u>\$ 5,728</u>	<u>\$5,898</u>	<u>\$(1,997)</u>	<u>\$2,197</u>

Weighted Average Assumptions to Determine Net Periodic Pension Cost at January 1:

	2020		2019		2018	
	United States	Foreign	United States	Foreign	United States	Foreign
Discount rate	2.8%	1.1%	4.1%	1.8%	3.4%	1.8%
Expected return on plan assets	3.0	3.8	4.3	2.0	4.3	1.5
Salary progression rate	2.6	2.5	2.3	2.5	2.3	2.7

Weighted Average Assumptions to Determine Pension Obligations at December 31:

	2020		2019	
	United States	Foreign	United States	Foreign
Discount rate	2.2%	0.7%	3.0%	1.1%
Salary progression rate	2.4	2.3	2.6	2.5

In developing the expected return on plan assets assumption, Teradyne evaluates input from its investment manager and pension consultants, including their forecast of asset class return expectations. Teradyne believes that 3.0% was an appropriate rate to use for fiscal 2020 for the U.S. Qualified Pension Plan ("U.S. Plan").

Teradyne recognizes net actuarial gains and losses and the change in the fair value of the plan assets in its operating results in the year in which they occur or upon any interim remeasurement of the plans. Teradyne calculates the expected return on plan assets using the fair value of the plan assets. Actuarial gains and losses are generally measured annually as of December 31 and, accordingly, recorded during the fourth quarter of each year or upon any interim remeasurement of the plans.

The discount rate utilized to determine future pension obligations for the U.S. Plan is based on FTSE Pension Index adjusted for the plan's expected cash flows and was 2.3% at December 31, 2020, down from 3.10% at December 31, 2019.

Plan Assets

As of December 31, 2020, the fair value of Teradyne's pension plans' assets totaled \$160.7 million of which \$158.9 million was related to the U.S. Plan and \$1.9 million was related to the Taiwan defined benefit pension plan. Substantially all of Teradyne's pension plans' assets are held in individual trusts, which were established for the investment of assets of Teradyne's sponsored retirement plans.

The following table provides weighted average pension asset allocation by asset category at December 31, 2020 and 2019:

	2020		2019	
	United States	Foreign	United States	Foreign
Fixed income securities	94.0%	— %	94.0%	— %
Equity securities	5.0	—	5.0	—
Other	1.0	100.0	1.0	100.0
	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>

The assets of the U.S. Plan are overseen by the Teradyne Fiduciary Committee which is comprised of members of senior management drawn from appropriate diversified levels of the management team. The Fiduciary Committee is responsible for setting the policy that provides the framework for management of the U.S. Plan assets. In accordance with its responsibilities, the Fiduciary Committee meets on a regular basis to review the performance of the U.S. Plan assets and compliance with the investment policy. The policy sets forth an investment structure for managing U.S. Plan assets, including setting the asset allocation ranges, which are expected to provide an appropriate level of overall diversification required to maximize the long-term return on plan assets for a prudent and reasonable level of risk given prevailing market conditions, total investment return over the long term, and preservation of capital, while maintaining sufficient liquidity to pay the benefits of the U.S. Plan. The investment portfolio will not, at any time, have a direct investment in Teradyne stock. It may have indirect investment in Teradyne stock, if one of the funds selected by the investment manager invests in Teradyne stock. In developing the asset allocation ranges, third party asset allocation studies are periodically performed that consider the current and expected positions of the plan assets and funded status. Based on this study and other appropriate information, the Fiduciary Committee establishes asset allocation ranges taking into account acceptable risk targets and associated returns. The investment return objectives are to avoid excessive volatility and produce a rate of return that at least matches the Policy Index identified below. The manager's investment performance is reviewed at least annually. Results for the total portfolio and for each major category of assets are evaluated in comparison with appropriate market indices and the Policy Index.

The target asset allocation and the index for each asset category for the U.S. Plan, per the investment policy, are as follows:

<u>Asset Category:</u>	<u>Policy Index:</u>	<u>Target Allocation</u>
U.S. corporate fixed income	Bloomberg Barclays U.S. Corporate A or Better Index	75%
Global equity	MSCI World Minimum Volatility Index	5
U.S. government fixed income	Bloomberg Barclays U.S. Long Government Bond Index	14
High yield fixed income	Bloomberg Barclays U.S. Corporate High Yield 2% Issuer Cap Index	5
Cash	Citigroup Three Month U.S. Treasury Bill Index	1

Teradyne's U.S. Plan invests primarily in common trust funds. Units held in the common trust funds are valued at the unit price as reported by the investment manager based on the asset value of the underlying investments; underlying investments in equity securities are valued at the last reported sales price, and underlying investments in fixed-income securities are generally valued using methods based upon market transactions for comparable securities.

During the years ended December 31, 2020 and December 31, 2019, there were no transfers of pension assets in or out of Level 1, Level 2, and Level 3.

The fair value of pension plan assets by asset category and by level at December 31, 2020 and December 31, 2019 were as follows:

	December 31, 2020							
	United States				Foreign			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
	(in thousands)							
Fixed income securities:								
Corporate debt securities	\$ —	\$127,098	\$—	\$127,098	\$—	\$ —	\$—	\$ —
U.S. government securities	—	22,250	—	22,250	—	—	—	—
Global equity	—	7,925	—	7,925	—	—	—	—
Other	—	—	—	—	—	1,856	—	1,856
Cash and cash equivalents	1,582	—	—	1,582	—	—	—	—
Total	\$1,582	\$157,273	\$—	\$158,855	\$—	\$1,856	\$—	\$1,856

	December 31, 2019							
	United States				Foreign			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
	(in thousands)							
Fixed income securities:								
Corporate debt securities	\$ —	\$133,792	\$—	\$133,792	\$—	\$ —	\$—	\$ —
U.S. government securities	—	23,186	—	23,186	—	—	—	—
Global equity	—	8,344	—	8,344	—	—	—	—
Other	—	—	—	—	—	1,586	—	1,586
Cash and cash equivalents	1,610	—	—	1,610	—	—	—	—
Total	\$1,610	\$165,322	\$—	\$166,932	\$—	\$1,586	\$—	\$1,586

Contributions

Teradyne's funding policy is to make contributions to the plans in accordance with local laws and to the extent that such contributions are tax deductible. During 2020, Teradyne contributed \$3.1 million to the U.S. supplemental executive defined benefit pension plan and \$1.1 million to certain qualified plans for non-U.S. subsidiaries. During 2019, Teradyne contributed \$2.8 million to the U.S. supplemental executive defined benefit pension plan and \$0.9 million to certain qualified plans for non-U.S. subsidiaries. In 2021, contributions to the U.S. supplemental executive defined benefit pension plan and certain qualified plans from non-U.S. subsidiaries will be approximately \$3.3 million and \$1.1 million, respectively.

Expected Future Pension Benefit Payments

Future benefit payments are expected to be paid as follows:

	<u>United States</u>	<u>Foreign</u>
	(in thousands)	
2021	\$ 8,902	\$1,058
2022	8,782	1,063
2023	9,189	1,313
2024	9,815	1,192
2025	10,374	1,140
2026-2030	54,145	7,053

Postretirement Benefit Plans

In addition to receiving pension benefits, U.S. Teradyne employees who meet early retirement eligibility requirements as of their termination dates may participate in Teradyne's Welfare Plan, which includes medical and dental benefits up to age 65. Death benefits provide a fixed sum to retirees' survivors and are available to all retirees. Substantially all of Teradyne's current U.S. employees could become eligible for these benefits, and the existing benefit obligation relates primarily to those employees.

The December 31 balances of the postretirement assets and obligations are shown below:

	<u>2020</u>	<u>2019</u>
	(in thousands)	
<i>Assets and Obligations</i>		
Change in benefit obligation:		
Projected benefit obligation:		
Beginning of year	\$ 9,003	\$ 9,256
Service cost	57	41
Interest cost	240	347
Actuarial loss	421	717
Benefits paid	(1,205)	(1,358)
End of year	<u>8,515</u>	<u>9,003</u>
Change in plan assets:		
Fair value of plan assets:		
Beginning of year	—	—
Company contributions	1,205	1,358
Benefits paid	(1,205)	(1,358)
End of year	<u>—</u>	<u>—</u>
Funded status	<u><u>\$(8,515)</u></u>	<u><u>\$(9,003)</u></u>

The following table provides amounts recorded within the account line items of financial position as of December 31:

	<u>2020</u>	<u>2019</u>
	(in thousands)	
Accrued employees' compensation and withholdings	\$(1,161)	\$(1,231)
Retirement plans liability	(7,354)	(7,772)
Funded status	<u><u>\$(8,515)</u></u>	<u><u>\$(9,003)</u></u>

The following table provides amounts recognized in accumulated other comprehensive income as of December 31:

	<u>2020</u>	<u>2019</u>
	(in thousands)	
Prior service credit, before tax	\$ (49)	\$ (58)
Deferred taxes	(1,686)	(1,684)
Total recognized in other comprehensive income, net of tax	<u>\$(1,735)</u>	<u>\$(1,742)</u>

Expense

For the years ended December 31, 2020, 2019, and 2018, Teradyne's net periodic postretirement benefit cost (income) was comprised of the following:

	<u>2020</u>	<u>2019</u>	<u>2018</u>
	(in thousands)		
Components of Net Periodic Postretirement Benefit Cost (income):			
Service cost	\$ 57	\$ 41	\$ 39
Interest cost	240	347	196
Amortization of prior service credit	(9)	(191)	(373)
Net actuarial loss	421	717	25
Special termination benefits	—	—	3,708
Total net periodic postretirement benefit cost	<u>709</u>	<u>914</u>	<u>3,595</u>
Changes in Plan Assets and Benefit Obligations Recognized in Other Comprehensive Income:			
Reversal of amortization items:			
Prior service credit	<u>9</u>	<u>191</u>	<u>373</u>
Total recognized in other comprehensive income	<u>9</u>	<u>191</u>	<u>373</u>
Total recognized in net periodic postretirement cost and other comprehensive income	<u>\$718</u>	<u>\$1,105</u>	<u>\$3,968</u>

