



Sensata
Technologies

2019 ANNUAL REPORT





Sensor-rich solutions delivering deep insights

Sensata is a leading industrial technology company that develops sensors and sensor-based, mission-critical solutions to create valuable business insights for customers and end users.

We provide a wide range of customized, sensor-rich solutions that address complex engineering requirements to help customers solve difficult challenges.

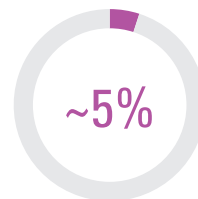
REVENUE BY END MARKET



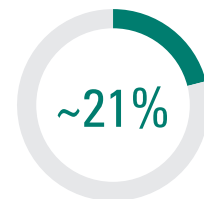
AUTO



**HEAVY VEHICLE
& OFF-ROAD (HVOR)**



AEROSPACE



**INDUSTRIAL
& OTHER**

FOUR KEY DRIVERS ARE SHAPING OUR MARKETS THROUGH THE NEXT DECADE AND WILL PROVIDE SIGNIFICANT GROWTH



CLEAN & EFFICIENT

Secular need
for clean, more
efficient products



ELECTRIFICATION

Mandates for
electrified products



SMART & CONNECTED

Connected
equipment with
actionable insights



AUTONOMY

Enabling autonomy
and operational
efficiencies



Enabling a cleaner, more efficient world

Sensata's customers are facing increasing mandates to make higher performance products that are also more efficient due to regulation and the increasing needs of mission critical applications.

AUTO

NEXT-GENERATION POWERTRAINS

\$3.5B SAM*

Responding to tightening legislation requirements and proliferating content, we enable vehicle OEMs to improve combustion, reduce tail pipe emissions and increase fuel economy in both traditional and hybrid vehicles with a combination of sensors, such as pressure, high-temperature and speed.

DIFFERENTIATED FEATURES INCLUDE:

- Differentiated quality
- Customized sensing solutions
- Robust designs for harsh environments
- Scalable and modular designs

HVOR

EMISSIONS & OPERATOR SENSING

\$960M SAM*

Tightening HVOR emissions regulations in the United States, Europe and China require increased sensor content in engines and aftertreatment. Our differentiated operator controls and systems improve operator productivity and enable simplified, safer operation even in harsh conditions.

DIFFERENTIATED FEATURES INCLUDE:

- Deep expertise and scale
- Innovative capability
- Workplace automation and efficiency

AUTO • HVOR

TIRE PRESSURE MONITORING SYSTEMS

\$1B SAM*

Automotive and HVOR OEMs and fleet managers are choosing Sensata's TPMS solutions to eliminate downtime, reduce operating costs, improve fuel efficiency and create safer driving conditions.

DIFFERENTIATED FEATURES INCLUDE:

- Auto-location configuration
- Tire lock detection
- Tire fill assist
- Tire burst warning

INDUSTRIAL

HVAC VARIABLE SPEED, FLOW & AIR SYSTEMS

\$300M SAM*

HVAC variable systems are the preferred method to meet stringent energy efficiency and environmental regulations (e.g. Seasonal Energy Efficiency Ratio (SEER), EU 2020). Sensata pressure and temperature sensors are key to optimize these systems and enable them to achieve higher levels of efficiency.

DIFFERENTIATED FEATURES INCLUDE:

- Reliability
- Accuracy
- Harsh environments

* Serviceable Addressable Market (SAM)

INVESTED IN **ELECTRIFICATION**



Electrification applications across all end markets

We continue to add capabilities to capitalize on the electrification trend. After acquiring GIGAVAC in 2018 to expand into high-voltage contactors, we have quickly established ourselves as the standard for premium electrified vehicles, particularly in the most challenging applications with high-current levels.

Through our investment in and partnership with Lithium Balance, Sensata established a leadership position in the DC fast-charging infrastructure segment, which is growing faster than 30% per year. We were also the first company in the industry to develop a smart sensor that addresses safety issues associated with risk of thermal runaway in batteries.

EXAMPLE: ELECTRIFICATION TRANSFORMS CABIN COMFORT



CONVENTIONAL VEHICLE

One pressure sensor to protect compressor and regulate output pressure



HYBRID / GEN 1 ELECTRIC VEHICLE

Up to two pressure and temperature sensors to monitor inputs across the system, allowing better control of cabin comfort to improve on efficiency



GEN 2 ELECTRIC VEHICLE

Up to 5 pressure and temperature sensors to enable flexible control of expansion valves. Additional sensing help prioritize heating/cooling of critical systems, like battery

\$30+ billion
market opportunity

We are actively investing in Electrification opportunities across our entire portfolio. Over 50% of applications we serve in a combustion engine carry over in electric vehicles.

	AUTO	HEAVY VEHICLE, OFF-ROAD	INDUSTRIAL, AEROSPACE & OTHER
Wireless Battery Monitoring	•		
E-Motor Position Sensors	•	•	
High-Voltage Contactors/Fuses	•	•	•
Current Sensing	•	•	•
Battery Thermal Runaway Warning/Protection	•	•	•
Battery Management — Lithium Balance		•	•

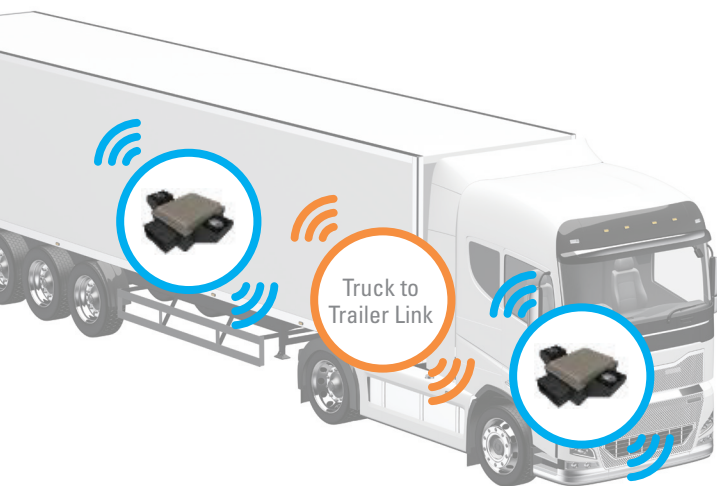


Enabling delivery of actionable insights

Sensata's leadership in embedded and wireless systems from TPMS enables us to develop additional smart, connected sensors both in-house and with tier-1 system partners. This allows access to new data sources across trucks and trailers that have historically been costly and difficult to gather.

Using a gateway device, Sensata's vehicle area network (VAN) collects wireless sensor data in a centralized manner. Its embedded algorithms allow fleet managers to proactively monitor the health of their vehicles and optimize fleet operations, such as identifying when a tire has a slow leak or whether a trailer is properly loaded before on-road travel.

The combination of the Sensata VAN and wireless sensor portfolio supports several high-value sensing applications and can interface with other third-party devices.



WIRELESS SENSING APPLICATIONS

- Tire pressure & temperature
- Brake pad & drum/calipers
- Wheel end monitoring
- Vehicle load
- Trailer cargo capacity
- Trailer climate control

\$6 billion

market opportunity
for fleet retrofits

Fleet Managers benefit from the information gathered from hundreds of thousands of miles driven during customer testing and they represent a new, less cyclical market segment for Sensata.

SENSATA VEHICLE AREA NETWORK (VAN)

- Mechanical condition and safety data
- Load and environmental monitoring data



DATA INTEGRATION

- Wireless truck-to-trailer link
- Interface with telematics devices



BUSINESS INSIGHT FOR FLEET MANAGERS

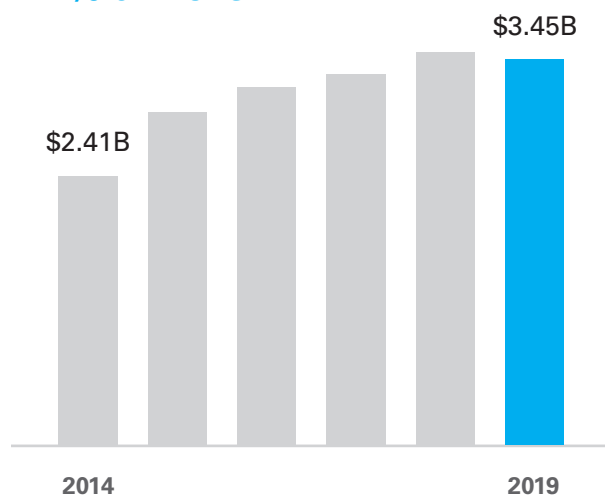
- Embedded algorithms to manage vehicle utilization, readiness, warnings, and other advanced features

2019 Performance

SOLID PERFORMANCE
DESPITE RECENT DIFFICULT END MARKETS

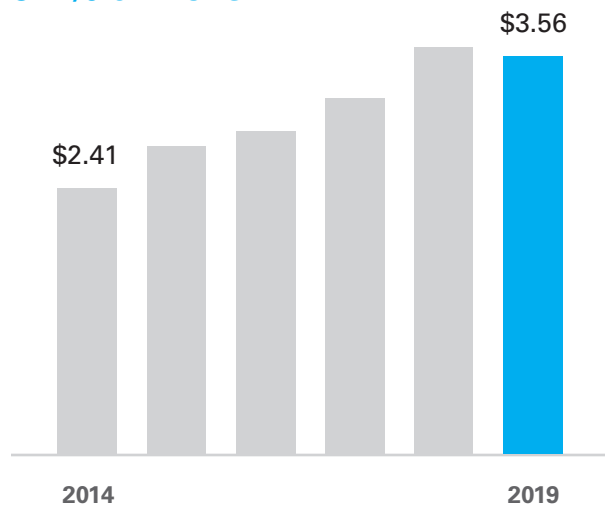
NON-GAAP REVENUE

7.4% 5-YR CAGR



ADJUSTED EARNINGS PER SHARE

8.4% 5-YR CAGR



CONTINUING TO
OUTGROW END MARKETS
FROM 2018 TO 2019

AUTO

↑ 470 bps

HEAVY VEHICLE, OFF-ROAD (HVOR)

↑ 640 bps

AEROSPACE

↑ 490 bps

EPS OUTGROWS REVENUE GROWTH

- Consistent operational improvement
- Effective cost management
- Efficient capital deployment

Letter to our Shareholders

As I write my first shareholder letter to you as CEO of Sensata, the world faces a global health pandemic posed by the COVID-19 virus. This crisis has adversely affected the global economy, our entire industry, especially our employees, our suppliers, our partners, our customers and our communities across nearly every geographic region. My first priority is ensuring the safety and well-being of our employees and we are doing everything we can to protect employees and their families from the spread of this pandemic.

We are working closely with our customers to ensure they have the essential products they need from Sensata to resume or sustain their production requirements. This requires close collaboration and coordination with our key suppliers as the current environment adds considerable complexity to our global supply chain.

While uncertainty remains about underlying demand and the ultimate magnitude of the business impact from COVID-19, Sensata is operating from a position of strength during this difficult time. We have a strong balance sheet, we generate substantial free cash flow, and we are an essential partner to our customers providing mission-critical solutions.

While no one can predict when this crisis will ultimately be resolved, we are focused on doing the right things for all our stakeholders. The strength and durability we have demonstrated during past significant economic downturns over our long history gives us confidence that we will endure this pandemic and emerge from it as a stronger company.

CEO TRANSITION

On March 1, 2020, I took over as CEO of Sensata. I would like to acknowledge the



SENSATA CHIEF EXECUTIVE OFFICER
JEFFREY COTE

leadership provided by my predecessor, Martha Sullivan, who announced her retirement in January, after 35 years with the company. Martha will remain on our board of directors and serve as a senior

advisor to me. She has been a mentor to me since I joined Sensata in 2007 and her accomplishments as CEO serve as a testament to her dedication and the clear strategic perspective she provided in establishing Sensata as an industry leader. We are all grateful for her support and continued advice.

Although I am currently taking over as the CEO for Sensata, I have been with the company for over 13 years and I have been intimately involved in the development and deployment of our strategy. We will continue to attract and retain the most capable, diverse and innovative employees. We will continue to grow and serve our global customer base. We will continue to focus on mission-critical, differentiated solutions that help our customers solve their most difficult challenges. We will continue to diversify the end markets that we serve to allow us to better navigate end-market cycles. And we will continue to identify high-growth market opportunities in the areas of Clean & Efficient, Electrification, Smart & Connected and Autonomy.

2019 FINANCIAL RESULTS

For the full year 2019, Sensata reported revenue of \$3.45 billion, which represented an organic revenue decline of 1.1%. Nonetheless, Sensata demonstrated 420 basis points of outgrowth compared to our end markets, which declined 5.3% in 2019, with most experiencing greater than expected production declines. In automotive, heavy vehicle & off-road and aerospace, we outgrew our end markets by 470 basis points, 640 basis points and 490 basis points, respectively. From a geographic perspective, organic revenue growth in our Asia Pacific region was offset by declines in Europe and Americas.

We effectively managed our operations, demonstrating our capability to align and scale our cost structure to end-market demand. Combined with continued productivity

improvements and highly effective capital deployment, this discipline enabled us to deliver adjusted EPS roughly in-line with our revenue decline, all while we increased our investments in opportunities that will position Sensata for future growth. Adjusted operating income margins decreased 80 basis points during the year, while our free cash flow remained strong at \$458 million, representing approximately 13% of revenue.

STRONG AND CONSISTENT SECULAR GROWTH

Sensata is committed to investing in solutions that will drive strong outgrowth relative to our end markets, projecting long-term outgrowth in our automotive business between 400 and 600 basis points, and outgrowth in our heavy vehicle & off-road business between 600 and 800 basis points. Over the past 2 years, I'm pleased that we have performed squarely in the middle of these targets, which speaks to the strength and visibility of our long-term business model. Since the beginning of 2018, our automotive business has generated average end-market outgrowth of 495 basis points while our heavy vehicle & off-road business generated average end-market outgrowth of 735 basis points outgrowth during this same 2-year period. During the past 3 years, we closed nearly \$470 million in new business wins on average per year, which includes a significant increase in Electrification and Smart & Connected wins that will further enable our revenue outgrowth to our end markets.

DISCIPLINED, RETURNS-DRIVEN CAPITAL DEPLOYMENT

In 2019, we continued to pursue a disciplined, returns-driven approach to capital deployment, constantly assessing trade-offs between M&A, investing in our business and buying back our shares in order to deliver the best risk-adjusted returns for our shareholders. During 2019, we repurchased approximately \$350 million

“ We will continue to focus on mission-critical, differentiated solutions that help our customers solve their most difficult challenges. We will continue to diversify the end markets that we serve to allow us to better navigate end-market cycles. ”

of Sensata stock, bringing our total share repurchases to approximately \$750 million, or 8.5% of outstanding Sensata shares, since the beginning of 2018. While Sensata recently drew down \$400 million of its revolving credit line to ensure maximum financial flexibility in the second quarter and the balance of the year, we continue to maintain a healthy net leverage ratio, and believe balanced, returns-driven capital deployment will continue to create compelling value for our shareholders.

EXPANDING MEGATREND INITIATIVES: ELECTRIFICATION

To position Sensata for long-term success, we are actively investing in Electrification opportunities across our entire portfolio. Within our automotive business, we remain confident that a large portion of our solutions serving the market for combustion engines today will continue to be required in an electrified environment. Furthermore, we are adding more capabilities and sensor-rich solutions to allow us to capitalize on the growth of electrified vehicles. For example, we acquired GIGAVAC to expand our electrification offering into high-voltage contactors, and we are quickly establishing ourselves as the standard for premium electrified vehicles, particularly for the most challenging applications with high current levels.

GIGAVAC provides Sensata the potential to capture \$60 to \$100 of additional content per battery electric vehicle. In addition to high-voltage contactors, Sensata was the first company in the industry to develop a smart

sensor that addresses safety issues associated with the risk of thermal runaway in batteries, which has become critical for our customers. We are also extending our market share leadership in thermal management and motor position applications in both hybrid and full electric battery vehicles. These developments make the increasing penetration of battery electric vehicles an important tailwind for our automotive business.

Outside of automotive, Sensata is a leader in the DC fast-charging infrastructure segment, which is growing greater than 30% a year. Additionally, we are seeing healthy demand for our high-voltage contactors on electric buses within our heavy vehicle & off-road business. Lastly, we have an active new business pipeline in Electrification applications and we are increasing our investment to pursue this growth. We believe that a significant portion of our new business wins will eventually serve electrification trends in all of our end markets.

INVESTING FOR FUTURE GROWTH: SMART & CONNECTED

We are also making progress in our Smart & Connected initiative. Sensata's vehicle area network (VAN) provides a scalable platform across commercial on-road trucks and trailers for the OEM and retrofit market that supports several wireless sensing applications provided by Sensata and also can interface with other third-party devices. We have won approximately \$90 million in new business with truck and trailer OEMs, which we estimate represents a \$1 billion market opportunity.

We are building off of our early success with OEMs to bring our solution to the fleet management market, which we estimate represents a \$6 billion market opportunity and would be a new market segment for Sensata. We are currently testing proof of concepts with some of the world's leading fleet managers. Our solution is working in real-world environments and capturing data on trucks and trailers in our customers' fleets.

We are very excited about our efforts thus far in the areas of Electrification and Smart & Connected, and believe that our progress in these important initiatives will help Sensata differentiate itself with customers and lead to long-term advantages for our company and our shareholders.

2020 OUTLOOK

The designed-in nature of our business model typically provides long-term visibility to demand for our products. Due to the effects of the COVID-19 pandemic, our outlook for 2020 is uncertain and rapidly changing. While new product launches are continuing to drive content revenue outgrowth, our end markets have weakened and substantially as the COVID-19 virus has spread around the world and global supply chains are disrupted. We are committed to keeping shareholders and employees abreast of changes in our markets and our financial outlook as more details emerge.

We are taking decisive action during this pandemic to ensure the health and safety of our employees and their families, serve the critical needs of our customers and maintain appropriate financial flexibility during this highly uncertain time. Furthermore, we have contingency plans in place should we experience a prolonged downturn in demand and as I mentioned at the outset, we believe we have the capital resources, management experience and capability to

weather a downturn. We will continue to focus on investing in opportunities we see that will allow us to outgrow our end markets and drive additional content growth, while delivering further efficiency and productivity improvements in our business.

SENSATA FOUNDATION

The Sensata Technologies Foundation contributes to the communities where Sensata operates and more specifically, seeks to foster a passion about STEM (Science, Technology, Engineering and Mathematics) subjects in local schools.

Sensata has a long and proud history of supporting these communities, assisting with outreach programs that nurture and support education, economic development, civic involvement and diversity. In 2019, more than 500 employee volunteers dedicated time in their communities to service projects at more than 45 unique organizations. Sensata Technologies committed more than \$245,000 in financial grants to 32 deserving organizations for 2020. We believe that through our corporate responsibility, an important aspect of our industry leadership, we are helping to create positive and enduring changes in these communities.

In closing, let me thank my Sensata colleagues, our valued customers, our shareholders, the members of our Board and business partners for their support of our company over the past year. This trust is important to me as I build on the legacy of accomplishment and success that Sensata has established.

I look forward to reporting on our progress in the coming year.



Jeffrey J. Cote
CHIEF EXECUTIVE OFFICER & PRESIDENT

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

FORM 10-K

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

For the fiscal year ended December 31, 2019

OR

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

Commission File Number 001-34652

SENSATA TECHNOLOGIES HOLDING PLC

(Exact name of registrant as specified in its charter)

England and Wales

(State or other jurisdiction of incorporation or organization)

98-1386780

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

529 Pleasant Street, Attleboro, Massachusetts, 02703, United States

(Address of principal executive offices, including zip code))

+1 (508) 236 3800

(Registrant's telephone number, including area code)

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

Title of each class	Trading Symbol(s)	Name of exchange on which registered
Ordinary Shares - nominal value €0.01 per share	ST	New York Stock Exchange

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

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

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

Indicate by a 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 required 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, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

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 is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No

The aggregate market value of the registrant's ordinary shares held by non-affiliates at June 30, 2019 was approximately \$7.9 billion based on the New York Stock Exchange closing price for such shares on that date.

As of January 31, 2020, 157,828,172 ordinary shares were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Part III of this Report incorporates information from certain portions of the registrant's Definitive Proxy Statement to be filed with the Securities and Exchange Commission within 120 days of the registrant's fiscal year ended December 31, 2019.

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Cautionary Statements Concerning Forward-Looking Statements

This Annual Report on Form 10-K (this "Report"), including any documents incorporated by reference herein, includes "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. These forward-looking statements relate to analyses and other information that are based on forecasts of future results and estimates of amounts not yet determinable. These forward-looking statements also relate to our future prospects, developments, and business strategies. These forward-looking statements may be identified by terminology such as "may," "will," "could," "should," "expect," "anticipate," "believe," "estimate," "predict," "project," "forecast," "continue," "intend," "plan," and similar terms or phrases, or the negative of such terminology, including references to assumptions. However, these terms are not the exclusive means of identifying such statements.

Forward-looking statements contained herein, or in other statements made by us, are made based on management's expectations and beliefs concerning future events impacting us. These statements are subject to uncertainties and other important factors relating to our operations and business environment, all of which are difficult to predict, and many of which are beyond our control, that could cause our actual results to differ materially from those matters expressed or implied by forward-looking statements. Although we believe that our plans, intentions, and expectations reflected in, or suggested by, such forward-looking statements are reasonable, we can give no assurances that any of the events anticipated by these forward-looking statements will occur or, if any of them do, what impact they will have on our results of operations and financial condition.

We believe that the following important factors, among others (including those described in Item 1A, "Risk Factors," included elsewhere in this Report), could affect our future performance and the liquidity and value of our securities and cause our actual results to differ materially from those expressed or implied by forward-looking statements made by us or on our behalf:

- instability and changes in the global markets, including regulatory, political, economic, governmental, and military matters, such as the recent exit of the United Kingdom (the "U.K.") from the European Union (the "EU");
- adverse conditions or competition in the industries upon which we are dependent, including the automotive industry;
- competitive pressure from customers that could require us to reduce prices or result in reduced demand;
- losses and costs as a result of intellectual property, product liability, warranty, and recall claims;
- market acceptance of new product introductions and product innovations;
- supplier interruption or non-performance, limiting our access to manufactured components or raw materials;
- risks related to the acquisition or disposition of businesses, or the restructuring of our business;
- business disruptions due to natural disasters or other disasters outside our control, such as the recent coronavirus outbreak;
- labor disruptions or increased labor costs;
- inability to realize all of the revenue or achieve anticipated gross margins from products subject to existing purchase orders for which we are currently engaged in development;
- security breaches, cyber theft of our intellectual property, and other disruptions to our information technology infrastructure, or improper disclosure of confidential, personal, or proprietary data;
- foreign currency risks, changes in socio-economic conditions, or changes to monetary and fiscal policies;
- our level of indebtedness, or our inability to meet debt service obligations or comply with the covenants contained in the credit agreement and senior notes indentures;
- changes to current policies, such as trade tariffs, by the United States (the "U.S.") government;
- risks related to the potential for goodwill impairment;
- the impact of challenges by taxing authorities of our historical and future tax positions or our allocation of taxable income among our subsidiaries, and challenges to the sovereign taxation regimes of EU member states by the European Commission and the Organization for Economic Co-operation and Development;
- changes to, or inability to comply with, various regulations, including tax laws, import/export regulations, anti-bribery laws, environmental, health, and safety laws, and other governmental regulations; and
- risks related to our domicile in the U.K.

All forward-looking statements attributable to us or persons acting on our behalf speak only as of the date of this Report and are expressly qualified in their entirety by the cautionary statements contained in this Report. We undertake no obligation to update or revise forward-looking statements that may be made to reflect events or circumstances that arise after the date made or to reflect the occurrence of unanticipated events. We urge readers to review carefully the risk factors described in this Report and in the other documents that we file with the U.S. Securities and Exchange Commission. You can read these documents at www.sec.gov or on our website at www.sensata.com.

PART I

ITEM 1. BUSINESS

The Company

The reporting company is Sensata Technologies Holding plc ("Sensata plc"), a public limited company incorporated under the laws of England and Wales, and its wholly-owned subsidiaries, collectively referred to as the "Company," "Sensata," "we," "our," and "us."

We are a global industrial technology company that develops, manufactures, and sells sensors, sensor-based solutions, controls, and other products used in mission-critical systems and applications that create valuable business insights for our customers and end users. For more than 100 years, we have been providing a wide range of customized, sensor-rich solutions that address increasingly complex engineering and operating performance requirements to help our customers solve their most difficult challenges in the automotive, heavy vehicle and off-road ("HVOR"), industrial, and aerospace industries.

Our sensors are devices that translate a physical parameter, such as pressure, temperature, or position, into electronic signals that our customers' products and solutions can act upon. These actionable insights lead to products that are safer, cleaner and more efficient, more electrified, and increasingly more connected. Our sensor-based solutions can be comprised of various sensors, controllers, receivers, and software, which provide comprehensive solutions to critical problems. Our controls are devices embedded within systems to protect them from excessive heat or current. Our sensors, sensor-based solutions, and controls are included in mission-critical solutions that play a key role in the four key megatrends that are shaping our markets:

- *Clean & Efficient* - our customers are facing ever increasing mandates to make their products cleaner and more efficient due to regulation and consumer demand. Our sensors are being used in mission-critical systems and applications including those that help: industrial customers to make more efficient pumps and boilers; automotive customers to meet the standards of emissions and pollution control legislation; and fleet managers to increase the fuel efficiency of heavy duty trucks.
- *Electrification* - electrification provides a significant opportunity for us to expand the use of our sensors and electrical protection solutions within the automotive, industrial, and HVOR industries. For example, in the automotive industry as customers seek to extend the range of the battery and improve the efficiency of electric vehicles they are incorporating electrical subsystems, which require additional sensors to monitor, control, and optimize what is happening within the vehicle. Further, higher voltage battery systems are also driving increased needs for electrical protection. Sensors are also used in thermal management applications to help maintain batteries at optimal temperatures as well as electric motors and heat pumps.
- *Smart & Connected* - we are developing smart, connected sensors that enable actionable insights for commercial vehicle operators. For example, our wireless sensors can collect information through a vehicle-area network and allow fleet managers to proactively monitor the health of their vehicles and conduct proactive maintenance, such as being able to identify when a tire is at high risk of bursting. Our leadership position in wireless sensing allows us to access new data sources that have historically been costly and difficult to gather using traditional wire harnesses.
- *Autonomy* - we are developing sensors to enable light passenger cars, off-road vehicles, and material handling equipment to operate more autonomously. For example, we have recently launched a steer-by-wire application to enable worksite automation in the construction and agriculture industries. Within automotive, we are also developing a portfolio of sensors to actively monitor the health of a vehicle when it is not being operated by an active driver.

Each of these trends is expected to significantly transform our industries and many of our customers businesses. These megatrends are also creating greater secular demand for our products, resulting in content growth that enables us to outgrow end-market volume production in many of the markets we serve, a defining characteristic of our company.

Content growth is a term that we use to describe the impact of an increasing quantity and value of our products used in customer systems and applications, and to a large extent independent of normal demand fluctuations in the markets we serve. Content growth of our sensor products results from technological advancements and enhancements in a customer's system or application, where our sensor is an integral component, to help comply with evolving and tightening regulations, meet changing performance standards, and enable new and emerging technologies that together, or in part, provide cleaner, more efficient, safer, and more comfortable functionality.

We have long-standing relationships with a geographically diverse base of leading original equipment manufacturers ("OEMs") and other multinational companies. In geographic and product markets where we lack an established base of customers, we rely on third-party distributors to sell our products. Only a small portion of our revenues are sold through distributors. We have had relationships with our top ten customers for an average of 30 years. Our largest customer accounted for approximately 7% of our net revenue for the year ended December 31, 2019.

We operate in, and report financial information for, the following two segments: Performance Sensing and Sensing Solutions.

Performance Sensing

Performance Sensing, which accounted for approximately 74% of our net revenue in fiscal year 2019, primarily serves the automotive and HVOR industries through development and manufacture of sensors, high-voltage contactors, and other products used in mission-critical systems and applications such as those in subsystems of automobiles, on-road trucks, and off-road equipment (e.g., tire pressure monitoring, thermal management, air conditioning, and regenerative braking). Our products are used in subsystems that, among other things, improve operating performance and efficiency as well as address environmental or safety concerns.

Our customers include leading global automotive, on-road truck, construction, and agriculture OEMs, the companies that supply parts directly to OEMs, which are known as Tier 1 suppliers, and various aftermarket distributors. We believe large OEMs and other multinational companies are increasingly demanding a global presence to supply sensors and sensor-based solutions for their key global platforms. We believe that we are one of the largest suppliers of sensors and sensor-based solutions in the majority of the key markets in which we compete.

The global sensor market is characterized by a broad range of products and applications across a diverse set of market segments. According to an October 2019 report prepared by Strategy Analytics, Inc., the global automotive sensor market was \$24.1 billion in 2019, compared to \$23.9 billion in 2018.

Automotive and HVOR sensors support a wide variety of systems and applications, and many are critical components that are essential to the proper functioning of the products in which they are incorporated. Sensor application-specific products require close engineering collaboration between the sensor supplier and the OEM or their Tier 1 suppliers. As a result, OEMs and Tier 1 suppliers make significant investments in selecting, integrating, and testing sensors as part of their product development. Switching to a different sensor results in considerable additional work, both in terms of sensor customization and platform/product retesting and certification. This results in high switching costs for automotive and HVOR manufacturers once a sensor is designed in to a particular product or platform. We believe this is one of the reasons that sensors are rarely changed during a platform life-cycle, which in the case of the automotive industry typically lasts five to seven years. Given the importance of reliability and the fact that the sensors must be supported through the length of a product life, our experience has been that OEMs and Tier 1 suppliers tend to work with suppliers that have a long track record of quality and on-time delivery and the scale and resources to meet their needs as the automobile platform evolves and grows. In addition, the automotive industry provides one of the largest markets for sensors, giving participants with a presence in this market significant scale advantages over those participating only in smaller, more niche industrial and medical markets.

Net revenue growth from the automotive and HVOR sensor markets served by Performance Sensing has historically been driven, we believe, by three principal trends, including (1) growth in the number of vehicles produced globally, (2) expansion in the number and type of sensors per vehicle, and (3) efforts toward commercializing higher value sensors. However, we believe that the automotive and HVOR sensor markets are and will continue to be substantially impacted by current megatrends, primarily Clean & Efficient and Electrification in the near-term. We are investing in existing and new technologies intended to respond to these megatrends and which we believe will drive future revenue growth. In addition, our presence in emerging markets positions us to take advantage of future growth opportunities in these regions.

Light vehicle production: From the recession in 2008 and 2009 until recently, global production of light vehicles had consistently demonstrated annual growth. However, according to the fourth quarter 2019 LMC Automotive "Global Car & Truck Forecast," the production of global light vehicles in fiscal year 2019 decreased from the prior year by 5.0% to approximately 89.4 million units. Despite this decline, we expect global production of light vehicles to increase over the long term due to population growth and increased usage of cars in emerging markets.

Number of sensors per vehicle: We believe that sensor usage and content growth will continue to be driven by increasing installation in vehicles of emissions, efficiency, safety, and comfort-related control systems that depend on sensors for proper functioning, such as electronic stability control, tire pressure monitoring, advanced driver assistance, transmission, and advanced combustion and exhaust after-treatment, as well as user interfaces in HVOR applications. For example, government

regulation of emissions, including fuel economy standards such as the National Highway Traffic Safety Administration's Corporate Average Fuel Economy requirements in the United States (the "U.S.") and emissions requirements such as "Euro 6d" in Europe, "China National 6" in China, and "Bharat Stage VI" in India drive cleaner, more efficient systems.

Other applications that are driving increased sensor content in vehicles include braking systems and electrification systems. Braking systems are gradually transitioning from traditional hydraulic brakes towards electromechanical braking and regenerative braking systems, thus driving more content in pressure and force sensing. Furthermore, electrified vehicles are driving more sophisticated thermal management systems to control heating and cooling throughout the vehicle, and more content in battery management systems to optimize drive range and safety in electrical protection as battery voltages increase. Our fiscal year 2018 acquisition of GIGAVAC supports growth in this electrical protection domain with its contactor and fuse technologies.

Higher value sensors: We believe that our revenue growth has been augmented by a continuing shift away from legacy electromechanical sensors to more sensor-based solutions that include controllers, receivers, and software, and will continue to grow as our sensors and controllers get "smarter" with more embedded algorithms.

New Technology: Automobiles and heavy vehicles continue to evolve with new alternative technologies being developed to make these vehicles more efficient, robust, cost effective, and safe. We believe that this trend has the potential to drive growth in our business for the foreseeable future, particularly in the areas of Electrification, Smart & Connected, and Autonomy. Moreover, we believe our broad customer base, global diversification, and evolving portfolio provide the foundation that will allow us to grow with these megatrends across a diverse set of markets.

For example, we expect this growth to include content growth in both hybrid and electric vehicles. Hybrid vehicles require systems and sensors to drive high efficiency across the powertrain, managing better diagnostics, more efficient combustion, and reduced emissions. Also, sensor content on vehicle climate control and thermal management systems, where our market share is high, is increasing. This is driven by the need for high efficiency control of thermal management in hybrid heating and cooling systems. Additionally, as long-range plug-in hybrid and full battery electric vehicles gain market share, multiple instances of efficient thermal management across the battery, electronics, and cabin systems are required to protect and manage the vehicle, which drives additional core Sensata sensor and sensor-based solution content available in the market today. Other new emerging opportunities to improve battery life could also provide the potential for additional content per vehicle.

Other safety and efficiency systems are also evolving on hybrid and electric vehicles. New and emerging energy recuperation technologies, such as regenerative motors, require additional sensing content to manage and efficiently switch between traditional braking systems and regenerative braking. Additionally, semi-automated vehicles containing advanced driver assistance systems benefit from more efficient and faster electromechanical braking systems, driving additional sensor content to control these brakes. Each of these systems enable more efficient use of energy, enabling greater electric vehicle range.

New content in high voltage electrical protection and sensor-based solutions from our fiscal year 2018 acquisition of GIGAVAC, LLC addresses many of the needs in evolving electric vehicle powertrain systems with higher voltage systems that must be properly controlled and protected as vehicle voltages and electrical currents increase. This protection safeguards the expensive electronics used to power the vehicle and allowing for an increase in power levels to improve charging times.

Emerging Markets: We have a long-standing position in emerging markets, including a presence in China for more than 20 years. With our presence in China, we believe that our automotive and HVOR businesses are well positioned to grow. With sustained vehicle modernization and tightening regulations in China, we expect our content per vehicle in China will continue to increase, moving towards the levels we see in developed markets.