Weighted Average Assumptions to Determine Net Periodic Postretirement Benefit Income as of January 1:

	<u>2020</u>	<u>2019</u>	<u>2018</u>
Discount rate	3.0%	4.0%	3.4%
Initial health care cost trend rate	7.1	7.5	7.9
Ultimate health care cost trend rate	4.5	4.5	4.5
Year in which ultimate health care cost trend rate is reached	2026	2026	2026

Weighted Average Assumptions to Determine Postretirement Benefit Obligation as of December 31:

	<u>2020</u>	<u>2019</u>	<u>2018</u>
Discount rate	2.2%	3.0%	4.0%
Initial medical trend	7.3	7.1	7.5
Ultimate health care trend	4.5	4.5	4.5
Medical cost trend rate decrease to ultimate rate in year	2029	2026	2026

Expected Future Benefit Payments

Future benefit payments are expected to be paid as follows:

	<u>Benefit Payments</u> (in thousands)
2021	\$1,161
2022	961
2023	786
2024	646
2025	533
2026-2030	1,601

Q. STOCK-BASED COMPENSATION

Stock Compensation Plans

On July 17, 2019 (the “Retirement Date”), former Chief Financial Officer Gregory Beecher retired as Vice President and Senior Advisor of Teradyne, and Teradyne entered into an agreement (the “Retirement Agreement”) with Mr. Beecher. Under the Retirement Agreement, Mr. Beecher’s unvested time-based restricted stock units and stock options granted prior to 2019 were modified to allow continued vesting; unvested time-based restricted stock units and stock options granted in 2019 were modified to allow continued vesting through January 31, 2023 (the “Non-Competition Period”) in a pro-rated amount based on the number of days that Mr. Beecher was employed during 2019; unvested, performance-based restricted stock units awarded in 2019 will vest on the date the amount of shares underlying the performance-based restricted stock units are determined in a pro-rated amount of shares based on the number of days that Mr. Beecher was employed during 2019; vested options or options that vest during the Non-Competition Period may be exercised for the remainder of the applicable option term. During 2019, Teradyne recorded a stock-based compensation expense of \$2.1 million related to the Retirement Agreement.

Under Teradyne’s stock compensation plans, Teradyne grants time-based restricted stock units, performance-based restricted stock units, stock options and employees are eligible to purchase Teradyne’s common stock through its Employee Stock Purchase Plan (“ESPP”).

Time-based restricted stock unit awards granted to employees vest in equal annual installments over four years. Restricted stock unit awards granted to non-employee directors vest after a one-year period, with 100% of the award vesting on the earlier of (a) the first anniversary of the grant date or (b) the date of the following year’s Annual Meeting of Shareholders. Teradyne expenses the cost of the restricted stock unit awards subject to time-based vesting, which is determined to be the fair market value of the shares at the date of grant, ratably over the period during which the restrictions lapse.

Performance-based restricted stock units (“PRsUs”) granted to Teradyne’s executive officers may have a performance metric based on relative total shareholder return (“TSR”). Teradyne’s three-year TSR performance is measured against the New York Stock Exchange (“NYSE”) Composite Index. The final number of TSR PRsUs that vest will vary based upon the level of performance achieved from 200% to 0% of the target shares capped at four times the grant date value for grants prior to 2019. The TSR PRsUs will vest upon the three-year anniversary of the grant date. The TSR PRsUs are valued using a Monte Carlo simulation model. The number of units expected to be earned, based upon the achievement of the TSR market condition, is factored into the grant date Monte Carlo valuation. Compensation expense is recognized on a straight-line basis over the shorter of the three-year service period or the period from the grant to the date described in the retirement provisions below. Compensation expense for executive officers meeting the retirement provisions prior to the grant date is recognized during the year following the grant. Compensation expense is recognized regardless of the eventual number of units that are earned based upon the market condition, provided the executive officer remains an

employee at the end of the three-year period. Compensation expense is reversed if at any time during the three-year service period the executive officer is no longer an employee, subject to the retirement and termination eligibility provisions noted below.

PRsUs granted to Teradyne’s executive officers may also have a performance metric based on three-year cumulative non-GAAP profit before interest and tax (“PBIT”) as a percent of Teradyne’s revenue. Non-GAAP PBIT is a financial measure equal to GAAP income from operations less restructuring and other, net; amortization of acquired intangible assets; acquisition and divestiture related charges or credits; pension actuarial gains and losses; non-cash convertible debt interest expense; and other non-recurring gains and charges. The final number of PBIT PRsUs that vest will vary based upon the level of performance achieved from 0% to 200% of the target shares. The PBIT PRsUs will vest upon the three-year anniversary of the grant date. Compensation expense is recognized on a straight-line basis over the shorter of the three-year service period or the period from the grant date to the date described in the retirement provisions below. Compensation expense for employees meeting the retirement provisions prior to the grant date will be recognized in full on the date of grant. Compensation expense is recognized based on the number of units that are earned based upon the three-year Teradyne PBIT as a percent of Teradyne’s revenue, provided the executive officer remains an employee at the end of the three-year period subject to the retirement and termination eligibility provisions noted below.

If a PRsU recipient’s employment ends prior to the determination of the performance percentage due to (1) permanent disability or death or (2) retirement or termination other than for cause, after attaining both at least age sixty and at least ten years of service, then all or a portion of the recipient’s PRsUs (based on the actual performance percentage achieved on the determination date) will vest on the date the performance percentage is determined. Except as set forth in the preceding sentence, no PRsUs will vest if the executive officer is no longer an employee at the end of the three-year period.

Stock options to purchase Teradyne’s common stock at 100% of the fair market value on the grant date vest in equal annual installments over four years from the grant date and have a maximum term of seven years.

During 2020, 2019 and 2018, Teradyne granted 0.4 million, 0.8 million and 0.6 million of service-based restricted stock unit awards to employees at a weighted average grant date fair value of \$71.31, \$37.65, and \$45.92, respectively.

During 2020, 2019 and 2018, Teradyne granted 0.1 million of service-based restricted stock unit awards to non-employee directors at a weighted average grant date fair value of \$66.56, \$48.03, and \$35.81, respectively.

During 2020, 2019 and 2018, Teradyne granted 0.1 million TSR PRsUs, with a grant date fair value of \$89.93, \$51.51, and \$54.85, respectively. The fair value was estimated using the Monte Carlo simulation model with the following assumptions:

	<u>2020</u>	<u>2019</u>	<u>2018</u>
Risk-free interest rate	1.5%	2.6%	2.2%
Teradyne volatility-historical	34.9%	31.9%	26.8%
NYSE Composite Index volatility-historical	11.4%	11.9%	12.4%
Dividend yield	0.6%	1.0%	0.8%

Expected volatility was based on the historical volatility of Teradyne’s stock and the NYSE Composite Index for each of the 2020, 2019 and 2018 grants over the most recent three-year period. The risk-free interest rate was determined using the U.S. Treasury yield curve in effect at the time of each of the grants. Dividend yield was based upon an estimated annual dividend amount of \$0.40 per share for 2020 and \$0.36 per share for 2019 and 2018, divided by Teradyne’s stock price on the grant date of \$72.10 for the 2020 grants, \$37.95 for the 2019 grants and \$47.70 for the 2018 grants.

During 2020, 2019 and 2018, Teradyne granted 0.1 million of PBIT PRSUs with a grant date fair value of \$70.94, \$36.88 and \$46.62, respectively.

During 2020, 2019 and 2018, Teradyne granted 0.1 million of service-based stock options to executive officers at a weighted average grant date fair value of \$20.93, \$10.64, and \$12.17, respectively.

The fair value of stock options was estimated using the Black-Scholes option-pricing model with the following assumptions:

	<u>2020</u>	<u>2019</u>	<u>2018</u>
Expected life (years)	5.0	5.0	5.0
Risk-free interest rate	1.5%	2.5%	2.4%
Volatility-historical	32.0%	30.1%	26.4%
Dividend yield	0.5%	1.0%	0.8%

Teradyne determined the stock options' expected life based upon historical exercise data for executive officers, the age of the executive officers and the terms of the stock option grant. Volatility was determined using historical volatility for a period equal to the expected life. The risk-free interest rate was determined using the U.S. Treasury yield curve in effect at the time of grant. Dividend yield was based upon an estimated annual dividend amount of \$0.40 per share divided by Teradyne's stock price on the grant date of \$72.61 for the 2020 grants, \$37.95 for the 2019 grants and \$47.70 for the 2018 grants.

Stock compensation plan activity for the years 2020, 2019, and 2018, is as follows:

	<u>2020</u>	<u>2019</u>	<u>2018</u>
	(in thousands)		
Restricted Stock Units:			
Non-vested at January 1	2,269	2,454	3,174
Awarded	616	1,139	790
Vested	(1,028)	(1,237)	(1,382)
Forfeited	(68)	(87)	(128)
Non-vested at December 31	<u>1,789</u>	<u>2,269</u>	<u>2,454</u>
Stock Options:			
Outstanding at January 1	319	506	531
Granted	56	102	69
Exercised	(159)	(280)	(94)
Forfeited	—	(7)	—
Expired	—	(2)	—
Outstanding at December 31	<u>216</u>	<u>319</u>	<u>506</u>
Vested and expected to vest at December 31	<u>216</u>	<u>319</u>	<u>506</u>
Exercisable at December 31	<u>27</u>	<u>85</u>	<u>256</u>

Total shares available for the years 2020, 2019, and 2018:

	<u>2020</u>	<u>2019</u>	<u>2018</u>
	(in thousands)		
Shares available:			
Available for grant at January 1	6,727	7,874	8,605
Options granted	(56)	(102)	(69)
Options forfeited	—	7	
Restricted stock units awarded	(616)	(1,139)	(790)
Restricted stock units forfeited	<u>68</u>	<u>87</u>	<u>128</u>
Available for grant at December 31	<u>6,123</u>	<u>6,727</u>	<u>7,874</u>

Weighted average restricted stock unit award date fair value information for the years 2020, 2019, and 2018, is as follows:

	<u>2020</u>	<u>2019</u>	<u>2018</u>
Non-vested at January 1	\$35.58	\$29.22	\$21.71
Awarded	72.76	39.08	45.99
Vested	31.53	23.59	20.20
Forfeited	45.36	35.60	24.67
Non-vested at December 31	\$47.84	\$35.58	\$29.22

Restricted stock unit awards aggregate intrinsic value information at December 31 for the years 2020, 2019, and 2018 is as follows:

	<u>2020</u>	<u>2019</u>	<u>2018</u>
	(in thousands)		
Vested	\$ 71,582	\$ 46,110	\$63,688
Outstanding	214,509	154,752	77,015
Expected to vest	210,301	152,374	77,187

Restricted stock units weighted average remaining contractual terms (in years) information at December 31 for the years 2020, 2019, and 2018 is as follows:

	<u>2020</u>	<u>2019</u>	<u>2018</u>
Outstanding	0.96	1.02	0.92
Expected to vest	0.96	1.02	0.91

Weighted average stock options exercise price information for the year ended December 31, 2020 is as follows:

	<u>2020</u>
Outstanding at January 1	\$29.91
Options granted	72.61
Options exercised	23.77
Options forfeited	—
Options cancelled	—
Outstanding at December 31	45.59
Exercisable at December 31	23.51

The total cash received from employees as a result of employee stock options exercises during the years ended December 31, 2020, 2019, and 2018, was \$3.8 million, \$3.7 million, and \$1.0 million, respectively. In connection with these exercises, the tax benefit realized by Teradyne for the years ended December 31, 2020, 2019, and 2018, was \$1.5 million, \$2.0 million, and \$0.4 million, respectively.

Stock option aggregate intrinsic value information for the years ended December 31, 2020, 2019, and 2018 is as follows:

	<u>2020</u>	<u>2019</u>	<u>2018</u>
	(in thousands)		
Exercised	\$ 9,682	\$ 9,232	\$2,960
Outstanding	16,083	12,218	7,359
Vested and expected to vest	13,499	7,701	7,359
Exercisable	2,584	4,517	5,905

Stock options weighted average remaining contractual terms (in years) information at December 31, for the years 2020, 2019, and 2018 is as follows:

	<u>2020</u>	<u>2019</u>	<u>2018</u>
Outstanding	4.6	4.2	3.6
Vested and expected to vest	4.9	5.0	3.6
Exercisable	2.5	2.1	2.4

As of December 31, 2020, total unrecognized expense related to non-vested restricted stock unit awards and stock options was \$44 million and is expected to be recognized over a weighted average period of 2.4 years.

Employee Stock Purchase Plan

Under the ESPP, eligible employees may purchase shares of common stock through regular payroll deductions of up to 10% of their compensation, to a maximum of shares with a fair market value of \$25,000 per calendar year, not to exceed 6,000 shares. Under the plan, the price paid for the common stock is equal to 85% of the stock price on the last business day of the six-month purchase period.

In July 2020, 0.2 million shares of common stock were issued to employees who participated in the plan during the first half of 2020 at the price of \$71.83 per share. In January 2021, Teradyne issued 0.1 million shares of common stock to employees who participated in the plan during the second half of 2020 at the price of \$101.91 per share.

In July 2019, 0.3 million shares of common stock were issued to employees who participated in the plan during the first half of 2019 at the price of \$40.72 per share. In January 2020, Teradyne issued 0.2 million shares of common stock to employees who participated in the plan during the second half of 2019 at the price of \$57.96 per share.

In July 2018, 0.3 million shares of common stock were issued to employees who participated in the plan during the first half of 2018 at the price of \$32.36 per share. In January 2019, Teradyne issued 0.4 million shares of common stock to employees who participated in the plan during the second half of 2018 at the price of \$26.67 per share.

As of December 31, 2020, there were 1.4 million shares available for grant under the ESPP.

The following table provides the effect to income from operations for recording stock-based compensation for the years ended December 31, 2020, 2019, and 2018:

	<u>2020</u>	<u>2019</u>	<u>2018</u>
	(in thousands)		
Cost of revenues	\$ 4,227	\$ 3,480	\$ 3,129
Engineering and development	12,039	9,913	9,181
Selling and administrative	28,640	24,504	21,267
Stock-based compensation	44,906	37,897	33,577
Income tax benefit	(13,060)	(8,360)	(12,036)
Total stock-based compensation expense after income taxes	<u>\$ 31,846</u>	<u>\$29,537</u>	<u>\$ 21,541</u>

R. SAVINGS PLAN

Teradyne sponsors a defined contribution employee retirement savings plan (“Savings Plan”) covering substantially all U.S. employees. Under the Savings Plan, employees may contribute up to 20% of their compensation (subject to Internal Revenue Service limitations). The Savings Plan provides for a discretionary employer match that is determined each year. In 2020, 2019 and 2018, Teradyne matched 100% of eligible employee contributions up to 4% of their compensation for employees not accruing benefits in the U.S. Qualified Pension Plan. There was no match for employees still actively accruing benefits in the U.S. Qualified Pension Plan. Teradyne’s contributions vest 25% per year for the first four years of employment, and contributions for those employees with four years of service vest immediately.

In addition, Teradyne sponsors an unfunded U.S. Supplemental Savings Plan to provide savings benefits in excess of those allowed by the Employee Retirement Income Security Act of 1974 and the Internal Revenue Code. The provisions of this plan are the same as the Savings Plan. The liability for the U.S. Supplemental Savings Plan at December 31, 2020 and 2019, was \$38.0 million and \$32.7 million, respectively, and is included in retirement plan liabilities. Teradyne contributes to defined contributions savings plans for its foreign employees. Under Teradyne’s savings plans, amounts charged to the statements of operations for the years ended December 31, 2020, 2019, and 2018 were \$21.7 million, \$20.9 million, and \$19.4 million, respectively.

S. INCOME TAXES

The components of income (loss) before income taxes and the provision (benefit) for income taxes as shown in the consolidated statements of operations were as follows:

	<u>2020</u>	<u>2019</u>	<u>2018</u>
	(in thousands)		
Income before income taxes:			
U.S.	\$312,153	\$192,442	\$189,691
Non-U.S.	588,862	333,330	278,110
	<u>\$901,015</u>	<u>\$525,772</u>	<u>\$467,801</u>
Provision (benefit) for income taxes:			
Current:			
U.S. Federal	\$ 58,678	\$ 19,297	\$ (59,122)
Non-U.S.	75,193	52,810	45,083
State	(1,315)	(4,347)	1,721
	<u>132,556</u>	<u>67,760</u>	<u>(12,318)</u>
Deferred:			
U.S. Federal	(12,604)	(4,522)	29,252
Non-U.S.	(5,127)	(8,007)	(1,243)
State	2,043	3,073	331
	<u>(15,688)</u>	<u>(9,456)</u>	<u>28,340</u>
Total provision for income taxes:	<u>\$116,868</u>	<u>\$ 58,304</u>	<u>\$ 16,022</u>

Income tax expense for 2020, 2019 and 2018 totaled \$116.9 million, \$58.3 million, and \$16.0 million, respectively. The effective tax rate for 2020, 2019 and 2018 was 13.0%, 11.1% and 3.4%, respectively.

On December 22, 2017, the U.S. enacted the Tax Cuts and Jobs Act of 2017 (the “Tax Reform Act”), making significant changes to the Internal Revenue Code. The Tax Reform Act has significant direct and indirect implications for accounting for income taxes under ASC 740, “Accounting for Income Taxes” some of which could not be calculated with precision until further clarification and guidance was made available from tax authorities, regulatory bodies or the FASB. In light of this uncertainty, on December 22, 2017 the SEC issued

Staff Accounting Bulletin (“SAB”) No. 118, “Income Tax Accounting Implications of the Tax Cuts and Jobs Act,” to address uncertainty in the application of U.S. GAAP when the registrant does not have the necessary information available, prepared, or analyzed (including computations) in reasonable detail to complete the accounting for certain income tax effects of the Tax Reform Act. In accordance with SAB 118, Teradyne recorded \$186.0 million of additional income tax expense in the fourth quarter of 2017 which represented Teradyne’s best estimate of the impact of the Tax Reform Act in accordance with Teradyne’s understanding of the Tax Reform Act and available guidance as of that date. The \$186.0 million was primarily composed of expense of \$161.0 million related to the one-time transition tax on the mandatory deemed repatriation of foreign earnings, \$33.6 million of expense related to the remeasurement of certain deferred tax assets and liabilities based on the rates at which they are expected to reverse in the future, and a benefit of \$10.3 million associated with the impact of correlative adjustments on uncertain tax positions. In accordance with the requirements of SAB 118, in the fourth quarter of 2018, Teradyne completed its analysis of the effect of the Tax Reform Act based on the application of the most recently available guidance as of December 31, 2018 and recorded \$49.5 million of net income tax benefit. The net benefit consisted of \$51.7 million of benefit resulting from a reduction in the estimate of the one-time transition tax on the mandatory deemed repatriation of foreign earnings and an expense of \$2.2 million associated with the impact of correlative adjustments on uncertain tax positions.

Teradyne has made an accounting policy election to account for global intangible low-taxed income (“GILTI”) as a component of tax expense in the period in which Teradyne is subject to the rules and therefore did not provide any deferred tax impacts of GILTI in its consolidated financial statements.

The increase in the effective tax rate from 2019 to 2020 is primarily attributable to a reduction in the benefit from releases of reserves for uncertain tax positions and a reduction in the benefit from foreign tax credits. These increases in expense were partially offset by a decrease in the transition tax on the mandatory deemed repatriation of foreign earnings and shift in the geographic distribution of income, which increases the income subject to taxation in lower tax rate jurisdictions relative to higher tax rate jurisdictions.