Product Categories

The following table presents the key products, solutions, applications, systems, and end markets related to the sensor product category:

Key Products/Solutions	Key Applications/Systems	Key End Markets
Pressure sensors	Thermal management and air conditioning systems	Automotive HVOR
Microfused strain gage	Transmission	
Ceramic capacitive	Engine oil	
Micro-electromechanical	Suspension	
Speed and position sensors	Fuel delivery	
Magnetic speed and position sensors	Braking	
Mechanical/electrical control systems	Tire pressure monitoring	
High temperature sensors	Exhaust after-treatment	

The table below sets forth the amount of net revenue generated by our sensor product category in Performance Sensing, reconciled to total segment net revenue, for the years ended December 31, 2019, 2018, and 2017:

<i>(In thousands)</i>	For the year ended December 31,		
	2019	2018	2017
Net revenue:			
Sensors	\$ 2,489,644	\$ 2,532,631	\$ 2,341,017
Other	56,372	95,020	119,583
Performance Sensing net revenue	<u>\$ 2,546,016</u>	<u>\$ 2,627,651</u>	<u>\$ 2,460,600</u>

Competitors

Within each of the principal product categories in Performance Sensing, we compete with a variety of independent suppliers. We believe that the key competitive factors in the markets served by this segment are product performance in mission-critical operating environments, quality, reliability, and commercial competitiveness. We believe that our ability to design and produce customized solutions globally, breadth and scale of product offerings, technical expertise and development capability, product service and responsiveness, and a commercially competitive offering, make us well positioned to succeed in these markets.

Sensing Solutions

Sensing Solutions, which accounted for approximately 26% of our net revenue in fiscal year 2019, primarily serves the industrial and aerospace industries through development and manufacture of a broad portfolio of application-specific sensor and control products used in the aerospace market and a diverse range of industrial markets, including the small appliance, heating, ventilation and air conditioning ("HVAC"), semiconductor, material handling, factory automation, and water management markets. Some of the products the segment sells include pressure, temperature, and position sensors, motor and compressor protectors, solid state relays, bimetal electromechanical controls, thermal and magnetic-hydraulic circuit breakers, power inverters, and charge controllers. We believe that we are one of the largest suppliers of controls in the majority of the key applications and systems in which we compete.

Our customers include a wide range of industrial and commercial manufacturers and suppliers across multiple end markets, primarily OEMs in the climate control, appliance, semiconductor, medical, energy and infrastructure, data/telecom, material handling, factory automation, and aerospace industries, as well as Tier 1 aerospace and motor and compressor suppliers.

Our products perform many functions including prevention of damage from excess heat or electrical current, optimization of system performance, low-power circuit control, and power conversion from direct current ("DC") power to alternating current ("AC") power. Demand for our products is driven by many of the same factors as in the automotive and HVOR sensor markets: regulation of emissions, greater energy efficiency, and safety, as well as consumer demand for new features.

We continue to focus our efforts on expanding our presence in all global geographies, both emerging and developed and serving our global customers in a highly efficient and cost-effective manner. Our customers include established multinationals as well as local producers in emerging markets such as China, India, Eastern Europe, and Turkey. China continues to remain a priority for us because of its export focus and the increasing domestic consumption of products that use our devices.

Product Categories

The following table presents the significant product categories offered by Sensing Solutions and the corresponding key products, solutions, applications, systems, and end markets:

Key Products/Solutions	Key Applications/Systems	Key End Markets
Product category: Controls		
Bimetal electromechanical controls	HVAC/Refrigeration	Aerospace and defense
Motor protectors	Industrial equipment	Industrial
Motor starters	Small/large appliances	HVAC/Refrigeration
Thermostats	Lighting	Automotive
Switches	DC motors	Marine
	Commercial and military aircraft	Medical
Circuit breakers	Marine/industrial	Energy/solar
Thermal circuit breakers	Data and telecom equipment	
Magnetic-hydraulic circuit breakers	Medical equipment	
	Recreational vehicles	
Product category: Sensors		
Linear and rotary position sensors	HVAC/Refrigeration	Aerospace and defense
Linear variable differential transformers	Air compressors	Industrial equipment
Pressure sensors	Hydraulic machinery	HVAC/Refrigeration
Temperature sensors	Motion control systems	Motors
Aircraft controls	Pumps and storage tanks	Marine
	Commercial and military aircraft	Energy

The table below sets forth the amount of net revenue generated by our sensors and controls product categories in Sensing Solutions, reconciled to total segment net revenue, for the years ended December 31, 2019, 2018, and 2017:

(In thousands)	For the year ended December 31,		
	2019	2018	2017
Net revenue:			
Controls	\$ 481,720	\$ 508,745	\$ 497,853
Sensors	223,282	222,649	201,846
Other	199,613	162,582	146,434
Sensing Solutions net revenue	<u>\$ 904,615</u>	<u>\$ 893,976</u>	<u>\$ 846,133</u>

Competitors

Within each of the principal product categories in Sensing Solutions, we compete with divisions of large multinational industrial corporations and companies with smaller market share that compete primarily in specific markets, applications, systems, or products. We believe that the key competitive factors in these markets are product performance, quality, and reliability.

Technology and Intellectual Property

We develop products that address increasingly complex engineering and operating performance requirements. We believe that continued focused investment in research and development ("R&D") is critical to our future growth and maintaining our leadership positions in the markets we serve. Our R&D efforts are directly related to timely development of new and enhanced products that are central to our business strategy. We continuously develop our technologies to meet an evolving set of customer requirements and new product introductions. We conduct such activities in areas that we believe will increase our long-term revenue growth. Our development expense is typically associated with engineering core technology platforms to specific applications and engineering major upgrades that improve the functionality or reduce the cost of existing products. In addition, we constantly consider new technologies where we may have expertise for potential investment or acquisition.

An increasing portion of our R&D activities are being directed towards technologies and megatrends that we believe have the potential for significant future growth, but relate to products that are not currently within our core business. Expenses related to these activities are less likely to result in increased revenue than our more mainstream development activities.

We are exposed to many development opportunities at an early stage for several reasons: (1) we are the incumbent in many systems for our key customers; (2) we have strong design and service capability; and (3) our global engineering teams are located in close proximity to key customers in regional business centers. We work closely with our customers to deliver solutions that meet their needs. As a result of the long development lead times and embedded nature of our products, we

collaborate closely with our customers throughout the design and development phase of their products. Systems development by our customers typically requires significant multi-year investment for certification and qualification, which are often government or customer mandated. We believe the capital commitment and time required for this process significantly increases the switching costs once a customer has designed and installed a particular sensor into a system.

We rely primarily on patents, trade secrets, manufacturing know-how, confidentiality procedures, and licensing arrangements to maintain and protect our intellectual property rights. While we consider our patents to be valuable assets, we do not believe that our overall competitive position is dependent on patent protection or that our overall business is dependent upon any single patent or group of related patents. Many of our patents protect specific functionality in our products, and others consist of processes or techniques that result in reduced manufacturing costs.

The following table presents information on our patents and patent applications as of December 31, 2019:

	U.S.	Non-U.S.
Patents	296	383
Pending patent applications, filed within the last five years	64	234

Our patents have expiration dates ranging from 2020 to 2042. We also own a portfolio of trademarks and license various patents and trademarks. "Sensata" and our logo are trademarks.

We use licensing arrangements with respect to certain technology provided in our sensor and control products. In 2006, we entered into a perpetual, royalty-free cross-license agreement with our former owner, Texas Instruments Incorporated, which permits each party to use specified technology owned by the other party in its business. No license may be terminated under the agreement, even in the event of a material breach.

Raw Materials

We use a broad range of manufactured components, subassemblies, and raw materials in the manufacture of our products in both our Performance Sensing and Sensing Solutions segments, including those containing certain commodities, resins, and rare earth metals, which may experience significant volatility in their price and availability.

The price and availability of raw materials and manufactured components may be subject to change due to, among other things, new laws or regulations, including the impact of tariffs, trade barriers, and disputes, and global economic or political events including strikes, suppliers' allocations to other purchasers, interruptions in production by suppliers, changes in foreign currency exchange rates, and prevailing price levels. It is generally difficult to pass increased prices for manufactured components and raw materials through to our customers in the form of price increases. Therefore, a significant increase in the price or a decrease in the availability of these items could materially increase our operating costs and materially and adversely affect our business and results of operations.

Seasonality

Because of the diverse global nature of the markets in which we operate, our net revenue is only moderately impacted by seasonality. However, Sensing Solutions experiences some seasonality, specifically in its air conditioning and refrigeration products, which tend to peak in the first two quarters of the year as inventory is built up for spring and summer sales. In addition, Performance Sensing net revenue tends to be weaker in the third quarter of the year as automotive OEMs retool production lines for the coming model year.

Employees

As of December 31, 2019, we had approximately 21,050 employees, of whom approximately 8% were located in the U.S. As of December 31, 2019, approximately 115 of our employees were covered by collective bargaining agreements. In addition, in various countries, local law requires our participation in works councils. We also engage contract workers in multiple locations, primarily to cost-effectively manage variations in manufacturing volume, but also to perform engineering and other general services. As of December 31, 2019, we had approximately 2,000 contract workers on a worldwide basis. We believe that our relations with our employees are good. However, as discussed in Item 1A, "Risk Factors," included elsewhere in this Annual Report on Form 10-K (this "Report"), the loss of key employees or material work stoppages at our or our customers' manufacturing sites could have a material adverse impact on our financial condition and results of operations.

Environmental Regulations

Our operations and facilities are subject to numerous environmental, health, and safety laws and regulations, both domestic and foreign, including those governing air emissions, chemical usage, water discharges, the management and disposal of hazardous substances and wastes, and the cleanup of contaminated sites. We are, however, not aware of any threatened or pending material environmental investigations, lawsuits, or claims involving us or our operations.

Many of our products are governed by material content restrictions and reporting requirements, examples of which include: European Union regulations, such as Registration, Evaluation, Authorization, and Restriction of Chemicals ("REACH"), Restriction of Hazardous Substances ("RoHS"), and End of Life Vehicle ("ELV"); U.S. regulations, such as the conflict minerals requirements of the Dodd-Frank Wall Street Reform and Consumer Protection Act; and similar regulations in other countries. Further, numerous customers, across all end markets, are requiring us to provide declarations of compliance or, in some cases, extra material content documentation as a requirement of doing business with them.

Compliance with these laws and meeting customer requirements has increased our cost of doing business in a variety of ways and may continue to do so in the future. We do not currently expect any material capital expenditures during fiscal year 2020 for environmental control facilities. We also do not believe that existing or pending climate change legislation, regulation, or international treaties or accords are reasonably likely to have a material adverse effect in the foreseeable future on our business or the markets we serve, nor on our results of operations, capital expenditures, earnings, competitive position, or financial standing.

Governmental Regulations

We are subject to compliance with laws and regulations controlling the import and export of goods and services. Certain of our products are subject to International Traffic in Arms Regulation ("ITAR"). The export of many such ITAR-controlled products requires an individual validated license from the U.S. State Department's Directorate of Defense Trade Controls. The State Department makes licensing decisions based on type of product, destination of end use, end user, national security, and foreign policy. We have a trade compliance team and other systems in place to apply for licenses and otherwise comply with import and export regulations. Any failure to maintain compliance with domestic and foreign trade regulations could limit our ability to import or export raw material and finished goods across various jurisdictions. These laws and regulations are subject to change, and any such change may require us to change technology or incur expenditures to comply with such laws and regulations.

Cross-border Merger

Sensata plc is the surviving entity in a cross-border merger completed on March 28, 2018 (the "Merger") with Sensata Technologies Holding N.V. The Merger changed our location of incorporation from the Netherlands to England and Wales. No changes were made to the business being conducted by us prior to the Merger.

Available Information

We make available free of charge on our Internet website (www.sensata.com) 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 or 15(d) of the Securities Exchange Act of 1934 as soon as reasonably practicable after we electronically file such material with, or furnish it to, the U.S. Securities and Exchange Commission (the "SEC"). Our website and the information contained or incorporated therein are not intended to be incorporated into this Report.

The SEC maintains an Internet site that contains reports, proxy, and information statements, and other information regarding issuers that file electronically with the SEC at www.sec.gov. The contents on, or accessible through, this website or our website are not incorporated into this filing. Further, our references to the URLs for the SEC's website and our website are intended to be inactive textual references only.

ITEM 1A. RISK FACTORS

Business and Operational Risks

Our business is subject to numerous global risks, including regulatory, political, economic, governmental, and military concerns and instability.

Our business, including our employees, customers, and suppliers, are located throughout the world. As a result, we are exposed to numerous global, regional, and local risks that could decrease revenue and/or increase expenses, and therefore decrease our profitability, including, without limitation:

- trade regulations, including customs, import, and export matters;
- tariffs, trade barriers, and disputes, including recent disputes between the United States (the "U.S.") and China;
- local employment costs, regulations, and conditions;
- difficulties with, and costs for, protecting our intellectual property;
- challenges in collecting accounts receivable;
- tax laws and regulatory changes, including examinations by taxing authorities, variations in tax laws from country to country, changes to the terms of income tax treaties, and difficulties in the tax-efficient repatriation of earnings generated or held in a number of jurisdictions;
- natural disasters;
- instability in economic or political conditions, inflation, recession, actual or anticipated military or political conflicts, and potential impact due to the upcoming exit of the United Kingdom (the "U.K.") from the European Union (the "EU"); and
- impact of each of the foregoing on our business operations, manufacturing, and supply chain.

The U.K.'s withdrawal from the EU ("Brexit") was completed on January 31, 2020, opening a standstill transition period that is currently set to last until December 31, 2020. During this transition period, the U.K.'s trading relationship with the EU will remain unchanged, allowing time to agree and implement a new future trading relationship. An extension of the transition period of up to two years is possible, but the current political environment in the U.K. suggests that an extension is not likely to be negotiated. In addition to uncertainty regarding the timing of the transition, there is substantial uncertainty about the final agreements that will be reached by the U.K. and the EU during the transition period on topics such as financial laws and regulations, tax and free trade agreements, immigration laws, and employment laws. We are incorporated in the U.K., and we have significant operations and a substantial workforce therein and therefore enjoy certain benefits based on the U.K.'s membership in the EU. The lack of clarity about the future trading agreements between the U.K. and the EU creates uncertainty for us, as the outcome of these negotiations may affect our business and operations. Additionally, there is a risk that other countries may decide to leave the EU. The uncertainty surrounding Brexit not only potentially affects our business in the U.K. and the EU, but may have a material adverse effect on global economic conditions and the stability of global financial markets, which in turn could have a material adverse effect on our business, financial condition, and results of operations.

In addition, we have sizable operations in China, including two principal manufacturing sites. Approximately 17% of our net revenue in fiscal year 2019 was generated in China. Economic and political conditions in China have been and may continue to be volatile and uncertain, especially as the U.S. and China continue to discuss and have differences in trade policies. As discussed in Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," included elsewhere in this Annual Report on Form 10-K (this "Report"), increased tariff costs have increased our cost of revenue as a percentage of net revenue in fiscal year 2019. In addition, the legal and regulatory system in China is still developing and is subject to change. Our operations and transactions with customers in China could continue to be adversely affected by increased tariffs, and could be otherwise adversely affected by other changes to market conditions, changes to the regulatory environment, or interpretation of Chinese law.

Adverse conditions in the industries upon which we are dependent, including the automotive industry, have had, and may in the future have, adverse effects on our business.

We are dependent on market dynamics to sell our products, and our operating results could be adversely affected by cyclical and reduced demand in these markets. Periodic downturns in our customers' industries could significantly reduce

demand for certain of our products, which could have a material adverse effect on our results of operations, financial condition, and cash flows.

Much of our business depends on, and is directly affected by, the global automobile industry. Sales in our automotive end markets accounted for approximately 59% of our total net revenue in fiscal year 2019. As discussed in Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," included elsewhere in this Report, demand in the automotive end market we serve has declined 5.6% from the prior year. We are partially offsetting this market decline with content growth, but there can be no assurance that this will continue.

Continued declines in demand such as discussed above, and other adverse developments like those we have seen in past years in the automotive industry, including but not limited to customer bankruptcies and increased demands on us for lower prices, could have adverse effects on our results of operations and could impact our liquidity and our ability to meet restrictive debt covenants. In addition, these same conditions could adversely impact certain of our vendors' financial solvency, resulting in potential liabilities or additional costs to us to ensure uninterrupted supply to our customers.

Continued pricing and other pressures from our customers may adversely affect our business.

Many of our customers, including automotive manufacturers and other industrial and commercial original equipment manufacturers ("OEMs"), demand annual price reductions. If we are not able to offset continued price reductions through improved operating efficiencies and reduced expenditures, these price reductions may have a material adverse effect on our results of operations and cash flows. In addition, our customers occasionally require engineering, design, or production changes. In some circumstances, we may be unable to cover the costs of these changes with price increases. Further, as our customers grow larger, they may increasingly require us to provide them with our products on an exclusive basis, which could limit sales, cause an increase in the number of products we must carry and, consequently, increase our inventory levels and working capital requirements. Certain of our customers, particularly in the automotive industry, are increasingly requiring their suppliers to agree to their standard purchasing terms without deviation as a condition to engage in future business transactions, many of which are increasing warranty requirements. As a result, we may find it difficult to enter into agreements with such customers on terms that are commercially reasonable to us.

We may incur material losses and costs as a result of product liability, warranty, and recall claims that may be brought against us.

We have been, and will continue to be, exposed to product liability and warranty claims in the event that our products actually or allegedly fail to perform as expected, or the use of our products results, or is alleged to result, in death, bodily injury, and/or property damage. Accordingly, we could experience material warranty or product liability losses in the future and incur significant costs to defend these claims. In addition, if any of our products are, or are alleged to be, defective, we may be required to participate in a recall of the underlying end product, particularly if the defect or the alleged defect relates to product safety. Depending on the terms under which we supply products, an OEM may hold us responsible for some or all of the repair or replacement costs of these products under warranty when the product supplied did not perform as represented. In addition, a product recall could generate substantial negative publicity about our business and interfere with our manufacturing plans and product delivery obligations as we seek to repair affected products. Our costs associated with product liability, warranty, and recall claims could be material.

We are dependent on market acceptance of our new product introductions and product innovations for future revenue.

Substantially all markets in which we operate are impacted by technological change or change in consumer tastes and preferences, which are rapid in certain markets. Our operating results depend substantially upon our ability to continually design, develop, introduce, and sell new and innovative products; to modify existing products; and to customize products to meet customer requirements driven by such change. There are numerous risks inherent in these processes, including the risk that we will be unable to anticipate the direction of technological change or that we will be unable to develop and market profitable new products and applications before our competitors or in time to satisfy customer demands.

Increasing costs for, or limitations on the supply of or access to, manufactured components and raw materials may adversely affect our business and results of operations.

We use a broad range of manufactured components, subassemblies, and raw materials in the manufacture of our products, including those containing certain commodities, resins, and rare earth metals, which may experience significant volatility in their price and availability. We have entered into hedge arrangements for certain metals used in our products in an attempt to minimize commodity pricing volatility and may continue to do so from time to time in the future. Such hedges might not be economically successful. In addition, these hedges do not qualify as accounting hedges in accordance with U.S. generally

accepted accounting principles. Accordingly, the change in fair value of these hedges is recognized in earnings immediately, which could cause volatility in our results of operations from quarter to quarter. Refer to Note 19, "Derivative Instruments and Hedging Activities," of our audited consolidated financial statements and accompanying notes thereto (our "Financial Statements") included elsewhere in this Report for additional information related to accounting for hedges of commodity prices, and Item 7A, "Quantitative and Qualitative Disclosures About Market Risk," included elsewhere in this Report, for an analysis of the sensitivity on pretax earnings of changes in the forward prices on these hedges.

The price and availability of raw materials and manufactured components may be subject to change due to, among other things, new laws or regulations, including the impact of tariffs, trade barriers, and disputes, and global economic or political events including government actions, labor strikes, suppliers' allocations to other purchasers, interruptions in production by suppliers, changes in foreign currency exchange rates, and prevailing price levels. It is generally difficult to pass increased prices for manufactured components and raw materials through to our customers in the form of price increases. Therefore, a significant increase in the price or a decrease in the availability of these items could materially increase our operating costs and materially and adversely affect our business and results of operations.

In connection with the implementation of our corporate strategies, we face risks associated with the acquisition or disposition of businesses, the entry into new lines of business, the integration of acquired businesses, and the growth and development of these businesses.

In pursuing our corporate strategy, we often acquire other businesses or dispose of or exit businesses we currently own. The success of this strategy is dependent upon our ability to identify appropriate acquisition and disposition targets, negotiate transactions on favorable terms, complete transactions and, in the case of acquisitions, successfully integrate them into our existing businesses. If a proposed transaction is not consummated, the time and resources spent pursuing it could adversely result in missed opportunities to locate and acquire other businesses. If acquisitions are made, there can be no assurance that we will realize the anticipated benefits of such acquisitions, including, but not limited to, revenue growth, operational efficiencies, or expected synergies. If we dispose of or otherwise exit certain businesses, we may incur significant write-offs, including those related to goodwill and other intangible assets, and face other risks, including difficulties in the separation of operations, services, products, and personnel; the diversion of management's attention from other business concerns; the disruption of our business; and the potential loss of key employees. There can be no assurance that we will be successful in addressing these or any other significant risks encountered.

Subject to the terms of our indebtedness, we may finance future acquisitions with cash from operations, additional indebtedness, and/or by issuing additional equity securities. In addition, we could face financial risks associated with incurring additional indebtedness such as reducing our liquidity, limiting our access to financing markets, and increasing the amount of service on our debt. The availability of debt to finance future acquisitions may be restricted, and our ability to make future acquisitions may be limited.

There can be no assurance that any anticipated synergies or cost savings related to acquisitions will be achieved or that they will be achieved in our estimated time frame. We may not be able to successfully integrate and streamline overlapping functions from future acquisitions, and integration may be more costly to accomplish than we expect. In addition, we could encounter difficulties in managing our combined company due to its increased size and scope.

We also may seek to restructure our business in the future by disposing of certain assets or by consolidating operations. There can be no assurance that any restructuring of our business will not adversely affect our financial condition, leverage, or results of operations. In addition, any significant restructuring of our business will require significant managerial attention, which may be diverted from our other operations.

Further, from time to time, either through acquisitions or internal development, we enter new lines of business or offer new products and services within existing lines of business. These new lines of business or new products and services present us with additional risks, particularly in instances where the markets are not fully developed. Such risks include the investment of significant time and resources; the possibility that these efforts will be not be successful; the possibility that the marketplace does not accept our products or services or that we are unable to retain customers that adopt our new products or services; and the risk of additional liabilities associated with these efforts. In addition, many of the businesses that we acquire and develop will likely have significantly smaller scales of operations prior to the implementation of our growth strategy. If we are not able to manage the growing complexity of these businesses, including improving, refining, or revising our systems and operational practices, and enlarging the scale and scope of the businesses, our business may be adversely affected. Other risks include developing knowledge of and experience in the new business, integrating the acquired business into our systems and culture, recruiting professionals, and developing and capitalizing on new relationships with experienced market participants. External factors, such as compliance with new or revised regulations, competitive alternatives, and shifting market preferences may also

impact the successful implementation of a new line of business. Failure to manage these risks in the acquisition or development of new businesses could materially and adversely affect our business, results of operations, and financial condition.

Restructuring our business or divesting some of our businesses or product lines in the future may have a material adverse effect on our results of operations, financial condition, and cash flows.

We continue to evaluate the strategic fit of specific businesses and products that may result in additional divestitures. Any divestitures may result in significant write-offs, including those related to goodwill and other intangible assets, which could have a material adverse effect on our results of operations and financial condition. Divestitures could involve additional risks, including difficulties in the separation of operations, services, products, and personnel; the diversion of management's attention from other business concerns; the disruption of our business; and the potential loss of key employees. There can be no assurance that we will be successful in addressing these or any other significant risks encountered.

We also may seek to restructure our business in the future by relocating operations, disposing of certain assets, or consolidating operations. There can be no assurance that any restructuring of our business will not adversely affect our financial condition, leverage, or results of operations. In addition, any significant restructuring of our business will require significant managerial attention, which may be diverted from our other operations.

Natural disasters or other disasters outside of our control could cause significant business interruptions resulting in harm to our business operations and financial condition.

Our operations and those of our suppliers and customers, and the supply chains that support their operations, may potentially suffer interruptions caused by natural disasters such as earthquakes, tsunamis, hurricanes, typhoons, or floods; or other disasters such as fires, explosions, disease, and acts of terrorism or war that are outside of our control, including government reactions due to such disasters. If a business interruption occurs and we are unsuccessful in our continuing efforts to minimize the impact of these events, our business, results of operations, financial condition, and/or cash flows could be materially adversely affected.

In addition, the ongoing coronavirus outbreak emanating from China at the beginning of 2020 has resulted in increased travel restrictions and extended shutdown of certain businesses in the region. These or any further political or governmental developments or health concerns in China or other countries in which we operate could result in social, economic and labor instability. These uncertainties could have a material adverse effect on the continuity of our business and our results of operations and financial condition.

Labor disruptions or increased labor costs could adversely affect our business.

As of December 31, 2019, we had approximately 21,050 employees, of whom approximately 8% were located in the U.S. As of December 31, 2019, approximately 115 of our employees were covered by collective bargaining agreements. In addition, in various countries, local law requires our participation in works councils.

A material labor disruption or work stoppage at one or more of our manufacturing or business facilities could have a material adverse effect on our business. In addition, work stoppages occur relatively frequently in the industries in which many of our customers operate, such as the automotive industry. If one or more of our larger customers were to experience a material work stoppage for any reason, that customer may halt or limit the purchase of our products. This could cause us to reduce production levels or shut down production facilities relating to those products, which could have a material adverse effect on our business, results of operations, and/or financial condition.

We operate in markets that are highly competitive and competitive pressures could require us to lower our prices or result in reduced demand for our products.

We operate in markets that are highly competitive, and we compete on the basis of product performance in mission-critical operating environments, quality, service, reliability, and/or commercial competitiveness across the industries and end markets we serve. A significant element of our competitive strategy is to design and manufacture high-quality products that meet the needs of our customers at a commercially competitive price, particularly in markets where low-cost, country-based suppliers, primarily in China with respect to the Sensing Solutions segment, have entered the markets or increased their per-unit sales in these markets by delivering products at low cost to local OEMs. In addition, certain of our competitors in the automotive sensor market are influenced or controlled by major OEMs or suppliers, thereby limiting our access to these customers. Many of our customers also rely on us as their sole source of supply for many of the products that we have historically sold to them. These customers may choose to develop relationships with additional suppliers or elect to produce some or all of these products internally, primarily to reduce risk of delivery interruptions or as a means of extracting price reductions from us. Certain of our customers currently have, or may develop in the future, the capability to internally produce

the products that we sell to them and may compete with us with respect to those and other products and with respect to other customers. Competitive pressures such as these, and others, could affect prices or customer demand for our products, negatively impacting our profit margins and/or resulting in a loss of market share.

We may not realize all of the revenue or achieve anticipated gross margins from products subject to existing purchase orders or for which we are currently engaged in development.

Our ability to generate revenue from products pending customer awards is subject to a number of important risks and uncertainties, many of which are beyond our control, including the number of products our customers will actually produce, as well as the timing of such production. Many of our customer agreements provide for the supply of a certain share of the customer's requirements for a particular application or platform, rather than for a specific quantity of products. In some cases, we have no remedy if a customer chooses to purchase less than we expect. In cases where customers do make minimum volume commitments to us, our remedy for their failure to meet those minimum volumes may be limited to increased pricing on those products that the customer does purchase from us or renegotiating other contract terms. There is no assurance that such price increases or new terms will offset a shortfall in expected revenue. In addition, some of our customers may have the right to discontinue a program or replace us with another supplier under certain circumstances. As a result, products for which we are currently incurring development expenses may not be manufactured by our customers at all, or may be manufactured in smaller amounts than currently anticipated. Therefore, our anticipated future revenue from products relating to existing customer awards or product development relationships may not result in firm orders from customers for the originally contracted amount. We also incur capital expenditures and other costs and price our products based on estimated production volumes. If actual production volumes were significantly lower than estimated, our anticipated revenue and gross margin from those new products would be adversely affected. We cannot predict the ultimate demand for our customers' products, nor can we predict the extent to which we would be able to pass through unanticipated per-unit cost increases to our customers.

Security breaches and other disruptions to our information technology ("IT") infrastructure could interfere with our operations, compromise confidential information, and expose us to liability, which could materially adversely impact our business and reputation.

Security breaches and other disruptions to our IT infrastructure could interfere with our operations; compromise information belonging to us, our employees, customers, and suppliers; and expose us to liability that could adversely impact our business and reputation.

In the ordinary course of business, we rely on IT networks and systems, some of which are managed by third parties, to process, transmit, and store electronic information, and to manage or support a variety of business processes and activities. Additionally, we collect and store certain data, including proprietary business information and customer and employee data, and may have access to confidential or personal information that is subject to privacy and security laws, regulations, and customer-imposed controls. We also operate in countries where these threats, specifically the theft of our intellectual property, may pose a greater risk.

Despite our cybersecurity measures (including employee and third-party training, monitoring of networks and systems, and maintenance of backup and protective systems), our IT networks and infrastructure may still be vulnerable to damage, disruptions, or shutdowns due to attacks by hackers, breaches, employee error or malfeasance, power outages, computer viruses, telecommunication or utility failures, systems failures, natural disasters, or other catastrophic events. We also face the challenge of supporting our older systems and implementing necessary upgrades.

Moreover, as we continue to develop products containing complex information technology systems designed to support today's increasingly connected vehicles, these systems also could be susceptible to similar interruptions, including the possibility of unauthorized access. Further, as we transition to offering more cloud-based solutions that are dependent on the Internet or other networks to operate with increased users, we may become a greater target for cyber threats, such as malware, denial of service, external adversaries or insider threats.

We are at risk of attack by a growing list of adversaries through increasingly sophisticated methods. Because the techniques used to obtain unauthorized access or sabotage systems change frequently, we may be unable to anticipate these techniques or implement adequate preventative measures. In addition, we may not be able to detect breaches in our IT systems or assess the severity or impact of a breach in a timely manner. We regularly experience attacks to our systems and networks and have from time to time experienced cybersecurity breaches, such as computer viruses, unauthorized parties gaining access to our IT systems, and similar incidents, which to date have not had a material impact on our business. If we are unable to efficiently and effectively maintain and upgrade our system safeguards, we may incur unexpected costs and certain of our systems may become more vulnerable to unauthorized access. While we select our third party vendors carefully, problems with the IT systems of our vendors, including breakdowns or other disruptions in communication services provided by a vendor,

failure of a vendor to handle current or higher volumes, cyber-attacks, and security breaches at a vendor could adversely affect our ability to deliver products and services to our customers and otherwise conduct our business. Additionally, we are an acquisitive organization and the process of integrating the information systems of the businesses we acquire is complex and exposes us to additional risk as we might not adequately identify weaknesses in the targets' information systems, which could expose us to unexpected liabilities or make our own systems more vulnerable to attack.

These types of incidents affecting us or our third-party vendors could result in intellectual property or other confidential information being lost or stolen, including client, employee, or company data. Any such events could result in legal claims or proceedings, liability or penalties under privacy laws, disruption in operations, and damage to our reputation, which could materially adversely affect our business. Further, to the extent that any disruption or security breach results in a loss of, or damage to, our data, or an inappropriate disclosure of confidential information, it could cause significant damage to our reputation, affect our relationships with our customers, lead to claims against us, and ultimately harm our business, financial condition, and/or results of operations.

Improper disclosure of confidential, personal, or proprietary data could result in regulatory scrutiny, legal liability, or harm to our reputation.

One of our significant responsibilities is to maintain the security and privacy of our employees' and customers' confidential and proprietary information, including confidential information about our employees' compensation, medical information, and other personally identifiable information. We maintain policies, procedures, and technological safeguards designed to protect the security and privacy of this information. Nonetheless, we cannot eliminate the risk of human error, employee or vendor malfeasance, or cyber-attacks that could result in improper access to or disclosure of confidential, personal, or proprietary information. Such access or disclosure could harm our reputation and subject us to liability under our contracts and laws and regulations that protect personal data, resulting in increased costs, loss of revenue, and loss of customers. The release of confidential information as a result of a security breach could also lead to litigation or other proceedings against us by affected individuals or business partners, or by regulators, and the outcome of such proceedings, which could include penalties or fines, could have a significant negative impact on our business.

In many jurisdictions, including in the EU and the U.S., we are subject to laws and regulations relating to the collection, use, retention, security, and transfer of this information. These laws and regulations are frequently changing and are becoming increasingly complex and sometimes conflict among the various jurisdictions and countries in which we operate, which makes compliance challenging and expensive.

Additionally, certain jurisdictions' regulations include notice provisions that may require us to inform affected customers or employees in the event of a breach of confidential information before we fully understand or appreciate the extent of the breach. These notice provisions present operational challenges and related risks.

In particular, the EU's General Data Protection Regulation ("GDPR") went into effect in May 2018 and the California Consumer Privacy Act went into effect in January 2020. Non-compliance could result in proceedings against us by governmental entities or others. Our failure to adhere to or successfully implement processes in response to changing regulatory requirements in this area could result in legal liability or impair our reputation in the marketplace. Further, regulatory initiatives in the area of data protection are more frequently including provisions allowing authorities to impose substantial fines and penalties, and therefore, failure to comply could also have a significant financial impact.

Financial Risks

We are exposed to fluctuations in currency exchange rates that could negatively impact our financial results and cash flows.

A portion of our net revenue, expenses, receivables, and payables are denominated in currencies other than the U.S. dollar (the "USD"). We, therefore, face exposure to adverse movements in exchange rates of currencies other than the USD, which may change over time and could affect our financial results and cash flows. For financial reporting purposes, we, and each of our subsidiaries, operate under a USD functional currency because of the significant influence of the USD on our operations. In certain instances, we enter into transactions that are denominated in a currency other than the USD. At the date that such transaction is recognized, each asset, liability, revenue, expense, gain, or loss arising from the transaction is measured and recorded in USD using the exchange rate in effect at that date. At each balance sheet date, recognized monetary balances denominated in a currency other than the USD are adjusted to USD using the exchange rate at the balance sheet date, with gains or losses recognized in other, net in the consolidated statements of operations. During times of a weakening USD, our revenue recognized in currencies other than the USD may increase because the non-U.S. currency will translate into more USD.

Conversely, during times of a strengthening USD, our revenue recognized in currencies other than the USD may decrease because the local currency will translate into fewer USD.

Our level of indebtedness could adversely affect our financial condition and our ability to operate our business.