On July 27, 2015, in *Altera Corp. (“Altera”) v. Commissioner*, the U.S. Tax Court issued an opinion invalidating the regulations relating to the treatment of stock-based compensation expense in an intercompany cost-sharing arrangement. A final decision was issued by the Tax Court in December 2015. The IRS appealed the decision in June 2016. On July 24, 2018, the U.S. Court of Appeals for the Ninth Circuit (“Ninth Circuit”) issued a decision that was subsequently withdrawn and a reconstituted panel conferred on the appeal. On June 7, 2019, the Ninth Circuit upheld the cost-sharing regulations. On November 12, 2019 the Ninth Circuit denied Altera’s petition for rehearing of its case. Altera’s application for certiorari to the Supreme Court was declined on June 22, 2020. In the fourth quarter of 2019 and 2020, Teradyne recognized tax expense of approximately \$6.3 million and \$2.3 million, respectively, related to the inclusion of stock-based compensation in its intercompany cost-sharing arrangement.

The increase in the effective tax rate from 2018 to 2019 is primarily attributable to increases in expense associated with GILTI and the transition tax on the mandatory deemed repatriation of foreign earnings. These increases in expense were partially offset by increased benefit from the U.S. foreign derived intangible income deduction, foreign tax credits and a net reduction of reserves for uncertain tax positions.

A reconciliation of the effective tax rate for the years 2020, 2019 and 2018 is as follows:

	<u>2020</u>	<u>2019</u>	<u>2018</u>
U.S. statutory federal tax rate	21.0%	21.0%	21.0%
U.S. global intangible low-taxed income	5.7	6.2	0.3
State income taxes, net of federal tax benefit	0.3	0.5	0.1
Foreign taxes	(5.6)	(4.0)	(2.0)
Foreign tax credits	(4.8)	(5.9)	(2.2)
U.S. foreign derived intangible income	(2.2)	(2.6)	(1.8)
U.S. research and development credit	(1.3)	(1.8)	(2.2)
Equity compensation	(0.6)	(0.7)	(1.2)
Uncertain tax positions	(0.1)	(4.3)	1.0
U.S. transition tax	—	1.9	(10.5)
Impact of rate change on deferred taxes	—	—	0.3
Other, net	0.6	0.8	0.6
	<u>13.0%</u>	<u>11.1%</u>	<u>3.4%</u>

Teradyne qualifies for a tax holiday in Singapore by fulfilling the requirements of an agreement with the Singapore Economic Development Board under which certain headcount and spending requirements must be met. The tax savings attributable to the Singapore tax holiday for the years ended December 31, 2020, 2019 and 2018 were \$29.9 million or \$0.16 per diluted share, \$15.1 million or \$0.08 per diluted share and \$11.9 million or \$0.06 per diluted share, respectively. In November 2020, Teradyne entered into an agreement with the Singapore Economic Development Board which extended our Singapore tax holiday under substantially similar terms to the agreement which expired on December 31, 2020. The new tax holiday is scheduled to expire on December 31, 2025.

Significant components of Teradyne's deferred tax assets (liabilities) as of December 31, 2020 and 2019 were as follows:

	<u>2020</u>	<u>2019</u>
	(in thousands)	
Deferred tax assets:		
Tax credits	\$ 87,595	\$ 79,480
Accruals	33,156	25,424
Pension liabilities	28,348	24,459
Inventory valuations	18,427	18,572
Lease liability	12,627	13,093
Deferred revenue	9,235	7,622
Equity compensation	6,543	7,042
Vacation accrual	5,890	4,768
Investment impairment	3,292	3,292
Net operating loss carryforwards	1,823	2,705
Other	626	187
Gross deferred tax assets	<u>207,562</u>	<u>186,644</u>
Less: valuation allowance	(84,962)	(77,177)
Total deferred tax assets	<u>\$122,600</u>	<u>\$109,467</u>
Deferred tax liabilities:		
Depreciation	\$ (14,525)	\$ (18,238)
Intangible assets	(12,726)	(16,705)
Right of use assets	(10,688)	(11,197)
Contingent consideration	(3,515)	—
Marketable securities	(3,344)	(1,601)
Other	(710)	(611)
Total deferred tax liabilities	<u>\$(45,508)</u>	<u>\$(48,352)</u>
Net deferred assets	<u>\$ 77,092</u>	<u>\$ 61,115</u>

As of December 31, 2020 and 2019, Teradyne evaluated the likelihood that it would realize deferred income taxes to offset future taxable income and concluded that it is more likely than not that a substantial majority of its deferred tax assets will be realized through consideration of both the positive and negative evidence. At December 31, 2020 and 2019, Teradyne maintained a valuation allowance for certain deferred tax assets of \$85.0 million and \$77.2 million, respectively, primarily related to state net operating losses and state tax credit carryforwards, due to the uncertainty regarding their realization. Adjustments could be required in the future if Teradyne estimates that the amount of deferred tax assets to be realized is more or less than the net amount recorded.

At December 31, 2020, Teradyne had operating loss carryforwards that expire in the following years:

	State Operating Loss Carryforwards	Foreign Operating Loss Carryforwards
	(in thousands)	
2021	\$ 333	\$ —
2022	2,203	—
2023	3,368	—
2024	812	—
2025	191	—
2026-2030	7,452	—
2031-2035	2,147	68
Beyond 2035	73	—
Non-expiring	870	3,923
Total	<u>\$17,449</u>	<u>\$3,991</u>

Teradyne has approximately \$116.3 million of tax credit carryforwards including federal business tax credits of approximately \$1.9 million which expire in 2028 through 2030, and state tax credits of \$114.3 million, of which \$63.8 million do not expire and the remainder expires in the years 2021 through 2040.

Teradyne's gross unrecognized tax benefits for the years ended December 31, 2020, 2019 and 2018 were as follows:

	<u>2020</u>	<u>2019</u>	<u>2018</u>
	(in thousands)		
Beginning balance as of January 1	\$21,180	\$ 43,395	\$36,263
Additions:			
Tax positions for current year	1,082	1,322	4,716
Tax positions for prior years	66	8,043	2,626
Reductions:			
Tax positions for prior years	(2,989)	(31,397)	(153)
Expiration of statutes	(1,436)	(183)	(57)
Ending balance as of December 31	<u>\$17,903</u>	<u>\$ 21,180</u>	<u>\$43,395</u>

Current year additions relate to federal and state research credits. Prior year additions primarily relate to stock-based compensation. Prior year reductions are primarily composed of federal and state reserves related to transfer pricing and research credits and resulted from the completion of the 2015 U.S. federal audit in the first quarter of 2019.

Of the \$17.9 million of unrecognized tax benefits as of December 31, 2020, \$12.0 million would impact the consolidated income tax rate if ultimately recognized. The remaining \$5.9 million would impact deferred taxes if recognized.

As of December 31, 2020, Teradyne estimates that it is reasonably possible that the balance of unrecognized tax benefits may decrease approximately \$1.6 million in the next twelve months as a result of a lapse of statutes of limitation. The estimated decrease relates to loss carryforwards, research credits and U.S. manufacturing activities deductions.

Teradyne records all interest and penalties related to income taxes as a component of income tax expense. Accrued interest and penalties related to income tax items at December 31, 2020 and 2019 amounted to \$1.2 million and \$1.4 million, respectively. For the years ended December 31, 2020, 2019 and 2018, benefit of \$0.2 million, expense of \$1.1 million and benefit of \$0.1 million, respectively, was recorded for interest and penalties related to income tax items.

Teradyne is subject to U.S. federal income tax, as well as income tax in multiple state, local and foreign jurisdictions. As of December 31, 2020, all material state and local income tax matters have been concluded through 2015, all material federal income tax matters have been concluded through 2016 and all material foreign income tax matters have been concluded through 2012. However, in some jurisdictions, including the United States, operating losses and tax credits may be subject to adjustment until such time as they are utilized and the year of utilization is closed to adjustment.

As of December 31, 2020, Teradyne is not permanently reinvested with respect to the unremitted earnings of non-U.S. subsidiaries to the extent that those earnings exceed local statutory and operational requirements. Remittance of those earnings is not expected to result in material income tax.

T. OPERATING SEGMENT, GEOGRAPHIC AND SIGNIFICANT CUSTOMER INFORMATION

Teradyne has four reportable segments (Semiconductor Test, System Test, Wireless Test and Industrial Automation). Each of the reportable segment represents an individual operating segment. On September 15, 2020, Teradyne announced the appointment of Gregory Smith as President of Teradyne's Industrial Automation reportable segment effective October 1, 2020. With the appointment of Gregory Smith, the Industrial Automation reportable segment is considered one operating segment and one reporting unit. The Semiconductor Test segment includes operations related to the design, manufacturing and marketing of semiconductor test products and services. The System Test segment includes operations related to the design, manufacturing and marketing of products and services for storage and system level test, defense/aerospace instrumentation test, and circuit-board test. The Wireless Test segment includes operations related to the design, manufacturing and marketing of wireless test products and services. The Industrial Automation segment includes operations related to the design, manufacturing and marketing of collaborative robotic arms, autonomous mobile robots and advanced robotic control software.

Teradyne evaluates performance based on several factors, of which the primary financial measure is business segment income (loss) before income taxes. The accounting policies of the business segments are the same as those described in Note B: "Accounting Policies."