The credit agreement governing our secured credit facility (as amended, the "Credit Agreement") provides for senior secured credit facilities (the "Senior Secured Credit Facilities") consisting of a term loan facility (the "Term Loan"), a \$420.0 million revolving credit facility (the "Revolving Credit Facility"), and incremental availability (the "Accordion") under which additional secured credit facilities could be issued under certain circumstances.

As of December 31, 2019, we had \$3,291.8 million of gross outstanding indebtedness, including \$460.7 million of indebtedness under the Term Loan, \$500.0 million in aggregate principal amount of 4.875% senior notes due 2023 issued under an indenture dated as of April 17, 2013 (the "4.875% Senior Notes"), \$400.0 million in aggregate principal amount of 5.625% senior notes due 2024 issued under an indenture dated as of October 14, 2014 (the "5.625% Senior Notes"), \$700.0 million in aggregate principal amount of 5.0% senior notes due 2025 issued under an indenture dated as of March 26, 2015 (the "5.0% Senior Notes"), \$750.0 million in aggregate principal amount of 6.25% senior notes due 2026 issued under an indenture dated as of November 27, 2015 (the "6.25% Senior Notes,"), \$450.0 million in aggregate principal amount of 4.375% senior notes due 2030 issued under an indenture dated as of September 20, 2019 (the "4.375% Senior Notes" and together with the 4.875% Senior Notes, the 5.625% Senior Notes, the 5.0% Senior Notes, and the 6.25% Senior Notes, the "Senior Notes"), and \$31.1 million of finance lease and other financing obligations.

We may incur additional indebtedness in the future. Our substantial indebtedness could have important consequences. For example, it could:

- make it more difficult for us to satisfy our debt obligations;
- restrict us from making strategic acquisitions;
- limit our ability to repurchase shares;
- limit our flexibility in planning for, or reacting to, changes in our business and future business opportunities, thereby placing us at a competitive disadvantage if our competitors are not as highly-leveraged;
- increase our vulnerability to general adverse economic and market conditions; or
- require us to dedicate a substantial portion of our cash flows from operations to payments on our indebtedness if we do not maintain specified financial ratios or are not able to refinance our indebtedness as it comes due, thereby reducing the availability of our cash flows for other purposes.

In addition, the Accordion permits us to incur additional secured credit facilities in certain circumstances in the future, subject to certain limitations as defined in the indentures under which the Senior Notes were issued (the "Senior Notes Indentures"). This could allow us to issue additional secured debt or increase the capacity of the Revolving Credit Facility. As of December 31, 2019, we had \$416.1 million available to us under the Revolving Credit Facility.

If we increase our indebtedness by borrowing under the Revolving Credit Facility or incur other new indebtedness under the Accordion, the risks described above would increase. Refer to Note 14, "Debt," of our Financial Statements for additional information related to our outstanding indebtedness.

Our business may not generate sufficient cash flows from operations, or future borrowings under the Senior Secured Credit Facilities or from other sources may not be available to us in an amount sufficient to enable us to service and/or repay our indebtedness when it becomes due, or to fund our other liquidity needs, including capital expenditures.

We cannot guarantee that we will be able to obtain enough capital to service our debt and fund our planned capital expenditures and business plan. If we complete additional acquisitions, our debt service requirements could also increase. If we cannot service our indebtedness, we may have to take actions such as selling assets, seeking additional equity investments, or reducing or delaying capital expenditures, strategic acquisitions, investments, and alliances, any of which could have a material adverse effect on our operations. Additionally, we may not be able to effect such actions, if necessary, on commercially reasonable terms, or at all.

Changes in U.S. trade policy, including the imposition of tariffs, may have a material impact on our results of operations.

Existing free trade laws and regulations, such as the United States-Mexico-Canada Agreement and its predecessor agreement, the North American Free Trade Agreement, provide certain beneficial duties and tariffs for qualifying imports and exports, subject to compliance with the applicable classification and other requirements. Changes in laws or policies governing the terms of foreign trade, and in particular increased trade restrictions, tariffs or taxes on imports from countries where we manufacture products, such as China and Mexico, could have a material adverse affect on our business and financial results.

For example, the U.S. government has taken certain actions with respect to its trade policies and tariffs with China, and may take further actions with respect to these policies in the future. Some of these tariffs affect the material costs of products we import from China. As discussed in Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," included elsewhere in this Report, increased tariff costs have increased our cost of revenue as a percentage of net revenue in fiscal year 2019.

Further tariffs may be imposed on other imports of our products or our business may be further impacted by retaliatory trade measures taken by China or other countries in response to existing or future U.S. tariffs. We may raise our prices on products subject to such tariffs to share the cost with our customers, which could harm our operating performance or cause our customers to seek alternative suppliers. In addition, we may seek to shift some of our China manufacturing to other countries, which could result in additional costs and disruption to our operations. We also sell our products globally and, therefore, our export sales could be impacted by the tariffs. Any material reduction in sales may have a material adverse effect on our results of operations.

We are evaluating U.S. government policy, which is subject to change, and adjusting our operational strategies to mitigate the impact of these tariffs; however, there can be no assurances that any mitigation strategies employed will remain available under government policy or that we will be able to offset tariff-related costs or maintain competitive pricing of our products. We cannot predict the extent to which the U.S. or other countries will impose quotas, duties, tariffs, taxes or other similar restrictions upon the import or export of our products in the future, nor can we predict future trade policy or the terms of any renegotiated trade agreements and their impact on our business. The adoption and expansion of trade restrictions, the occurrence of a trade war, or other governmental action related to tariffs or trade agreements or policies has the potential to adversely impact demand for our products, our costs, our customers, our suppliers, and the U.S. economy, which in turn could have a material adverse effect on our business, operating results and financial condition.

Our failure to comply with the covenants contained in our credit arrangements, including non-compliance attributable to events beyond our control, could result in an event of default, which could materially and adversely affect our operating results and our financial condition.

The Revolving Credit Facility requires us to maintain a senior secured net leverage ratio not to exceed 5.0:1.0 at the conclusion of certain periods when outstanding loans and letters of credit that are not cash collateralized for the full face amount thereof exceed 20% of the commitments under the Revolving Credit Facility. The Revolving Credit Facility and the Senior Notes Indentures also require us to comply with various operational and other covenants.

If we experience an event of default under any of our debt instruments that is not cured or waived, the holders of the defaulted debt could cause all amounts outstanding with respect to the debt to become due and payable immediately, which, in turn, would result in cross-defaults under our other debt instruments. Our assets and cash flows may not be sufficient to fully repay borrowings if accelerated upon an event of default.

If, when required, we are unable to repay, refinance, or restructure our indebtedness under, or amend the covenants contained in, the Credit Agreement, or if a default otherwise occurs, the lenders under the Senior Secured Credit Facilities could: elect to terminate their commitments thereunder; cease making further loans; declare all borrowings outstanding, together with accrued interest and other fees, to be immediately due and payable; institute foreclosure proceedings against those assets that secure the borrowings under the Senior Secured Credit Facilities; and prevent us from making payments on the Senior Notes. Any such actions could force us into bankruptcy or liquidation, and we might not be able to repay our obligations in such an event.

We have recorded a significant amount of goodwill and other identifiable intangible assets, and we may be required to recognize goodwill or intangible asset impairments, which would reduce our earnings.

We have recorded a significant amount of goodwill and other identifiable intangible assets. Goodwill and other intangible assets, net totaled approximately \$3.9 billion as of December 31, 2019, or 57% of our total assets. Goodwill, which represents

the future economic benefits arising from other assets acquired in a business combination that are not individually identified and separately recognized, was approximately \$3.1 billion as of December 31, 2019, or 45% of our total assets. Goodwill and other identifiable intangible assets were recognized at fair value as of the corresponding acquisition date. Impairment of goodwill and other identifiable intangible assets may result from, among other things, deterioration in our performance, adverse market conditions, adverse changes in laws or regulations, significant unexpected or planned changes in the use of assets, and a variety of other factors. The amount of any quantified impairment must be expensed immediately as a charge that is included in operating income, which may impact our ability to raise capital. Should certain assumptions used in the development of the fair value of our reporting units change, we may be required to recognize goodwill or other intangible asset impairments. Refer to Note 11, "Goodwill and Other Intangible Assets, Net," of our Financial Statements for additional information related to our goodwill and other identifiable intangible assets. Refer to *Critical Accounting Policies and Estimates*, included in Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," included elsewhere in this Report for additional information related to the assumptions used in the development of the fair value of our reporting units.

Our global effective tax rate is subject to a variety of different factors that could create volatility in that tax rate, expose us to greater than anticipated tax liabilities, or cause us to adjust previously recognized tax assets and liabilities.

We are subject to income taxes in the U.K., China, Mexico, the U.S., and many other jurisdictions. As a result, our global effective tax rate from period to period can be affected by many factors, including changes in tax legislation, changes in tax rates and tax laws, our jurisdictional mix of earnings, the use of global funding structures, the tax characteristics of our income, the effects on our revenues and costs of complying with transfer pricing requirements under differing laws of various countries, consequences of acquisitions and dispositions of businesses and business segments, and the taxation of subsidiary income in the jurisdiction of its parent company regardless of whether or not distributed. Significant judgment is required in determining our worldwide provision for income taxes, and our determination of the amount of our tax liability is always subject to review by applicable tax authorities. Refer to Note 7, "Income Taxes," of our Financial Statements for additional information related to our accounting for income taxes.

We could be subject to future audits conducted by these foreign and domestic tax authorities, and resolution of such audits could impact our tax rate in future periods. This may include reclassification or other changes (such as those in applicable accounting rules) that increase the amounts that we have previously provided for income taxes in our consolidated financial statements.

We believe that our redomicile into the U.K. and related transactions should continue to support our ability to maintain a competitive global tax rate since the U.K. has implemented a dividend exemption system that generally does not subject non-U.K. earnings to U.K. tax when such earnings are repatriated to the U.K. in the form of dividends from non-U.K. subsidiaries. This system should allow us to optimize our capital allocation through global funding structures. However, we cannot provide any assurances as to what our tax rate will be in any period because of, among other things, uncertainty regarding the nature and extent of our business activities in any particular jurisdiction in the future and the tax laws of such jurisdictions, as well as changes in U.S. and other tax laws, treaties, and regulations. Our actual global tax rate may vary from our expectation and that variance may be material. Additionally, the tax laws of the jurisdictions where we operate could change in the future, and such changes could cause a material change in our tax rate.

Tax laws, regulations, and treaties where we do business may be subject to significant changes. These changes could materially impact our prospective tax profile, and our ability to mitigate any such changes may be limited. We continuously monitor all global regulatory developments and consider alternatives to limit their detrimental impacts. However, not all unfavorable developments can be moderated and we may consequently experience adverse effects on our effective tax rate and cash flows. Therefore, we cannot provide any assurances as to what our tax rate will be in any future period.

For example, the European Commission ("EC") has been conducting investigations of state aid and have focused on whether EU sovereign country laws or rulings provide favorable treatment to taxpayers conflicting with its interpretation of EU law. EC findings may have retroactive effect and can cause increases in tax liabilities where we considered ourselves in full compliance with local legislation. Furthermore, the Organization for Economic Co-operation and Development ("OECD"), representing a number of jurisdictions where we conduct business, is recommending changes to long-accepted tax principles applied by most multinational corporations. As currently drafted, OECD guidelines would precipitate incremental future tax liabilities to Sensata. However, the OECD guidelines' timing and precise impact to us remains unclear. We continue to monitor developments and shall react accordingly.

In addition, we could be subject to future audits conducted by foreign and domestic tax authorities, and the resolution of such audits could impact our tax rate in future periods, as would any reclassification or other changes (such as those in applicable accounting rules) that increases the amounts we have provided for income taxes in our consolidated financial statements. There can be no assurance that we would be successful in attempting to mitigate the adverse impacts resulting from

any changes in law, audits and other matters. Our inability to mitigate the negative consequences of any changes in the law, audits and other matters could cause our global tax rate to increase, our use of cash to increase and our financial condition and results of operations to suffer.

We are a holding company and, therefore, may not be able to receive dividends or other payments in needed amounts from our subsidiaries.

We are organized as a holding company, a legal entity separate and distinct from our operating entities. As a holding company without significant operations of its own, our principal assets are the shares of capital stock of our subsidiaries. We rely on dividends, interest, and other payments from these subsidiaries to meet our obligations for paying principal and interest on outstanding debt, repurchasing ordinary shares, and corporate expenses. Certain of our subsidiaries are subject to regulatory requirements of the jurisdictions in which they operate or other restrictions that may limit the amounts that subsidiaries can pay in dividends or other payments to us. No assurance can be given that there will not be further changes in law, regulatory actions, or other circumstances that could restrict the ability of our subsidiaries to pay dividends or otherwise make payments to us. Furthermore, no assurance can be given that our subsidiaries may be able to make timely payments to us in order for us to meet our obligations.

Legal and Regulatory Risks

We are subject to risks associated with our non-U.S. operations, including changes in local government regulations and policies, which could adversely impact the results of operations from our international businesses.

Our subsidiaries located outside of the U.S. generated approximately 61% of our net revenue in fiscal year 2019, and we expect sales from non-U.S. markets to continue to represent a significant portion of our total net revenue. International sales and operations are subject to changes in local government regulations and policies, including those related to tariffs and trade barriers, investments, taxation, exchange controls, and repatriation of earnings.

In addition, other risks are inherent in our non-U.S. operations, including the potential for changes in socio-economic conditions and/or monetary and fiscal policies, intellectual property protection difficulties and disputes, the settlement of legal disputes through certain foreign legal systems, the collection of receivables, exposure to possible expropriation or other government actions, unsettled political conditions, and possible terrorist attacks. These and other factors may have a material adverse effect on our non-U.S. operations and, therefore, on our business and results of operations.

We could be adversely affected by violations of the U.S. Foreign Corrupt Practices Act (the "FCPA"), the U.K.'s Bribery Act, and similar worldwide anti-bribery laws.

The U.S. FCPA, the U.K.'s Bribery Act, and similar worldwide anti-bribery laws generally prohibit companies and their intermediaries from making improper payments to government officials for the purpose of obtaining or retaining business. Our policies mandate compliance with these anti-bribery laws. We operate in many parts of the world that have experienced governmental corruption to some degree, and in certain circumstances, strict compliance with anti-bribery laws may conflict with local customs and practices. Despite our training and compliance program, we cannot provide assurance that our internal control policies and procedures will protect us from reckless or criminal acts committed by our employees or agents. Violations of these laws, or allegations of such violations, could disrupt our business and result in a material adverse effect on our results of operations, financial condition, and/or cash flows.

Export of our products is subject to various export control regulations and may require a license from the U.S. Department of State, the U.S. Department of Commerce, or the U.S. Department of the Treasury. Any failure to comply with such regulations could result in governmental enforcement actions, fines, penalties, or other remedies, which could have a material adverse effect on our business, results of operations, and financial condition.

Certain of our products require us to comply with the U.S. Export Administration Regulations, International Traffic in Arms Regulation ("ITAR"), and the sanctions, regulations, and embargoes administered by the Office of Foreign Assets Control ("OFAC"). Our products that have military applications are on the munitions list of ITAR and require an individual validated license in order to be exported to certain jurisdictions. These restrictions also apply to technical data for design, development, production, use, repair, and maintenance of such ITAR-controlled products. The export of ITAR-controlled products or technical data requires an individual validated license from the U.S. State Department's Directorate of Defense Trade Controls. Any delays in obtaining, or our inability to obtain, such licenses could result in a material reduction in revenue.

We also export products that are subject to other export regulations. Any changes in these export regulations may further restrict the export of our products, and we may cease to be able to procure export licenses for our products under existing regulations. This area remains fluid in terms of regulatory developments. Should we need an export license under existing

regulations, the length of time required by the licensing process can vary, potentially delaying the shipment of products and the recognition of the corresponding revenue. We have no control over the time it takes to process an export license. Any restriction on the export of a significant product line or a significant amount of our products could cause a significant reduction in revenue.

We have discovered in the past, and may discover in the future, deficiencies in our OFAC and ITAR compliance programs. Although we continue to enhance these compliance programs, we cannot assure you that any such enhancements will ensure that we are in compliance with applicable laws and regulations at all times, or that applicable authorities will not raise compliance concerns or perform audits to confirm our compliance with applicable laws and regulations. Any failure by us to comply with applicable laws and regulations could result in governmental enforcement actions, fines or penalties, criminal and/or civil proceedings, or other remedies, any of which could have a material adverse effect on our business, results of operations, and/or financial condition.

Changes in existing environmental or safety laws, regulations, and programs could reduce demand for our products, which could cause our revenue to decline.

A significant amount of our business is generated either directly or indirectly as a result of existing laws, regulations, and programs related to environmental protection, fuel economy, energy efficiency, and safety regulation. Accordingly, a relaxation or repeal of these laws and regulations, or changes in governmental policies regarding the funding, implementation, or enforcement of these programs, could result in a decline in demand for environmental and/or safety products, which may have a material adverse effect on our revenue.

Our operations expose us to the risk of material environmental liabilities, litigation, government enforcement actions, and reputational risk.

We are subject to numerous federal, state, and local environmental protection and health and safety laws and regulations in the various countries where we operate and where our products are sold. These laws and regulations govern, among other things:

- the generation, storage, use, and transportation of hazardous materials;
- emissions or discharges of substances into the environment;
- investigation and remediation of hazardous substances or materials at various sites;
- greenhouse gas emissions;
- product hazardous material content; and
- the health and safety of our employees.

We may not have been, or we may not always be, in compliance with all environmental and health and safety laws and regulations. If we violate these laws, we could be fined, criminally charged, or otherwise sanctioned by regulators. In addition, environmental and health and safety laws are becoming more stringent, resulting in increased costs and compliance burdens.

Certain environmental laws assess liability on current or previous owners or operators of real property for the costs of investigation, removal, and remediation of hazardous substances or materials at their properties or properties at which they have disposed of hazardous substances. Liability for investigation, removal, and remediation costs under certain federal and state laws is retroactive, strict, and joint and several. In addition to cleanup actions brought by governmental authorities, private parties could bring personal injury or other claims due to the presence of, or exposure to, hazardous substances.

We cannot provide assurance that our costs of complying with current or future environmental protection and health and safety laws, or our liabilities arising from past or future releases of, or exposures to, hazardous substances will not exceed our estimates or adversely affect our results of operations, financial condition, and cash flows, or that we will not be subject to additional environmental claims for personal injury, property damage, and/or cleanup in the future based on our past, present, or future business activities.

Our products are subject to various requirements related to chemical usage, hazardous material content, and recycling.

The EU, China, and other jurisdictions in which our products are sold have enacted or are proposing to enact laws addressing environmental and other impacts from product disposal, use of hazardous materials in products, use of chemicals in manufacturing, recycling of products at the end of their useful life, and other related matters. These laws include but are not limited to the EU Restriction of Hazardous Substances ("RoHS"), End of Life Vehicle ("ELV"), and Waste Electrical and

Electronic Equipment Directives; the EU Registration, Evaluation, Authorization, and Restriction of Chemicals ("REACH") regulation; and the China law on Management Methods for Controlling Pollution by Electronic Information Products. These laws prohibit the use of certain substances in the manufacture of our products and directly and indirectly impose a variety of requirements for modification of manufacturing processes, registration, chemical testing, labeling, and other matters. These laws continue to proliferate and expand in these and other jurisdictions to address other materials and aspects of our product manufacturing and sale. These laws could make the manufacture or sale of our products more expensive or impossible, could limit our ability to sell our products in certain jurisdictions, and could result in liability for product recalls, penalties, or other claims.

Our ability to compete effectively depends, in part, on our ability to maintain the proprietary nature of our products and technology.

The electronics industry is characterized by litigation regarding patent and other intellectual property rights. Within this industry, companies have become more aggressive in asserting and defending patent claims against competitors. There can be no assurance that we will not be subject to future litigation alleging infringement or invalidity of certain of our intellectual property rights, or that we will not have to pursue litigation to protect our property rights. Depending on the importance of the technology, product, patent, trademark, or trade secret in question, an unfavorable outcome regarding one of these matters may have a material adverse effect on our results of operations, financial condition, and/or cash flows.

We may be subject to claims that our products or processes infringe on the intellectual property rights of others, which may cause us to pay unexpected litigation costs or damages, modify our products or processes, or prevent us from selling our products.

Third parties may claim that our processes and products infringe their intellectual property rights. Whether or not these claims have merit, we may be subject to costly and time consuming legal proceedings, and this could divert management's attention from operating our business. If these claims are successfully asserted against us, we could be required to pay substantial damages, make future royalty payments, and/or could be prevented from selling some or all of our products. We also may be obligated to indemnify our business partners or customers in any such litigation. Furthermore, we may need to obtain licenses from these third parties or substantially re-engineer or rename our products in order to avoid infringement. In addition, we might not be able to obtain the necessary licenses on acceptable terms, or at all, or be able to re-engineer or rename our products successfully. If we are prevented from selling some or all of our products, our sales could be materially adversely affected.

We are a defendant to a variety of litigation in the course of our business that could cause a material adverse effect on our results of operations, financial condition, and/or cash flows.

In the normal course of business, we are, from time to time, a defendant in litigation, including litigation alleging the infringement of intellectual property rights, anti-competitive behavior, product liability, breach of contract, and employment-related claims. In certain circumstances, patent infringement and antitrust laws permit successful plaintiffs to recover treble damages. The defense of these lawsuits may divert our management's attention, and we may incur significant expenses in defending these lawsuits. In addition, we may be required to pay damage awards or settlements, or become subject to injunctions or other equitable remedies, that could cause a material adverse effect on our results of operations, financial condition, and/or cash flows. Refer to Note 15, "Commitments and Contingencies," of our Financial Statements for additional information related to lawsuits in which we are involved.

U.K. Domicile Risks

As a public limited company incorporated under the laws of England and Wales, we may have less flexibility with respect to certain aspects of capital management.

English law imposes additional restrictions on certain corporate actions. For example, English law provides that a board of directors may only allot, or issue, securities with the prior authorization of shareholders, such authorization being up to the aggregate nominal amount of shares and for a maximum period of five years, each as specified in the articles of association or relevant shareholder resolution. English law also generally provides shareholders with preemptive rights when new shares are issued for cash; however, it is possible for the articles of association, or shareholders at a general meeting, to exclude preemptive rights. Such an exclusion of preemptive rights may be for a maximum period of up to five years as specified in the articles of association or relevant shareholder resolution. We currently only have authorization to issue shares under our equity plan excluding preemptive rights until our next annual general meeting. This authorization and exclusion needs to be renewed by our shareholders periodically and we intend to renew the authorization and exclusion at each annual general meeting.

English law also requires us to have available "distributable reserves" to make share repurchases or pay dividends to shareholders. Distributable reserves may be created through the earnings of the U.K. parent company or other actions. While we intend to maintain a sufficient level of distributable reserves, there is no assurance that we will continue to generate sufficient earnings in order to maintain the necessary level of distributable reserves to make share repurchases or pay dividends.

English law also generally prohibits a company from repurchasing its own shares by way of "off-market purchases" without the prior approval of our shareholders. Such approval lasts for a maximum period of up to five years. Our shares are traded on the New York Stock Exchange, which is not a recognized investment exchange in the U.K. Consequently, any repurchase of our shares is currently considered an "off-market purchase." Our current authorization expires on May 31, 2023, and we intend to renew this authorization periodically.

As a public limited company incorporated under the laws of England and Wales, the enforcement of civil liabilities against us may be more difficult.

Because we are a public limited company incorporated under the laws of England and Wales, investors could experience more difficulty enforcing judgments obtained against us in U.S. courts than would have been the case for a U.S. company. In addition, it may be more difficult (or impossible) to bring some types of claims against us in courts in England than it would be to bring similar claims against a U.S. company in a U.S. court.

As a public limited company incorporated under the laws of England and Wales, it may not be possible to effect service of process upon us within the U.S. to enforce judgments of U.S. courts against us based on the civil liability provisions of the U.S. federal securities laws.

There is doubt as to the enforceability in England and Wales, in original actions or in actions for enforcement of judgments of U.S. courts, of civil liabilities solely based on the U.S. federal securities laws. The English courts will, however, treat any amount payable by us under U.S. judgment as a debt and new proceedings can be commenced in the English courts to enforce this debt against us. The following criteria must be satisfied for the English court to enforce the debt created by the U.S. judgment:

- the U.S. court having had jurisdiction over the original proceedings according to English conflicts of laws principles and rules of English private international law at the time when proceedings were initiated;
- the U.S. proceedings not having been brought in breach of a jurisdiction or arbitration clause except with the agreement of the defendant or the defendant's subsequent submission to the jurisdiction of the court;
- the U.S. judgment being final and conclusive on the merits in the sense of being final and unalterable in the court which pronounced it and being for a definite sum of money;
- the recognition or enforcement, as the case may be, of the U.S. judgment not contravening English public policy in a sufficiently significant way or contravening the Human Rights Act 1998 (or any subordinate legislation made thereunder, to the extent applicable);
- the U.S. judgment not being for a sum payable in respect of taxes, or other charges of a like nature, or in respect of a penalty or fine, or otherwise based on a U.S. law that an English court considers to be a penal or revenue law;
- the U.S. judgment not having been arrived at by doubling, trebling or otherwise multiplying a sum assessed as compensation for the loss or damages sustained, and not otherwise being a judgment contrary to section 5 of the Protection of Trading Interests Act 1980 or is a judgment based on measures designated by the Secretary of State under Section 1 of that Act;
- the U.S. judgment not having been obtained by fraud or in breach of English principles of natural justice;
- the U.S. judgment not being a judgment on a matter previously determined by an English court, or another court whose judgment is entitled to recognition (or enforcement as the case may be) in England, in proceedings involving the same parties that conflicts with an earlier judgment of such court;
- the party seeking enforcement (being a party who is not ordinarily resident in some part of the U.K. or resident in an EU Member State) providing security for costs, if ordered to do so by the English courts; and
- the English enforcement proceedings being commenced within the relevant limitation period.

If an English court gives judgment for the sum payable under a U.S. judgment, the English judgment will be enforceable by methods generally available for this purpose. These methods generally permit the English court discretion to prescribe the manner of enforcement. In addition, in any enforcement proceedings, the judgment debtor may raise any counterclaim that could have been brought if the action had been originally brought in England unless the subject of the counterclaim was in issue and denied in the U.S. proceedings.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

As of December 31, 2019, we occupied principal manufacturing facilities and business centers in the following locations:

Country	Location	Operating Segment		Approximate Square Footage (in thousands)	
		Performance Sensing	Sensing Solutions	Owned	Leased
Bulgaria	Botevgrad	X		169	—
Bulgaria	Plovdiv	X		125	—
Bulgaria	Sofia	X		—	117
China	Baoying ⁽¹⁾	X	X	296	385
China	Changzhou	X	X	335	236
Malaysia	Subang Jaya	X		138	—
Mexico	Aguascalientes	X	X	489	—
Mexico	Tijuana	X	X	—	287
Netherlands	Hengelo	X	X	—	94
United Kingdom	Antrim	X		—	126
United Kingdom	Carrickfergus	X		63	—
United Kingdom	Swindon ⁽²⁾	X		—	34
United States	Attleboro, MA ⁽³⁾	X	X	—	443
United States	Carpinteria, CA	X	X	—	50
United States	Thousand Oaks, CA	X	X	—	115
				1,615	1,887

⁽¹⁾ The owned portion of the properties in this location serves the Sensing Solutions segment only.

⁽²⁾ Our United Kingdom headquarters is located in this facility.

⁽³⁾ Our United States headquarters is located in this facility.

These facilities are primarily devoted to research, development, engineering, manufacturing, and assembly. In addition to these primary facilities, we occupy other manufacturing, warehousing, administrative, and sales facilities that we do not consider to be principal.

We consider our manufacturing facilities sufficient to meet our current operational requirements. An increase in demand for our products may require us to expand our production capacity, which could require us to identify and acquire or lease additional manufacturing facilities. We believe that suitable additional or substitute facilities will be available as required; however, if we are unable to acquire, integrate, and move into production the facilities, equipment, and personnel necessary to meet such an increase in demand, our customer relationships, results of operations, and/or financial condition may suffer materially. Leases covering our currently occupied principal leased facilities expire at varying dates within the next 17 years. We do not anticipate difficulty in retaining occupancy through lease renewals, month-to-month occupancy, or by replacing the leased facilities with equivalent facilities.

A significant portion of our owned properties and equipment is subject to a lien under our senior secured credit facilities. Refer to Note 14, "Debt," of our audited consolidated financial statements and accompanying notes thereto included elsewhere in this Annual Report on Form 10-K for additional information related to our senior secured credit facilities.

ITEM 3. LEGAL PROCEEDINGS

We are regularly involved in a number of claims and litigation matters in the ordinary course of business. Most of our litigation matters are third-party claims related to patent infringement allegations or for property damage allegedly caused by our products, but some involve allegations of personal injury or wrongful death. From time to time, we also are involved in disagreements with vendors and customers. Information on certain legal proceedings in which we are involved is included in Note 15, "Commitments and Contingencies," of our audited consolidated financial statements and accompanying notes thereto included elsewhere in this Annual Report on Form 10-K. Although it is not feasible to predict the outcome of these matters, based upon our experience and current information known to us, we do not expect the outcome of these matters, either individually or in the aggregate, to have a material adverse effect on our results of operations, financial condition, or cash flows.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

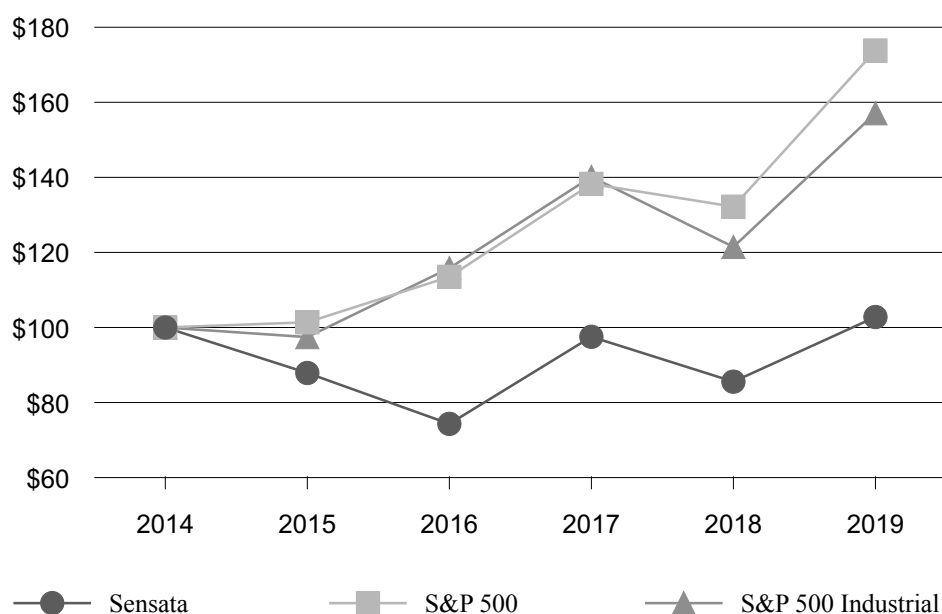
ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS, AND ISSUER PURCHASES OF EQUITY SECURITIES

Market Information

Our ordinary shares trade on the New York Stock Exchange under the symbol "ST."

Performance Graph

The following graph compares the total shareholder return of our ordinary shares since December 31, 2014 to the total shareholder return since that date of the Standard & Poor's ("S&P") 500 Stock Index and the S&P 500 Industrial Index. The graph assumes that the value of the investment in our ordinary shares and each index was \$100.00 on December 31, 2014.



Total Shareholder Return of \$100.00 Investment from December 31, 2014

	As of December 31,					
	2014	2015	2016	2017	2018	2019
Sensata	\$ 100.00	\$ 87.88	\$ 74.32	\$ 97.52	\$ 85.56	\$ 102.79
S&P 500	\$ 100.00	\$ 101.38	\$ 113.49	\$ 138.26	\$ 132.19	\$ 173.80
S&P 500 Industrial	\$ 100.00	\$ 97.44	\$ 115.81	\$ 140.14	\$ 121.47	\$ 157.09

The information in the graph and table above is not "soliciting material," is not deemed "filed" with the United States Securities and Exchange Commission, and is not to be incorporated by reference in any of our filings under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, whether made before or after the date of this Annual Report on Form 10-K (this "Report"), except to the extent that we specifically incorporate such information by reference. The total shareholder return shown on the graph represents past performance and should not be considered an indication of future price performance.

Stockholders

As of January 31, 2020, there were four holders of record of our ordinary shares, primarily Cede & Co. (which acts as nominee shareholder for the Depository Trust Company).

Dividends

We have never declared or paid any dividends on our ordinary shares, and we currently do not plan to declare any such dividends in the foreseeable future. Because we are a holding company, our ability to pay cash dividends on our ordinary shares may be limited by restrictions on our ability to obtain sufficient funds through dividends from our subsidiaries, including restrictions under the terms of the agreements governing our indebtedness. In that regard, our indirect, wholly-owned subsidiary, Sensata Technologies B.V. ("STBV"), is limited in its ability to pay dividends or otherwise make distributions to its immediate parent company and, ultimately, to us. Refer to Note 14, "Debt," of our audited consolidated financial statements and accompanying notes thereto included elsewhere in this Report for additional information related to our dividend restrictions.

In addition, under Dutch law, STBV and certain of our other subsidiaries that are Dutch private limited liability companies may only pay dividends or make other distributions to the extent that the shareholders' equity of such subsidiary exceeds the reserves required to be maintained by law or under its articles of association.

Under the laws of England and Wales, we are able to declare dividends, make distributions, or repurchase shares only out of distributable reserves on our statutory balance sheet. Distributable reserves are a company's accumulated, realized profits, so far as not previously utilized by distribution or capitalization, less its accumulated, realized losses, so far as not previously written off in a reduction or reorganization of capital duly made. Realized reserves are determined in accordance with generally accepted accounting principles at the time the relevant accounts are prepared. We are not permitted to make a distribution if, at the time, the amount of our net assets is less than the aggregate of our issued and paid-up share capital and undistributable reserves or to the extent that the distribution will reduce our net assets below such amount. Subject to these limitations, the payment of cash dividends in the future, if any, will depend upon such factors as earnings levels, capital requirements, contractual restrictions, our overall financial condition, and any other factors deemed relevant by our shareholders and Board of Directors.

Under current United Kingdom ("U.K.") tax legislation, any future dividends paid by us will not be subject to withholding or deduction on account of U.K. tax, irrespective of the tax residence or the individual circumstances of the recipient shareholder. Shareholders may need to review their facts and circumstances to determine their exposure to U.K. income taxes going forward on any potential dividend income received from us.