Segment information for the years ended December 31, 2020, 2019, and 2018 is as follows:

	<u>Semiconductor Test</u>	<u>System Test</u>	<u>Industrial Automation</u>	<u>Wireless Test</u>	<u>Corporate and Other</u>	<u>Consolidated</u>
	(in thousands)					
2020						
Revenues	\$2,259,597	\$409,729	\$279,731	\$173,016	\$ (604)	\$3,121,469
Income (loss) before taxes (1)(2)	739,695	152,092	(24,019)	41,950	(8,703)	901,015
Total assets (3)	1,070,378	138,295	712,936	106,273	1,624,464	3,652,346
Property additions	168,055	3,092	8,899	4,931	—	184,977
Depreciation and amortization expense	64,998	3,426	36,242	6,258	15,819	126,743
2019						
Revenues	\$1,552,571	\$287,455	\$298,139	\$157,315	\$ (515)	\$2,294,965
Income (loss) before taxes (1)(2)	416,973	93,543	(5,916)	35,585	(14,413)	525,772
Total assets (3)	784,808	131,428	671,559	97,299	1,101,920	2,787,014
Property additions	112,145	3,059	9,076	10,362	—	134,642
Depreciation and amortization expense	59,197	5,518	40,904	5,365	9,671	120,655
2018						
Revenues	\$1,492,417	\$216,132	\$261,452	\$132,006	\$ (1,205)	\$2,100,802
Income (loss) before taxes (1)(2)	397,645	48,857	7,670	29,052	(15,423)	467,801
Total assets (3)	669,452	88,098	607,502	77,570	1,263,984	2,706,606
Property additions	94,496	3,469	11,188	5,226	—	114,379
Depreciation and amortization expense	58,095	6,430	36,755	5,328	6,616	113,224

- (1) Included in Corporate and Other are: contingent consideration adjustments, investment impairment, pension and postretirement plans actuarial gains (losses), severance charges, interest income, interest expense, net foreign exchange gains (losses), intercompany eliminations and acquisition related charges.
- (2) Included in income (loss) before taxes are charges and credits related to restructuring and other, and inventory charges.
- (3) Total assets are attributable to each segment. Corporate assets consist of cash and cash equivalents, marketable securities and certain other assets.

Included in each segment are charges and credits in the following line items in the statements of operations:

	For the Year Ended December 31,		
	2020	2019	2018
	(in thousands)		
Semiconductor Test:			
Cost of revenues—inventory charge	\$ 11,013	\$ 8,731	\$ 6,822
Contract termination settlement fee	4,000	—	—
Restructuring and other—employee severance	—	1,277	8,429
System Test:			
Cost of revenues—inventory charge	\$ 887	\$ 2,000	\$ 1,175
Industrial Automation:			
Restructuring and other—acquisition related expenses and compensation	\$ 985	\$ 741	\$ 1,163
Cost of revenues—inventory charge	834	508	680
Restructuring and other—employee severance	1,584	796	—
Wireless:			
Cost of revenues—inventory charge	\$ 4,800	\$ 4,005	\$ 2,565
Corporate and Other:			
Restructuring and other—AutoGuide contingent consideration adjustment	\$(19,724)	\$ 2,976	\$ —
Restructuring and other—MiR contingent consideration adjustment	(3,546)	(22,199)	17,666
Restructuring and other—acquisition related expenses and compensation	1,728	1,765	3,422
Other (income) expense, net—investment impairment charge	—	15,000	—
Selling and administrative—equity modification charge	766	2,108	—
Restructuring and other—Universal Robots contingent consideration adjustment	—	—	(16,679)

Information as to Teradyne’s revenues by country is as follows:

	2020	2019	2018
	(in thousands)		
Revenues from customers (1):			
Taiwan	\$1,178,068	\$ 485,681	\$ 516,322
China	465,722	514,327	348,942
Korea	391,571	239,504	163,224
United States	321,674	333,059	282,869
Europe	205,587	219,015	223,207
Japan	143,983	175,322	158,281
Thailand	138,787	87,503	59,184
Singapore	76,460	84,111	108,618
Philippines	68,887	54,560	77,996
Malaysia	56,096	58,200	122,797
Rest of the World	74,634	43,683	39,362
	<u>\$3,121,469</u>	<u>\$2,294,965</u>	<u>\$2,100,802</u>

(1) Revenues attributable to a country are based on location of customer site.

In 2020, revenues from Taiwan Semiconductor Manufacturing Company Ltd., a customer of Teradyne’s Semiconductor Test segment, accounted for 15% of Teradyne’s consolidated revenues. In 2019 and 2018, no single direct customer accounted for more than 10% of Teradyne’s consolidated revenues. Teradyne estimates consolidated revenues driven by one OEM customer, combining direct sales to that customer with sales to the customer’s OSATs (which include Taiwan Semiconductor Manufacturing Company Ltd.), accounted for approximately 25%, 10% and 13% of its consolidated revenues in 2020, 2019 and 2018, respectively. Teradyne

estimates consolidated revenues driven by Huawei Technologies Co., Ltd. (“Huawei”), combining direct sales to that customer with sales to the customer’s OSATs, accounted for approximately 3% and 11% of its consolidated revenues in 2020 and 2019, respectively.

Long-lived assets by geographic area:

	<u>United States</u>	<u>Foreign(1)</u>	<u>Total</u>
	(in thousands)		
December 31, 2020	\$291,234	\$158,135	\$449,369
December 31, 2019	\$252,812	\$124,943	\$377,755

(1) As of December 31, 2020 and 2019, long-lived assets attributable to Singapore were \$62.5 million and \$35.2 million, respectively.

U. STOCK REPURCHASE PROGRAM

In 2018, Teradyne repurchased 21.6 million shares of common stock for \$823.5 million at an average price per share of \$38.06.

In 2019, Teradyne repurchased 10.9 million shares of common stock for \$500.0 million at an average price per share of \$45.89. The cumulative repurchases as of December 31, 2019, for the 2018 stock repurchase program, totaled 32.5 million shares of common stock for \$1,323.0 million at an average price per share of \$40.68.

In January 2020, Teradyne’s Board of Directors cancelled the January 2018 repurchase program and approved a new stock repurchase program for up to \$1.0 billion of common stock. On April 1, 2020, Teradyne suspended its share repurchase program. In 2020, Teradyne repurchased 1.5 million shares of common stock for \$88.5 million at an average price of \$58.33 per share.

In January 2021, Teradyne’s Board of Directors cancelled the January 2020 repurchase program and approved a new repurchase program for up to \$2.0 billion of common stock. Teradyne intends to repurchase a minimum of \$600 million in 2021.

V. SUBSEQUENT EVENTS

In January 2021, Teradyne’s Board of Directors declared a quarterly cash dividend of \$0.10 per share to be paid on March 19, 2021 to shareholders of record as of February 19, 2021.

While Teradyne declared a quarterly cash dividend and authorized a share repurchase program, it may reduce or eliminate the cash dividend or share repurchase program in the future. Future cash dividends and stock repurchases are subject to the discretion of Teradyne’s Board of Directors which will consider, among other things, Teradyne’s earnings, capital requirements and financial condition.

SUPPLEMENTARY INFORMATION
(Unaudited)

The following sets forth certain unaudited consolidated quarterly statements of operations data for each of Teradyne's last eight quarters. In management's opinion, this quarterly information reflects all adjustments, consisting only of normal recurring adjustments, necessary for a fair statement for the periods presented. Such quarterly results are not necessarily indicative of future results of operations and should be read in conjunction with the audited consolidated financial statements of Teradyne and the notes thereto included elsewhere herein.

	2020			
	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
	(1)	(2)(5)	(3)(5)	(4)(5)
	(in thousands, except per share amounts)			
Revenues:				
Products	\$610,906	\$734,630	\$697,745	\$647,625
Services	93,449	104,031	121,739	111,343
Total revenues	<u>704,355</u>	<u>838,661</u>	<u>819,484</u>	<u>758,968</u>
Cost of revenues:				
Cost of products	259,996	322,732	300,174	274,574
Cost of services	38,809	44,456	60,382	34,605
Total cost of revenues (exclusive of acquired intangible assets amortization shown separately below)	<u>298,805</u>	<u>367,188</u>	<u>360,556</u>	<u>309,179</u>
Gross profit	<u>405,550</u>	<u>471,473</u>	<u>458,928</u>	<u>449,789</u>
Operating expenses:				
Selling and administrative	111,388	113,259	115,840	124,279
Engineering and development	85,159	94,102	94,909	100,795
Acquired intangible assets amortization	9,891	8,941	6,219	5,752
Restructuring and other	(7,606)	37,222	(27,701)	(15,117)
Total operating expenses	<u>198,832</u>	<u>253,524</u>	<u>189,267</u>	<u>215,709</u>
Income from operations	206,718	217,949	269,661	234,080
Non-operating (income) expense:				
Interest income	(2,751)	(1,368)	(1,071)	(793)
Interest expense	5,551	6,043	6,237	6,351
Other (income) expense, net	6,849	(4,017)	764	5,597
Income before income taxes	197,069	217,291	263,731	222,925
Income tax provision	20,878	28,383	41,013	26,595
Net income	<u>\$176,191</u>	<u>\$188,908</u>	<u>\$222,718</u>	<u>\$196,330</u>
Net income per common share—basic	<u>\$ 1.06</u>	<u>\$ 1.14</u>	<u>\$ 1.34</u>	<u>\$ 1.18</u>
Net income per common share—diluted	<u>\$ 0.97</u>	<u>\$ 1.05</u>	<u>\$ 1.21</u>	<u>\$ 1.05</u>
Cash dividend declared per common share	<u>\$ 0.10</u>	<u>\$ 0.10</u>	<u>\$ 0.10</u>	<u>\$ 0.10</u>

(1) Restructuring and other includes a \$10.0 million gain for the decrease in the fair value of the AutoGuide and MiR contingent consideration liabilities, partially offset by \$1.4 million of acquisition related compensation and expenses and \$0.7 million of severance charges related to headcount reductions primarily in Industrial Automation and Semiconductor Test.

(2) Restructuring and other includes a \$29.9 million charge for the increase in the fair value of the AutoGuide contingent consideration liability, a \$4.0 million contract termination settlement charge, \$3.1 million of

acquisition related compensation and expense and \$0.8 million of other expenses, partially offset by a \$0.6 million gain for the decrease in the fair value of MiR contingent consideration liability.