Issuer Purchases of Equity Securities

Period	Total Number of Shares Purchased (in shares)	Weighted-Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plan or Programs	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plan or Programs (in millions) ⁽²⁾
October 1 through October 31, 2019	695,385 ⁽¹⁾	\$ 49.44	694,684	\$ 387.3
November 1 through November 30, 2019	564,412	\$ 52.44	564,412	\$ 357.7
December 1 through December 31, 2019	389,251	\$ 51.93	389,251	\$ 337.5
Quarter total	<u>1,649,048</u>	\$ 51.06	<u>1,648,347</u>	\$ 337.5

⁽¹⁾ Upon the vesting of restricted securities, we collect and pay withholding tax for employees by withholding shares to cover such tax. The number of shares presented includes 701 shares withheld in this manner with an aggregate value of \$35 thousand, based on the closing price of our ordinary shares on the date of withholding. These withholdings took place outside of a publicly announced repurchase plan.

⁽²⁾ Other than shares withheld to cover required tax withholding upon the vesting of restricted securities, all purchases during the three months ended December 31, 2019 were conducted pursuant to a \$500.0 million share repurchase program authorized by our Board of Directors and publicly announced on July 30, 2019. This share repurchase program does not have an established expiration date.

ITEM 6. SELECTED FINANCIAL DATA

We have derived the selected consolidated statements of operations and other financial data for the years ended December 31, 2019, 2018, and 2017 and the selected consolidated balance sheet data as of December 31, 2019 and 2018 from our audited consolidated financial statements and accompanying notes thereto (our "Financial Statements") included elsewhere in this Annual Report on Form 10-K (this "Report"). We have derived the selected consolidated statements of operations and other financial data for the years ended December 31, 2016 and 2015 and the selected consolidated balance sheet data as of December 31, 2017, 2016, and 2015 from audited consolidated financial statements not included in this Report.

You should read the following information in conjunction with our Financial Statements and Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," included elsewhere in this Report. Our historical results are not necessarily indicative of the results to be expected in any future period.

	Sensata Technologies Holding plc (Consolidated) ^(a)				
	For the year ended December 31,				
<i>(In thousands, except per share data)</i>	2019	2018	2017	2016	2015
Statement of operations data: ^(b)					
Net revenue	\$ 3,450,631	\$ 3,521,627	\$ 3,306,733	\$ 3,202,288	\$ 2,974,961
Operating costs and expenses:					
Cost of revenue	2,267,433	2,266,863	2,138,898	2,084,159	1,976,845
Research and development	148,425	147,279	130,127	126,656	123,603
Selling, general and administrative	281,442	305,558	301,896	293,506	270,773
Amortization of intangible assets	142,886	139,326	161,050	201,498	186,632
Restructuring and other charges, net ^(c)	53,560	(47,818)	18,975	4,113	21,919
Total operating costs and expenses	2,893,746	2,811,208	2,750,946	2,709,932	2,579,772
Operating income	556,885	710,419	555,787	492,356	395,189
Interest expense, net	(158,554)	(153,679)	(159,761)	(165,818)	(137,626)
Other, net ^(d)	(7,908)	(30,365)	6,415	(5,093)	(51,934)
Income before taxes	390,423	526,375	402,441	321,445	205,629
Provision for/(benefit from) income taxes ^(e)	107,709	(72,620)	(5,916)	59,011	(142,067)
Net income	\$ 282,714	\$ 598,995	\$ 408,357	\$ 262,434	\$ 347,696
Basic net income per share	\$ 1.76	\$ 3.55	\$ 2.39	\$ 1.54	\$ 2.05
Diluted net income per share	\$ 1.75	\$ 3.53	\$ 2.37	\$ 1.53	\$ 2.03
Weighted-average ordinary shares outstanding—basic	160,946	168,570	171,165	170,709	169,977
Weighted-average ordinary shares outstanding—diluted	161,968	169,859	172,169	171,460	171,513
Other financial data: ^(b)					
Net cash provided by/(used in):					
Operating activities	\$ 619,562	\$ 620,563	\$ 557,646	\$ 521,525	\$ 533,131
Investing activities	\$ (208,777)	\$ (237,606)	\$ (140,722)	\$ (174,778)	\$ (1,166,369)
Financing activities	\$ (366,499)	\$ (406,213)	\$ (15,263)	\$ (337,582)	\$ 764,172
Additions to property, plant and equipment and capitalized software	\$ (161,259)	\$ (159,787)	\$ (144,584)	\$ (130,217)	\$ (177,196)

	As of December 31,				
<i>(In thousands)</i>	2019	2018	2017	2016	2015
Balance sheet data: ^(b)					
Cash and cash equivalents	\$ 774,119	\$ 729,833	\$ 753,089	\$ 351,428	\$ 342,263
Working capital ^(f)	\$ 1,330,906	\$ 1,277,211	\$ 1,218,796	\$ 758,189	\$ 412,748
Total assets	\$ 6,834,519	\$ 6,797,687	\$ 6,641,525	\$ 6,240,976	\$ 6,298,910
Total debt, net including finance lease and other financing obligations	\$ 3,255,613	\$ 3,264,941	\$ 3,270,269	\$ 3,273,594	\$ 3,600,991
Total shareholders' equity	\$ 2,573,755	\$ 2,608,434	\$ 2,345,626	\$ 1,942,007	\$ 1,668,576

- (a) On March 28, 2018, the cross-border merger of Sensata Technologies Holding N.V. ("Sensata N.V.") and Sensata Technologies Holding plc ("Sensata plc") was completed, with Sensata plc being the surviving entity (the "Merger"). On the date of the Merger, Sensata plc became the publicly-traded parent of the subsidiary companies that were previously controlled by Sensata N.V., with no changes made to the business being conducted by Sensata N.V. prior to the Merger. Due to the various legal aspects of the Merger, Sensata plc retains the historical data of Sensata N.V., and no recasting or adjustment is required as a result of the Merger.
- (b) We acquired certain assets and subsidiaries of Custom Sensors & Technologies Ltd. ("CST") in fiscal year 2015, and GIGAVAC, LLC ("GIGAVAC") in fiscal year 2018. Pro forma amounts are not shown. We sold the capital stock of Schrader Bridgeport International, Inc. and August France Holding Company SAS (collectively, the "Valves Business") in fiscal year 2018. Prior year amounts have not been recast. Refer to Note 17, "Acquisitions and Divestitures," of our Financial Statements for additional information related to the acquisition of GIGAVAC and the divestiture of the Valves Business.
- (c) Restructuring and other charges, net for the years ended December 31, 2019, 2018, 2017, 2016, and 2015 consisted of the following (refer also to Note 5, "Restructuring and Other Charges, Net," of our Financial Statements):

<i>(In thousands)</i>	For the year ended December 31,				
	2019	2018	2017	2016	2015
Severance costs, net ⁽ⁱ⁾	\$ 29,240	\$ 7,566	\$ 11,125	\$ 813	\$ 19,829
Facility and other exit costs ⁽ⁱⁱ⁾	808	877	7,850	3,300	798
Gain on sale of Valves Business ⁽ⁱⁱⁱ⁾	—	(64,423)	—	—	—
Other ^(iv)	23,512	8,162	—	—	1,292
Restructuring and other charges, net	\$ 53,560	\$ (47,818)	\$ 18,975	\$ 4,113	\$ 21,919

- (i) Includes termination benefits provided in connection with workforce reductions of manufacturing, engineering, and administrative positions. For the year ended December 31, 2019, these amounts also included \$12.7 million of benefits provided under a voluntary retirement incentive program offered to a limited number of eligible employees in the United States (the "U.S.") and \$6.5 million of termination benefits provided under a one-time benefit arrangement related to the shutdown and relocation of an operating site in Germany. For the year ended December 31, 2017, these amounts also included \$8.4 million of charges related to the closure of our facility in Minden, Germany, a site we obtained in connection with the acquisition of certain subsidiaries of CST. For the year ended December 31, 2015, these amounts also included \$7.6 million of severance charges incurred in order to integrate acquired businesses with ours and \$4.0 million of severance charges related to the closure of our Schrader Brazil manufacturing facility.
- (ii) For the year ended December 31, 2017, these amounts included \$3.2 million of costs related to the closure of our facility in Minden, Germany and \$3.1 million of costs associated with the consolidation of two other manufacturing sites in Europe. For the year ended December 31, 2016 these amounts primarily related to the relocation of manufacturing lines from our facility in the Dominican Republic to a manufacturing facility in Mexico.
- (iii) In the year ended December 31, 2018, we completed the sale of the Valves Business.
- (iv) In the year ended December 31, 2019, these amounts included a \$17.8 million loss related to the termination of a supply agreement in connection with the Metal Seal Precision, Ltd. ("Metal Seal") litigation and \$6.1 million of expense related to the deferred compensation arrangement that we entered into in connection with the acquisition of GIGAVAC. Refer to Note 15, "Commitments and Contingencies," of our Financial Statements for additional information related to the supply agreement termination and litigation with Metal Seal. In the year ended December 31, 2018, we incurred \$5.9 million of incremental direct costs in order to transact the sale of the Valves Business and \$2.2 million of expense related to the deferred compensation arrangement that we entered into connection with the acquisition of GIGAVAC.

(d) Other, net for the years ended December 31, 2019, 2018, 2017, 2016, and 2015 consisted of the following:

<i>(In thousands)</i>	For the year ended December 31,				
	2019	2018	2017	2016	2015
(Loss)/gain related to foreign currency exchange rates ⁽ⁱ⁾	\$ (4,577)	\$ (16,835)	\$ 2,423	\$ (12,471)	\$ (6,007)
Gain/(loss) on commodity forward contracts	4,888	(8,481)	9,989	7,399	(18,468)
Loss on debt financing	(4,364)	(2,350)	(2,670)	—	(25,538)
Net periodic benefit cost, excluding service cost	(3,186)	(3,585)	(3,402)	(192)	(1,605)
Other	(669)	886	75	171	(316)
Other, net	<u>\$ (7,908)</u>	<u>\$ (30,365)</u>	<u>\$ 6,415</u>	<u>\$ (5,093)</u>	<u>\$ (51,934)</u>

(i) Includes net losses and gains on foreign currency remeasurement and foreign currency forward contracts. Refer to Note 6, "Other, Net," of our Financial Statements for additional information.

- (e) For the year ended December 31, 2018, this amount included an income tax benefit of \$122.1 million related to the realization of U.S. deferred tax assets previously offset by a valuation allowance. For the year ended December 31, 2017, this amount included an income tax benefit of \$73.7 million related to the enactment of U.S. tax legislation in the fourth quarter of 2017. Refer to Note 7, "Income Taxes," of our Financial Statements for additional information. For the year ended December 31, 2015, this amount included an income tax benefit of \$180.0 million, primarily related to the release of a portion of our U.S. valuation allowance in connection with the acquisition of CST.
- (f) We define working capital as current assets less current liabilities.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis is intended to help the reader understand our business, financial condition, results of operations, and liquidity and capital resources. You should read the following discussion in conjunction with Item 1, "Business," Item 6, "Selected Financial Data," and our audited consolidated financial statements and accompanying notes thereto (our "Financial Statements") included elsewhere in this Annual Report on Form 10-K (this "Report").

The statements in this discussion regarding industry outlook, our expectations regarding our future performance, liquidity and capital resources, and other non-historical statements are forward-looking statements. These forward-looking statements are subject to numerous risks and uncertainties including, but not limited to, the risks and uncertainties described in Item 1A, "Risk Factors," included elsewhere in this Report. Our actual results may differ materially from those contained in or implied by any forward-looking statements.

Overview

Sensata Technologies Holding plc ("Sensata plc"), the successor issuer to Sensata Technologies Holding N.V. ("Sensata N.V.") and its wholly-owned subsidiaries, collectively referred to as the "Company," "Sensata," "we," "our," and "us," is a global industrial technology company that develops, manufactures, and sells sensors, sensor-based solutions, controls, and other products used in mission-critical systems and applications that create valuable business insights for our customers and for end users.

Our sensors are devices that translate a physical parameter, such as pressure, temperature, or position, into electronic signals that our customers' products and solutions can act upon. These actionable insights lead to products that are safer, cleaner and more efficient, more electrified, and increasingly more connected. Our sensor-based solutions can be comprised of various sensors, controllers, receivers, and software, which provide comprehensive solutions to critical problems. Our controls are devices embedded within systems to protect them from excessive heat or current.

Our sensors, sensor-based solutions, and controls are included in mission-critical solutions that play a key role in the four key megatrends that are shaping our markets as discussed in further detail in Item 1, "Business," included elsewhere in this Report. Each of these trends is expected to significantly transform our industries and many of our customers businesses. These megatrends are also creating greater secular demand for our products, which enables us to outgrow end-market volume production in many of the markets we serve, a defining characteristic of our company. The most relevant megatrends in the short term include those which result from mandates to make products cleaner and more efficient, as well as the move towards electrification in the automotive, industrial, and heavy vehicle and off-road ("HVOR") industries.

We believe regulatory requirements for safer vehicles, higher fuel efficiency, and lower emissions, such as the National Highway Traffic Safety Administration's Corporate Average Fuel Economy requirements in the United States (the "U.S."), "Euro 6d" requirements in Europe, "China National 6" requirements in China, and "Bharat Stage VI" requirements in India, as well as customer demand for operator productivity and convenience, drive the need for advancements in powertrain management, efficiency, safety, and operator controls. These advancements lead to sensor growth rates that we expect to exceed underlying demand in many of our key end markets, which we expect will continue to offer us significant growth opportunities.

The technology-driven, highly-customized, and integrated nature of our products requires customers to invest heavily in certification and qualification to ensure proper functioning of the systems in which our products are embedded. We believe the capital commitment and time required for this process significantly increases the switching costs for our customers once a particular sensor has been designed and installed in a system. As a result, our sensors are rarely substituted during a product lifecycle, which in the case of the automotive market typically lasts five to seven years. We focus on new applications that will help us secure new business, drive long-term growth, and provide an opportunity to define a leading application technology in collaboration with our customers.

Our strategies of leveraging core technology platforms and focusing on high-volume applications enable us to provide our customers with highly-customized products at a relatively low cost, as compared to the costs of the systems in which our products are embedded. We have achieved our current cost position through a continuous process of migration and transformation to best-cost manufacturing locations, global best-cost sourcing, product design improvements, and ongoing productivity-enhancing initiatives.

In August 2018 we completed the divestiture of the capital stock of Schrader Bridgeport International, Inc. and August France Holding Company SAS (collectively, the "Valves Business") to Pacific Industrial Co. Ltd. In October 2018 we acquired GIGAVAC, LLC ("GIGAVAC"), a leading producer of high voltage contactors and fuses that are mission-critical components

for electric vehicles and equipment. Refer to Note 17, "Acquisitions and Divestitures," of our Financial Statements for additional information related to these transactions.

Selected Segment Information

We operate in, and report financial information for, the following two segments: Performance Sensing and Sensing Solutions.

Set forth below is selected information for each of these segments for the periods presented. Amounts and percentages in the tables below have been calculated based on unrounded numbers. Accordingly, certain amounts may not appear to recalculate due to the effect of rounding.

The following table presents net revenue by segment for the identified periods:

<i>(Dollars in millions)</i>	For the year ended December 31,					
	2019		2018		2017	
	Amount	Percent of Total	Amount	Percent of Total	Amount	Percent of Total
Net revenue:						
Performance Sensing	\$ 2,546.0	73.8%	\$ 2,627.7	74.6%	\$ 2,460.6	74.4%
Sensing Solutions	904.6	26.2	894.0	25.4	846.1	25.6
Total net revenue	<u>\$ 3,450.6</u>	<u>100.0%</u>	<u>\$ 3,521.6</u>	<u>100.0%</u>	<u>\$ 3,306.7</u>	<u>100.0%</u>

The following table presents segment operating income in U.S. dollars ("USD") and as a percentage of segment net revenue for the identified periods:

<i>(Dollars in millions)</i>	For the year ended December 31,					
	2019		2018		2017	
	Amount	Percent of Segment Net Revenue	Amount	Percent of Segment Net Revenue	Amount	Percent of Segment Net Revenue
Segment operating income:						
Performance Sensing	\$ 648.7	25.5%	\$ 712.7	27.1%	\$ 664.2	27.0%
Sensing Solutions	291.3	32.2%	293.0	32.8%	277.5	32.8%
Total segment operating income	<u>\$ 940.0</u>		<u>\$ 1,005.7</u>		<u>\$ 941.6</u>	

For a reconciliation of total segment operating income to consolidated operating income, refer to Note 20, "Segment Reporting," of our Financial Statements.

Selected Geographic Information

We are a global business with significant operations around the world and a diverse revenue mix by geography, customer, and end market. The following table presents, as a percentage of total, the geographic location of property, plant and equipment ("PP&E"), net as of December 31, 2019 and 2018 and the geographic location of net revenue generated for the years ended December 31, 2019, 2018, and 2017:

	PP&E, net as of December 31,		Net revenue for the year ended December 31,		
	2019	2018	2019	2018	2017
Americas	34.8%	37.2%	42.3%	42.0%	41.3%
Europe	23.2%	23.5%	28.1%	29.2%	31.4%
Asia and rest of world	42.0%	39.3%	29.6%	28.8%	27.3%

Refer to Note 20, "Segment Reporting," of our Financial Statements for additional information related to our PP&E, net by selected geographic area as of December 31, 2019 and 2018 and net revenue by selected geographic area for the years ended December 31, 2019, 2018, and 2017.