- (3) Restructuring and other includes a \$27.2 million gain for the decrease in the fair value of AutoGuide contingent consideration liability, and a \$1.1 million gain for the decrease in acquisition related compensation liability, partially offset by \$0.5 million recorded for employee severance charges primarily in Industrial Automation.
- (4) Restructuring and other includes a \$15.3 million gain for the decrease in the fair value adjustment to the AutoGuide acquisition contingent consideration liability, and a \$0.9 million gain for the decrease in acquisition related compensation liability, partially offset by \$1.1 million of employee severance charges primarily in Industrial Automation.
- (5) Teradyne recorded pension and post retirement net actuarial (gains) losses of \$(0.1) million, \$2.7 million, \$7.7 million for the second, third and fourth quarter in 2020, respectively. See Note B: “Accounting Policies” for a discussion of Teradyne’s accounting policy.

	2019			
	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
	(1)	(2)	(3)	(4)(5)(6)
	(in thousands, except per share amounts)			
Revenues:				
Products	\$393,442	\$457,511	\$488,170	\$548,552
Services	100,657	106,667	93,868	106,098
Total revenues	494,099	564,178	582,038	654,650
Cost of revenues:				
Cost of products	165,368	193,299	197,196	226,184
Cost of services	41,096	46,961	39,804	45,228
Total cost of revenues (exclusive of acquired intangible assets amortization shown separately below)	206,464	240,260	237,000	271,412
Gross profit	287,635	323,918	345,038	383,238
Operating expenses:				
Selling and administrative	102,013	108,811	109,166	117,092
Engineering and development	76,791	81,434	77,804	86,794
Acquired intangible assets amortization	10,634	10,083	9,647	9,784
Restructuring and other	5,112	(10,404)	(6,500)	(2,088)
Total operating expenses	194,550	189,924	190,117	211,582
Income from operations	93,085	133,994	154,921	171,656
Non-operating (income) expense:				
Interest income	(4,989)	(4,384)	(4,433)	(3,185)
Interest expense	5,520	5,800	5,463	5,441
Other (income) expense, net	(1,425)	1,401	2,158	20,514
Income before income taxes	93,979	131,177	151,733	148,886
Income tax provision (benefit)	(15,159)	33,780	15,873	23,811
Net income	\$109,138	\$ 97,397	\$135,860	\$125,075
Net income per common share—basic	\$ 0.63	\$ 0.57	\$ 0.80	\$ 0.75
Net income per common share—diluted	\$ 0.62	\$ 0.55	\$ 0.75	\$ 0.69
Cash dividend declared per common share	\$ 0.09	\$ 0.09	\$ 0.09	\$ 0.09

- (1) Restructuring and other includes a \$3.0 million fair value adjustment to increase the MiR acquisition contingent consideration, \$1.3 million of acquisition related expenses and compensation and \$0.8 million of employee severance charges.
- (2) Restructuring and other includes a \$11.7 million gain for the decrease in the fair value of the MiR contingent consideration liability, partially offset by \$0.8 million of employee severance charges and \$0.5 million of acquisition related expenses and compensation.
- (3) Restructuring and other includes a \$7.8 million gain for the decrease in the fair value of MiR contingent consideration liability, partially offset by \$0.8 million of employee severance charges and \$0.5 million of acquisition related expenses and compensation.
- (4) Restructuring and other includes a \$5.8 million gain for the decrease in the fair value adjustment to the MiR acquisition contingent consideration, partially offset by a \$3.0 million fair value adjustment to increase the AutoGuide acquisition contingent consideration, \$0.5 million of employee severance charges and \$0.2 million of acquisition related expenses and compensation.
- (5) Teradyne recorded pension and post retirement net actuarial losses of \$7.7 million for the fourth quarter in 2019. See Note B: “Accounting Policies” for a discussion of Teradyne’s accounting policy.
- (6) Other (income) expense, net includes a \$15.0 million charge for the impairment of the investment in RealWear.

Item 9: *Changes in and disagreements with accountants on accounting and financial disclosure*

None.

Item 9A: *Controls and procedures*

Disclosure Controls and Procedures

As of the end of the period covered by this report, our management, with the participation of our CEO and CFO, evaluated the effectiveness of our disclosure controls and procedures pursuant to Rule 13a-15(b) promulgated under the Exchange Act. Based upon that evaluation, our CEO and CFO concluded that, as of the end of the period covered by this report, our disclosure controls and procedures were effective in ensuring that material information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC’s rules and forms, including ensuring that such material information is accumulated and communicated to our management, including our CEO and CFO, as appropriate to allow timely decisions regarding required disclosure.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting during the fourth fiscal quarter ended December 31, 2020 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Management’s Annual Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rule 13a-15(f). Under the supervision and with the participation of our management, including our CEO and CFO, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework in *Internal Control—Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on our evaluation under the framework in *Internal Control—Integrated Framework (2013)*, our management concluded that our internal control over financial reporting was effective as of December 31, 2020.

The effectiveness of our internal control over financial reporting as of December 31, 2020 has been audited by PricewaterhouseCoopers LLP, our independent registered public accounting firm, as stated in their report which is included under Item 8 of this Annual Report.

Inherent Limitations on Effectiveness of Controls

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.

Item 9B: *Other Information*

None.

PART III

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

Certain information relating to our directors and executive officers, committee information, reports and charters, executive compensation, security ownership of certain beneficial owners and management and related stockholder matters, and certain relationships and related transactions is incorporated by reference herein from our definitive proxy statement in connection with our Annual Meeting of Shareholders to be held on May 7, 2021. The proxy statement will be filed with the SEC not later than 120 days after the close of the fiscal year. For this purpose, the Compensation Committee Report included in such proxy statement is specifically not incorporated herein. Also see “Item 1: Business—Our Executive Officers.”

Item 11: *Executive Compensation*

Certain information relating to our directors and executive officers, executive compensation, security ownership of certain beneficial owners and management and related stockholder matters, and certain relationships and related transactions is incorporated by reference herein from our definitive proxy statement in connection with our Annual Meeting of Shareholders to be held on May 7, 2021. The proxy statement will be filed with the SEC not later than 120 days after the close of the fiscal year. For this purpose, the Compensation Committee Report included in such proxy statement is specifically not incorporated herein.

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

Certain information relating to our directors and executive officers, executive compensation, security ownership of certain beneficial owners and management and related stockholder matters, and certain relationships and related transactions is incorporated by reference herein from our definitive proxy statement in connection with our Annual Meeting of Shareholders to be held May 7, 2021. The proxy statement will be filed with the SEC not later than 120 days after the close of the fiscal year. For this purpose, the Compensation Committee Report included in such proxy statement is specifically not incorporated herein. Also see “Item 7: Management’s Discussion and Analysis of Financial Condition and Results of Operations—Equity Compensation Plans.”

Item 13: *Certain Relationships and Related Transactions, and Director Independence*

Certain information relating to our directors and executive officers, executive compensation, security ownership of certain beneficial owners and management and related stockholder matters, and certain relationships and related transactions is incorporated by reference herein from our definitive proxy statement in connection with our Annual Meeting of Shareholders to be held on May 7, 2021. The proxy statement will be filed with the SEC not later than 120 days after the close of the fiscal year. For this purpose, the Compensation Committee Report included in such proxy statement is specifically not incorporated herein.

Item 14: *Principal Accountant Fees and Services*

Certain information relating to audit fees and other of Teradyne’s independent registered public accounting firm is incorporated by reference herein from our definitive proxy statement in connection with our Annual Meeting of Shareholders to be held on May 7, 2021. The proxy statement will be filed with the SEC not later than 120 days after the close of the fiscal year. For this purpose, the Audit Committee Report included in such proxy statement is specifically not incorporated herein.

PART IV

Item 15: *Exhibits and Financial Statement Schedule.*

15(a)(1) Financial Statements

The following consolidated financial statements are included in Item 8:

	<u>Page</u>
Report of Independent Registered Public Accounting Firm	46
Consolidated Balance Sheets as of December 31, 2020 and 2019	49
Consolidated Statements of Operations for the years ended December 31, 2020, 2019 and 2018	50
Consolidated Statements of Comprehensive Income for the years ended December 31, 2020, 2019 and 2018	51
Consolidated Statements of Convertible Common Shares and Shareholders' Equity for the years ended December 31, 2020, 2019 and 2018	52
Consolidated Statements of Cash Flows for the years ended December 31, 2020, 2019 and 2018	53

15(a)(2) Financial Statement Schedule

The following consolidated financial statement schedule is included in Item 15(c):

Schedule II—Valuation and Qualifying Accounts

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

15(a)(3) Listing of Exhibits

The Exhibits which are filed with this report or which are incorporated by reference herein are set forth in the Exhibit Index.

15(c) Financial Statement Schedules

TERADYNE, INC.

SCHEDULE II—VALUATION AND QUALIFYING ACCOUNTS

<u>Column A</u>	<u>Column B</u>	<u>Column C</u>	<u>Column D</u>	<u>Column E</u>	<u>Column F</u>
<u>Description</u>	<u>Balance at Beginning of Period</u>	<u>Additions Charged to Cost and Expenses</u>	<u>Other</u>	<u>Deductions</u>	<u>Balance at End of Period</u>
	(in thousands)				
Valuation reserve deducted in the balance sheet from the asset to which it applies:					
Accounts receivable:					
2020 Allowance for doubtful account	\$1,736	\$356	\$32	\$ 90	\$2,034
2019 Allowance for doubtful account	\$1,673	\$ 87	\$28	\$ 52	\$1,736
2018 Allowance for doubtful account	\$2,219	\$—	\$20	\$566	\$1,673

<u>Column A</u>	<u>Column B</u>	<u>Column C</u>	<u>Column D</u>	<u>Column E</u>	<u>Column F</u>
<u>Description</u>	<u>Balance at Beginning of Period</u>	<u>Additions Charged to Cost and Expenses</u>	<u>Other</u>	<u>Deductions</u>	<u>Balance at End of Period</u>
	(in thousands)				
Valuation reserve deducted in the balance sheet from the asset to which it applies:					
Inventory:					
2020 Inventory reserve	\$103,556	\$17,534	\$(521)	\$ 9,982	\$110,587
2019 Inventory reserve	\$100,779	\$15,244	\$ (85)	\$12,382	\$103,556
2018 Inventory reserve	\$102,896	\$11,242	\$ 368	\$13,727	\$100,779

<u>Column A</u>	<u>Column B</u>	<u>Column C</u>	<u>Column D</u>	<u>Column E</u>	<u>Column F</u>
<u>Description</u>	<u>Balance at Beginning of Period</u>	<u>Additions Charged to Cost and Expenses</u>	<u>Other</u>	<u>Deductions</u>	<u>Balance at End of Period</u>
	(in thousands)				
Valuation reserve deducted in the balance sheet from the asset to which it applies:					
Deferred taxes:					
2020 Valuation allowance	\$77,177	\$7,785	\$—	\$—	\$84,962
2019 Valuation allowance	\$69,852	\$7,325	\$—	\$—	\$77,177
2018 Valuation allowance	\$63,919	\$6,333	\$—	\$400	\$69,852

Item 16: Form 10-K Summary

Not applicable.

EXHIBIT INDEX

The following designated exhibits are, as indicated below, either filed herewith or have heretofore been filed with the Securities and Exchange Commission and are referred to and incorporated by reference to such filings.

Exhibit No.	Description	SEC Document Reference
2.1	Share Sale and Purchase Agreement to and among Teradyne Robotics Holdings Denmark ApS, Teradyne, Inc. and the shareholders of Mobile Industrial Robots ApS dated April 25, 2018.	Exhibit 2.1 to Teradyne’s Quarterly Report on Form 10-Q for the quarter ended April 1, 2018.
3.1	Restated Articles of Organization.	Exhibit 3.1 to Teradyne’s Annual Report on Form 10-K for the fiscal year ended December 31, 2018.
3.2	Amended and Restated By-laws, as amended.	Exhibit 3.1 to Teradyne’s Current Report on Form 8-K filed on January 28, 2021.
4.1	Indenture dated as of December 12, 2016, between Teradyne Inc. and Wilmington Trust, National Association, as trustee.	Exhibit 4.1 to Teradyne’s Current Report on Form 8-K filed on December 12, 2016.
4.2	Description of Teradyne, Inc. Securities Registered under Section 12 of the Exchange Act.	Filed herewith.
10.1†	Standard Manufacturing Agreement entered into as of November 24, 2003 by and between Teradyne and Solectron.	Exhibit 10.1 to Teradyne’s Quarterly Report on Form 10-Q for the quarter ended September 30, 2007.
10.2†	Second Amendment to Standard Manufacturing Agreement, dated as of August 27, 2007, by and between Teradyne and Solectron.	Exhibit 10.3 to Teradyne’s Quarterly Report on Form 10-Q for the quarter ended September 30, 2007.
10.3†	Sixth Amendment to Standard Manufacturing Agreement, dated as of July 27, 2009, by and between Teradyne and Flextronics Corporation.	Exhibit 10.5 to Teradyne’s Annual Report on Form 10-K for the fiscal year ended December 31, 2009.
10.4	Addendum to Standard Manufacturing Agreement (Authorized Purchase Agreement)—Revised July 1, 2010.	Exhibit 10.6 to Teradyne’s Annual Report on Form 10-K for the fiscal year ended December 31, 2010.
10.5	Eighth Amendment to Standard Manufacturing Agreement, dated as of April 13, 2012, by and between Teradyne and Flextronics Sales & Marketing North Asia (L) LTD.	Exhibit 10.7 to Teradyne’s Annual Report on Form 10-K for the fiscal year ended December 31, 2012.
10.6†	Ninth Amendment to Standard Manufacturing Agreement, dated as of September 17, 2012, by and between Teradyne and Flextronics Sales & Marketing North Asia (L) LTD.	Exhibit 10.8 to Teradyne’s Annual Report on Form 10-K for the fiscal year ended December 31, 2012.
10.7	2006 Equity and Cash Compensation Incentive Plan, as amended. *	Exhibit 10.9 to Teradyne’s Annual Report on Form 10-K for the fiscal year ended December 31, 2018.

Exhibit No.	Description	SEC Document Reference
10.8	Danish Sub-Plan to the 2006 Equity and Cash Compensation Incentive Plan.	Exhibit 10.10 to Teradyne's Annual Report on Form 10-K for the fiscal year ended December 31, 2018.
10.9	Form of Performance-Based Restricted Stock Unit Agreement for Executive Officers under 2006 Equity and Cash Compensation Incentive Plan.*	Filed herewith.
10.10	Form of Time-Based Restricted Stock Unit Agreement for Executive Officers under 2006 Equity and Cash Compensation Incentive Plan.*	Filed herewith.
10.11	Form of Executive Officer Stock Option Agreement under 2006 Equity and Cash Compensation Incentive Plan, as amended. *	Filed herewith.
10.12	Form of Restricted Stock Unit Agreement for Directors under 2006 Equity and Cash Compensation Incentive Plan.*	Exhibit 10.12 to Teradyne's Annual Report on Form 10-K for the fiscal year ended December 31, 2016.
10.13	1996 Employee Stock Purchase Plan, as amended.*	Exhibit 10.15 to Teradyne's Annual Report on Form 10-K for the fiscal year ended December 31, 2018.
10.14	Danish Sub-Plan to the 1996 Employee Stock Purchase Plan.	Exhibit 10.15 to Teradyne's Annual Report on Form 10-K for the fiscal year ended December 31, 2019
10.15	Deferral Plan for Non-Employee Directors, as amended.*	Exhibit 10.2 to Teradyne's Quarterly Report on form 10-Q for the quarter ended September 28, 2008.
10.16	Supplemental Savings Plan, as amended and restated.*	Exhibit 10.18 to Teradyne's Annual Report on Form 10-K for the fiscal year ended December 31, 2008.
10.17	Supplemental Executive Retirement Plan, as restated.*	Exhibit 10.19 to Teradyne's Annual Report on Form 10-K for the fiscal year ended December 31, 2008.
10.18	Agreement Regarding Termination Benefits dated January 22, 2014 between Teradyne and Mark Jagiela.*	Exhibit 10.24 to Teradyne's Annual Report on Form 10-K for the fiscal year ended December 31, 2013.
10.19	Employment Agreement dated May 7, 2004 between Teradyne and Mark Jagiela.*	Exhibit 10.37 to Teradyne's Quarterly Report on Form 10-Q for the quarter ended July 4, 2004.
10.20	Executive Officer Retirement Agreement dated July 17, 2019 between Teradyne and Gregory R. Beecher.*	Exhibit 10.1 to Teradyne's Quarterly Report on Form 10-Q for the quarter ended June 30, 2019.
10.21	Executive Officer Change in Control Agreement dated January 22, 2014 between Teradyne and Mark Jagiela, as amended.*	Exhibit 10.29 to Teradyne's Annual Report on Form 10-K for the fiscal year ended December 31, 2013.

Exhibit No.	Description	SEC Document Reference
10.22	Amended and Restated Executive Officer Change in Control Agreement dated May 26, 2009 between Teradyne and Charles J. Gray, as amended.*	Exhibit 10.30 to Teradyne's Annual Report on Form 10-K for the fiscal year ended December 31, 2012.
10.23	Employment Agreement dated July 24, 2009 between Teradyne and Charles J. Gray.*	Exhibit 10.1 to Teradyne's Quarterly Report on Form 10-Q for the quarter ended April 4, 2010.
10.24	Amended and Restated Executive Officer Change in Control Agreement dated June 30, 2012 between Teradyne and Walter G. Vahey, as amended.*	Exhibit 10.32 to Teradyne's Annual Report on Form 10-K for the fiscal year ended December 31, 2012.
10.25	Employment Agreement dated February 6, 2013 between Teradyne and Walter G. Vahey.*	Exhibit 10.33 to Teradyne's Annual Report on Form 10-K for the fiscal year ended December 31, 2012.
10.26	Executive Officer Change in Control Agreement dated September 1, 2014 between Teradyne, Inc. and Bradford Robbins.*	Exhibit 10.1 to Teradyne's Quarterly Report on Form 10-Q for the quarter ended September 28, 2014.
10.27	Employment Agreement dated September 1, 2014 between Teradyne, Inc. and Bradford Robbins.*	Exhibit 10.2 to Teradyne's Quarterly Report on Form 10-Q for the quarter ended September 28, 2014.
10.28	Executive Change in Control Agreement dated February 8, 2016 between Teradyne, Inc. and Greg Smith.*	Exhibit 10.1 to Teradyne's Quarterly Report on Form 10-Q for the quarter ended April 3, 2016.
10.29	Employment Agreement dated February 8, 2016 between Teradyne, Inc. and Greg Smith.*	Exhibit 10.2 to Teradyne's Quarterly Report on Form 10-Q for the quarter ended April 3, 2016.
10.30	Teradyne Offer of Employment dated February 8, 2019 for Sanjay Mehta.*	Exhibit 10.1 to Teradyne's Quarterly Report on Form 10-Q for the quarter ended March 31, 2019.
10.31	Executive Officer Change in Control Agreement dated April 25, 2019 between Teradyne, Inc. and Sanjay Mehta.*	Exhibit 10.2 to Teradyne's Quarterly Report on Form 10-Q for the quarter ended March 31, 2019.
10.32	Employment Agreement dated April 25, 2019 between Teradyne, Inc. and Sanjay Mehta.*	Exhibit 10.3 to Teradyne's Quarterly Report on Form 10-Q for the quarter ended March 31, 2019.
10.33	Agreement Regarding Termination Benefits dated April 25, 2019 between Teradyne, Inc. and Sanjay Mehta.*	Exhibit 10.4 to Teradyne's Quarterly Report on Form 10-Q for the quarter ended March 31, 2019.
10.34	Executive Officer Change in Control Agreement dated October 1, 2020 between Teradyne, Inc. and Richard Burns.*	Exhibit 10.1 to Teradyne's Quarterly Report on Form 10-Q for the quarter ended September 27, 2020.
10.35	Employment Agreement dated October 1, 2020 between Teradyne, Inc. and Richard Burns.*	Exhibit 10.2 to Teradyne's Quarterly Report on Form 10-Q for the quarter ended September 27, 2020.
10.36	Time-Based Restricted Stock Unit Agreement dated May 1, 2019 for Sanjay Mehta under 2006 Equity and Cash Compensation Plan.*	Exhibit 10.5 to Teradyne's Quarterly Report on Form 10-Q for the quarter ended March 31, 2019.

Exhibit No.	Description	SEC Document Reference
10.37	Form of Indemnification Agreement.*	Exhibit 10.24 to Teradyne's Annual Report on Form 10-K for the fiscal year ended December 31, 2006.
10.38	LitePoint Corporation 2002 Stock Plan.	Exhibit 10.43 to Teradyne's Annual Report on Form 10-K for the fiscal year ended December 31, 2011.
10.39	Letter Agreement, dated December 6, 2016, between Barclays Bank PLC and Teradyne, Inc., regarding the Base Warrants.	Exhibit 10.1 to Teradyne's Current Report on Form 8-K filed December 12, 2016.
10.40	Letter Agreement, dated December 6, 2016, between Bank of America, N.A., and Teradyne, Inc. regarding the Base Warrants.	Exhibit 10.2 to Teradyne's Current Report on Form 8-K filed December 12, 2016.
10.41	Letter Agreement, dated December 6, 2016, between Wells Fargo Bank, National Association and Teradyne, Inc. regarding the Base Warrants.	Exhibit 10.3 to Teradyne's Current Report on Form 8-K filed December 12, 2016.
10.42	Letter Agreement, dated December 6, 2016, between Barclays Bank PLC and Teradyne, Inc. regarding the Base Call Option Transaction.	Exhibit 10.4 to Teradyne's Current Report on Form 8-K filed December 12, 2016.
10.43	Letter Agreement, dated December 6, 2016, between Bank of America, N.A. and Teradyne, Inc. regarding the Base Call Option Transaction.	Exhibit 10.5 to Teradyne's Current Report on Form 8-K filed December 12, 2016.
10.44	Letter Agreement, dated December 6, 2016, between Wells Fargo Bank, National Association and Teradyne, Inc. regarding the Base Call Option Transaction.	Exhibit 10.6 to Teradyne's Current Report on Form 8-K filed December 12, 2016.
10.45	Letter Agreement, dated December 9, 2016, between Barclays Bank PLC and Teradyne, Inc., regarding the Additional Warrants	Exhibit 10.7 to Teradyne's Current Report on Form 8-K filed December 12, 2016.
10.46	Letter Agreement, dated December 9, 2016, between Bank of America, N.A., and Teradyne, Inc. regarding the Additional Warrants.	Exhibit 10.8 to Teradyne's Current Report on Form 8-K filed December 12, 2016.
10.47	Letter Agreement, dated December 9, 2016, between Wells Fargo Bank, National Association and Teradyne, Inc. regarding the Additional Warrants.	Exhibit 10.9 to Teradyne's Current Report on Form 8-K filed December 12, 2016.
10.48	Letter Agreement, dated December 9, 2016, between Barclays Bank PLC and Teradyne, Inc. regarding the Additional Call Option Transaction.	Exhibit 10.10 to Teradyne's Current Report on Form 8-K filed December 12, 2016.
10.49	Letter Agreement, dated December 9, 2016, between Bank of America, N.A. and Teradyne, Inc. regarding the Additional Call Option Transaction	Exhibit 10.11 to Teradyne's Current Report on Form 8-K filed December 12, 2016.

Exhibit No.	Description	SEC Document Reference
10.50	Letter Agreement, dated December 9, 2016, between Wells Fargo Bank, National Association and Teradyne, Inc. regarding the Additional Call Option Transaction.	Exhibit 10.12 to Teradyne's Current Report on Form 8-K filed December 12, 2016.
10.51	Credit Agreement dated May 1, 2020 among Teradyne, Inc., Truist Bank, as the administrative agent, issuing bank and swingline lender, and other lenders party thereto.	Exhibit 10.1 to Teradyne's Current Report on Form 8-K filed May 5, 2020.
21.1	Subsidiaries of Teradyne.	Filed herewith.
23.1	Consent of PricewaterhouseCoopers LLP.	Filed herewith.
31.1	Rule 13a-14(a) Certification of Principal Executive Officer.	Filed herewith.
31.2	Rule 13a-14(a) Certification of Principal Financial Officer.	Filed herewith.
32.1	Section 1350 Certification of Principal Executive Officer.	Furnished herewith.
32.2	Section 1350 Certification of Principal Financial Officer.	Furnished herewith.
101	The following financial information from Teradyne, Inc.'s Annual Report on Form 10-K for the fiscal year ended December 31, 2020, formatted in Inline XBRL (eXtensible Business Reporting Language): (i) Consolidated Balance Sheets as of December 31, 2020 and December 31, 2019, (ii) Consolidated Statements of Operations for the years ended December 31, 2020, 2019 and 2018, (iii) Consolidated Statements of Comprehensive Income (Loss) for the years ended December 31, 2020, 2019 and 2018 (iv) Consolidated Statements of Shareholders' Equity for the years ended December 31, 2020, 2019 and 2018, (v) Consolidated Statements of Cash Flows for the years ended December 31, 2020, 2019 and 2018, and (vi) the Notes to Consolidated Financial Statements.	
104	The cover page of the Annual Report on Form 10-K formatted in Inline XBRL (included in Exhibit 101).	

† -Confidential treatment granted.

* -Management contract or compensatory plan.

Exhibit 21.1
Present Subsidiaries

<u>Entity Name:</u>	<u>State or Jurisdiction Of Incorporation</u>	<u>Percentage of Voting Securities Owned</u>
Teradyne (Asia) Pte., Ltd.	Singapore	100%*
Teradyne Canada Limited	Canada	100%
Teradyne de Costa Rica S.R.L.	Costa Rica	100%
Teradyne GmbH	Germany	100%*
Teradyne Holdings Denmark ApS	Denmark	100%*
Teradyne (India) Engineering Private Ltd.	India	100%*
Teradyne International Holdings B.V.	The Netherlands	100%
Teradyne International UK Holdings Ltd.	United Kingdom	100%*
Teradyne Italia Srl	Italy	100%*
Teradyne K.K.	Japan	100%
Teradyne Korea Ltd.	Korea	100%*
Teradyne Limited	United Kingdom	100%*
Teradyne Malaysia Sdn. Bhd.	Malaysia	100%*
Teradyne Philippines Limited	Delaware	100%
Teradyne Robotics Holdings Denmark ApS	Denmark	100%*
Teradyne SAS	France	100%
Teradyne (Shanghai) Co., Ltd	Peoples Republic of China	100%*
Teradyne Taiwan LLC	Delaware	100%*
Teradyne Thailand Limited.	Delaware	100%
Energid Technologies Corporation	Florida	100%
GenRad, LLC	Delaware	100%
Herco Technology Corp.	California	100%
P.L.S.T., Inc. (f/k/a Perception Laminates, Inc.)	California	100%
Eagle Test Systems, Inc.	Delaware	100%
Nextest Systems Corporation	Delaware	100%
Lemsys SA	Switzerland	100%*
LitePoint Corporation	Delaware	100%
LitePoint Europe A/S	Denmark	100%*
LitePoint Technology Limited	Hong Kong	100%*
LitePoint Technology (Shanghai) Company Ltd.	Peoples Republic of China	100%*
LitePoint Vietnam Limited	Socialist Republic of Vietnam	100%*
Mobile Industrial Robots A/S	Denmark	100%*
Mobile Industrial Robots, Inc.	Delaware	100%*
Mobile Industrial Robots GmbH	Germany	100%*
Mobile Industrial Robots Pte. Ltd.	Singapore	100%*
MiR Robots S.L.	Spain	100%*
MiR Robots (Shanghai) Co. Ltd.	Peoples Republic of China	100%*
Universal Robots A/S	Denmark	100%*
Universal Robots (Spain) S.L.	Spain	100%*
Universal Robots (Singapore) Pte. Ltd.	Singapore	100%*
Universal Robots (India) Pte. Ltd.	India	100%*
Universal Robots (Shanghai) Co. Ltd.	Peoples Republic of China	100%*
Universal Robots (USA), Inc.	Delaware	100%*
Universal Robots GmbH	Germany	100%*
Universal Robots Mexico S.A. de C.V.	Mexico	100%*
Universal Robots (UK) Ltd	United Kingdom	100%*
UR Technology (Shanghai) Co. Ltd.	People Republic of China	100%*
AutoGuide, LLC	Delaware	100%

* Indirect subsidiaries whose voting securities are 100% controlled by Teradyne, Inc.

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-8 (Nos. 333-188824; 333-177246; 333-159723; 333-155564; 333-149017; 333-143231; 333-134519; 333-116632; 333-101983; 333-68074; 333-56373; 333-32547; and 333-07177) of Teradyne, Inc. of our report dated February 22, 2021 relating to the consolidated financial statements and financial statement schedule and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP

Boston, Massachusetts

February 22, 2021

**CERTIFICATION PURSUANT TO
18 U.S.C SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of Teradyne, Inc. (the “Company”) on Form 10-K for the period ending December 31, 2020 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Mark E. Jagiela, Chief Executive Officer of the Company, certify pursuant to 18 U.S.C Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to the best of my knowledge:

- (1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ MARK E. JAGIELA

Mark E. Jagiela
Chief Executive Officer

February 22, 2021