Net Revenue by End Market

Our net revenue for the years ended December 31, 2019, 2018, and 2017 was derived from the following end markets:

(Percentage of total)	For the year ended December 31,		
	2019	2018	2017
Automotive	58.8%	60.4%	61.7%
HVOR	16.2%	15.6%	14.3%
Industrial	10.2%	9.6%	9.4%
Appliance and heating, ventilation and air conditioning ("HVAC")	5.8%	5.9%	6.3%
Aerospace	5.1%	4.7%	4.6%
Other	3.9%	3.8%	3.7%

We are a significant supplier to multiple original equipment manufacturers within many of these end markets, thereby reducing customer concentration risk.

Factors Affecting Our Operating Results

The following discussion describes components of the consolidated statements of operations as well as factors that impact those components. Refer to Note 2, "Significant Accounting Policies," of our Financial Statements, and *Critical Accounting Policies and Estimates* included elsewhere in this Management's Discussion and Analysis of Financial Condition and Results of Operations for additional information on the accounting policies and estimates made related to these components.

Net revenue

We generate revenue primarily from the sale of tangible products. Because we derive a significant portion of our revenue from sales into the automotive end market, conditions in the automotive industry can have a significant impact on the amount of revenue that we recognize. However, outside of the automotive industry, we sell our products to end-users in a wide range of industries, end markets, and geographic regions. As a result, the drivers of demand for these products vary considerably and are influenced by the conditions in these industries, end markets, or geographic regions.

Our overall net revenue is impacted by various factors, which we characterize as either "organic" or "inorganic." Organic factors are reflective of our ongoing operations. Inorganic factors are either not reflective of our historical business or related to situations for which we have little to no control (e.g. changes in foreign currency exchange rates).

Our net revenue may also be impacted by the following organic factors:

- fluctuations in overall economic activity within the geographic regions in which we operate;
- underlying growth in one or more of our core end markets, either worldwide or in particular geographies in which we operate;
- the number of sensors, sensor-based solutions, and/or controls used within existing applications, or the development of new applications requiring sensors, sensor-based solutions, and/or controls, due to regulations or other factors;
- the "mix" of products sold, including the proportion of new or upgraded products and their pricing relative to existing products;
- changes in product sales prices (including quantity discounts, rebates, and cash discounts for prompt payment);
- changes in the level of competition faced by our products, including the launch of new products by competitors; and
- our ability to successfully develop, launch, and sell new products and applications.

Our net revenue may be impacted by the following inorganic factors:

- fluctuations in foreign currency exchange rates; and
- acquisitions and divestitures.

While the factors described above may impact net revenue in each of our operating segments, the impact of these factors on our operating segments can differ. For more information about revenue risks relating to our business, refer to Item 1A, "Risk Factors," included elsewhere in this Report.

Cost of revenue

We manufacture the majority of our products and subcontract only a limited number of products to third parties. As such, our cost of revenue consists principally of the following:

- *Production Materials Costs.* We purchase much of the materials used in production on a global best-cost basis, but we are still impacted by global and local market conditions. A portion of our production materials contains certain commodities, resins, and rare earth metals, and the cost of these materials may vary with underlying pricing. However, we enter into forward contracts to economically hedge a portion of our exposure to the potential change in prices associated with certain of these commodities. The terms of these contracts fix the price at a future date for various notional amounts associated with these commodities. Gains and losses recognized on these derivatives are recorded in other, net and are not included in cost of revenue. Refer to Note 6, "Other, Net" of our Financial Statements for additional information.
- *Employee Costs.* Employee costs include wages and benefits for employees involved in our manufacturing operations and certain engineering activities, including variable incentive compensation. A significant portion of these costs can fluctuate on an aggregate basis in direct correlation with changes in production volumes. As a percentage of net revenue, these costs may decline as a result of economies of scale associated with higher production volumes, and conversely, may increase with lower production volumes. These costs also fluctuate based on local market conditions. We rely on contract workers for direct labor in certain geographies. As of December 31, 2019, we had approximately 1,825 direct labor contract workers on a worldwide basis.
- *Sustaining Engineering Activity Costs.* These costs relate to modifications of existing products for use by new and existing customers in familiar applications.
- *Other.* Our remaining cost of revenue primarily consists of:
 - gains and losses on certain foreign currency forward contracts that are designated as cash flow hedges;
 - material yields;
 - costs to import raw materials, such as tariffs;
 - depreciation of fixed assets used in the manufacturing process;
 - freight costs;
 - warehousing expenses;
 - maintenance and repair expenses;
 - operating supplies; and
 - other general manufacturing expenses, such as expenses for energy consumption and operating lease expense.

Changes in cost of revenue as a percentage of net revenue have historically been impacted by a number of factors, including:

- changes in the price of raw materials, including the impact of changes in costs to import such raw materials, such as tariffs;
- price reductions provided to our customers;
- implementation of cost improvement measures aimed at increasing productivity, including reduction of fixed production costs, refinements in inventory management, design and process driven changes, and the coordination of procurement within each subsidiary and at the business level;
- changes in production volumes – production costs are capitalized in inventory based on normal production volumes, as revenue increases, the fixed portion of these costs does not;

- transfer of production to our lower-cost manufacturing facilities;
- product lifecycles, as we typically incur higher cost of revenue associated with excess manufacturing capacity during the initial stages of product launches and during the phase-out of discontinued products;
- the increase in the carrying value of inventory that is adjusted to fair value as a result of the application of purchase accounting associated with acquisitions;
- changes in depreciation expense, including those arising from the adjustment of PP&E to fair value associated with acquisitions;
- fluctuations in foreign currency exchange rates;
- changes in product mix;
- changes in logistics costs; and
- acquisitions and divestitures – acquired and divested businesses may generate higher or lower cost of revenue as a percentage of net revenue than our core business.

Research and development expense

We develop products that address increasingly complex engineering and operating performance requirements. Our research and development ("R&D") efforts are directly related to timely development of new and enhanced products that are central to our business strategy. We continuously develop our technologies to meet an evolving set of customer requirements and new product introductions. In addition, we constantly consider new technologies where we may have expertise for potential investment or acquisition.

An increasing portion of our R&D activities are being directed towards technologies and megatrends that we believe have the potential for significant future growth, but relate to products that are not currently within our core business. Expenses related to these activities are less likely to result in increased revenue than our more mainstream development activities.

R&D expense consists of costs related to product design, development, and process engineering. Costs related to modifications of existing products for use by new and existing customers in familiar applications are presented in cost of revenue and are not included in R&D expense. The level of R&D expense in any period is related to the number of products in development, the stage of the development process, the complexity of the underlying technology, the potential scale of the product upon successful commercialization, and the level of our exploratory research.

Selling, general and administrative expense

Selling, general and administrative ("SG&A") expense consists of all expenditures incurred in connection with the sale and marketing of our products, as well as administrative overhead costs, including:

- salary and benefit costs for sales and marketing personnel and administrative staff, including cash and share-based incentive compensation expense;
- charges related to the use and maintenance of administrative offices, including depreciation expense;
- other administrative costs, including expenses relating to information systems, human resources, and legal and accounting services;
- other selling and marketing related costs, such as expenses incurred in connection with travel and communications; and
- transaction costs associated with acquisitions.

Changes in SG&A expense as a percentage of net revenue have historically been impacted by a number of factors, including:

- changes in sales volume, as higher volumes enable us to spread the fixed portion of our selling, marketing, and administrative expense over higher revenue (e.g. expenses relating to our sales and marketing personnel can fluctuate due to prolonged trends in sales volume, while expenses relating to administrative personnel generally do not increase or decrease directly with changes in sales volume);

- price reductions provided to our customers;
- changes in the mix of products we sell, as some products may require more customer support and sales effort than others;
- new product launches in existing and new markets, as these launches typically involve a more intense sales and marketing activity before they are integrated into customer applications and systems;
- changes in our customer base, as new customers may require different levels of sales and marketing attention;
- fluctuations in foreign currency exchange rates; and
- acquisitions and divestitures - acquired and divested businesses may require different levels of SG&A expense as a percentage of net revenue than our core business.

Depreciation expense

Depreciation expense includes depreciation of PP&E, which includes assets held under finance lease, and amortization of leasehold improvements. Depreciation expense is included in either cost of revenue or SG&A expense depending on the use of the asset as a manufacturing or administrative asset. Depreciation expense will vary according to the age of existing PP&E and the level of capital expenditures.

Amortization expense

We have recognized a significant amount of definite-lived intangible assets. Acquisition-related definite-lived intangible assets are amortized on an economic-benefit basis according to the useful lives of the assets, or on a straight-line basis if a pattern of economic benefits cannot be reliably determined. The amount of amortization expense related to definite-lived intangible assets depends on the amount and timing of definite-lived intangible assets acquired and where previously acquired definite-lived intangible assets are in their estimated life-cycle. In general, the economic benefit of a definite-lived intangible asset is concentrated towards the beginning of its useful life.

Restructuring and other charges, net

Restructuring and other charges, net consists of severance, outplacement, other separation benefits, and facility and other exit costs. These charges may be incurred as part of an announced restructuring plan, or may be individual charges recognized related to acquired businesses or the termination of a limited number of employees that do not represent the initiation of a larger restructuring plan.

Restructuring and other charges, net also includes the gain, net of transaction costs, from the sale of businesses, and other operating income or expense that is not presented elsewhere in operating income, including, for example, a loss related to the termination of a supply agreement in connection with the Metal Seal Precision, Ltd. ("Metal Seal") litigation. Refer to Note 15, "Commitments and Contingencies," of our Financial Statements for additional information.

Amounts recognized in restructuring and other charges, net will vary according to the extent of our restructuring programs and other exit activities as well as the existence and frequency of divested businesses and any gains or losses resulting therefrom.

Interest expense, net

As of December 31, 2019 and 2018, we had gross outstanding indebtedness of \$3,291.8 million and \$3,303.3 million, respectively. This indebtedness consists of a secured credit facility and senior unsecured notes. Refer to Note 14, "Debt," of our Financial Statements for additional information.

The credit agreement governing our secured credit facility (as amended, the "Credit Agreement") provides for senior secured credit facilities (the "Senior Secured Credit Facilities") consisting of a term loan facility (the "Term Loan"), a \$420.0 million revolving credit facility (the "Revolving Credit Facility"), and incremental availability (the "Accordion") under which additional secured credit facilities could be issued under certain circumstances.

Our respective senior unsecured notes (the "Senior Notes") accrue interest at fixed rates. However, the Term Loan and the Revolving Credit Facility accrue interest at variable interest rates, which drives some of the variability in interest expense, net. Refer to Item 7A, "Quantitative and Qualitative Disclosures About Market Risk," included elsewhere in this Report for more information regarding our exposure to potential changes in variable interest rates.

Interest income, which is netted against interest expense on the consolidated statements of operations, relates to interest earned on our cash and cash equivalent balances, and varies according to the balances in, and the interest rates provided by, these investments.

Other, net

Other, net primarily includes gains and losses associated with the remeasurement of non-USD denominated monetary assets and liabilities into USD, changes in the fair value of derivative financial instruments not designated as cash flow hedges, debt financing transactions, and net periodic benefit cost, excluding service cost.

Amounts recognized in other, net vary according to changes in foreign currency exchange rates, changes in the forward prices for the foreign currencies and commodities that we hedge, the number and magnitude of debt financing transactions we undertake, and the change in funded status of our pension and other post-retirement benefit plans.

Refer to Note 6, "Other, Net," of our Financial Statements for additional information related to the components of other, net. Refer to Item 7A, "Quantitative and Qualitative Disclosures About Market Risk," included elsewhere in this Report for additional information related to our exposure to potential changes in foreign currency exchange rates and commodity prices. Refer to Note 14, "Debt," of our Financial Statements for additional information related to our debt financing transactions.

Provision for income taxes

We are subject to income tax in the various jurisdictions in which we operate. The provision for income taxes consists of:

- current tax expense, which relates primarily to our profitable operations in non-U.S. tax jurisdictions and withholding taxes related to interest, royalties, and repatriation of foreign earnings; and
- deferred tax expense (or benefit), which represents adjustments in book-to-tax basis differences primarily related to the step-up in fair value of fixed and intangible assets, including goodwill, acquired in connection with business combination transactions, the utilization of net operating losses, changes in tax rates, and changes in our assessment of the realizability of our deferred tax assets.

Our cash taxes are favorably impacted by the amortization of definite-lived intangible assets and other tax benefits derived from our operating and capital structure, including tax incentives in both the United Kingdom (the "U.K.") and China as well as favorable tax status in Mexico. In addition, our tax structure takes advantage of participation exemption regimes that permit the receipt of intercompany dividends without incurring taxable income in those jurisdictions.

While the extent of our future tax liability is uncertain, the impact of purchase accounting for past and future acquisitions, changes to debt and equity capitalization of our subsidiaries, and the realignment of the functions performed and risks assumed by our various subsidiaries are among the factors that will determine the future book and taxable income of each of our subsidiaries and of Sensata as a whole.

Our effective tax rate will generally not equal the U.S. statutory tax rate due to various factors, the most significant of which are described below. As these factors fluctuate from year to year, our effective tax rate will change. The factors include, but are not limited to, the following:

- establishing or releasing a portion of the valuation allowance related to our gross deferred tax assets;
- we operate in locations outside the U.S., including Bermuda, Bulgaria, China, Malaysia, the Netherlands, South Korea, and the U.K., that historically have had statutory tax rates different than the U.S. statutory tax rate. This can result in a foreign tax rate differential that may reflect a tax benefit or detriment. This foreign tax rate differential can change from year to year based upon the jurisdictional mix of earnings and changes in current and future enacted tax rates, tax holidays, and favorable tax regimes available to certain of our foreign subsidiaries;
- changes in tax laws, including emerging Organization for Economic Co-operation and Development guidelines and European Commission challenges to sovereign European Union member states;
- losses incurred in certain jurisdictions, which cannot be currently benefited, as it is not more likely than not that the associated deferred tax asset will be realized in the foreseeable future;
- foreign currency exchange gains and losses;

- as a result of income tax audit settlements, final assessments, or lapse of applicable statutes of limitation, we may recognize an income tax expense or benefit including the reversal of previously accrued interest and penalties; and
- in certain jurisdictions, we recognize withholding and other taxes on intercompany payments, including dividends.

Seasonality

Refer to Item 1, "Business," included elsewhere in this Report for discussion of our assessment of seasonality related to our business.

Inflation

We do not believe that inflation has had a material effect on our financial condition or results of operations in recent years.

Legal Proceedings

Refer to Item 3, "Legal Proceedings," included elsewhere in this Report for discussion of legal proceedings related to our business.

Results of Operations

Our discussion and analysis of results of operations are based upon our Financial Statements. The Financial Statements have been prepared in accordance with U.S. generally accepted accounting principles ("GAAP"). The preparation of the Financial Statements requires us to make estimates and judgments that affect the amounts reported therein. We base our estimates on historical experience and assumptions believed to be reasonable under the circumstances, and we re-evaluate such estimates on an ongoing basis. Actual results could differ from our estimates under different assumptions or conditions. Our significant accounting policies and estimates are more fully described in Note 2, "Significant Accounting Policies," of our Financial Statements, and *Critical Accounting Policies and Estimates* included elsewhere in this Management's Discussion and Analysis of Financial Condition and Results of Operations.

The table below presents our historical results of operations in millions of dollars and as a percentage of net revenue. We have derived these results of operations from our Financial Statements. Amounts and percentages in the table below have been calculated based on unrounded numbers. Accordingly, certain amounts may not appear to recalculate due to the effect of rounding.

	For the year ended December 31,					
	2019		2018		2017	
	Amount	Percent of Net Revenue	Amount	Percent of Net Revenue	Amount	Percent of Net Revenue
Net revenue:						
Performance Sensing	\$ 2,546.0	73.8%	\$ 2,627.7	74.6%	\$ 2,460.6	74.4%
Sensing Solutions	904.6	26.2	894.0	25.4	846.1	25.6
Total net revenue	3,450.6	100.0%	3,521.6	100.0%	3,306.7	100.0%
Operating costs and expenses	2,893.7	83.9	2,811.2	79.8	2,750.9	83.2
Operating income	556.9	16.1	710.4	20.2	555.8	16.8
Interest expense, net	(158.6)	(4.6)	(153.7)	(4.4)	(159.8)	(4.8)
Other, net	(7.9)	(0.2)	(30.4)	(0.9)	6.4	0.2
Income before taxes	390.4	11.3	526.4	14.9	402.4	12.2
Provision for/(benefit from) income taxes	107.7	3.1	(72.6)	(2.1)	(5.9)	(0.2)
Net income	\$ 282.7	8.2%	\$ 599.0	17.0%	\$ 408.4	12.3%

Net revenue

The following table presents a reconciliation of organic revenue growth (or decline), a financial measure not presented in accordance with U.S. GAAP, to reported net revenue growth (or decline), a financial measure determined in accordance with U.S. GAAP, for fiscal years 2019 and 2018. Refer to the section entitled *Non-GAAP Financial Measures* below for additional information related to our use of organic revenue growth (or decline).

	2019 compared to 2018			2018 compared to 2017		
	Total	Performance Sensing	Sensing Solutions	Total	Performance Sensing	Sensing Solutions
Reported net revenue (decline)/growth	(2.0)%	(3.1)%	1.2 %	6.5%	6.8%	5.7%
Percent impact of:						
Acquisitions and divestitures, net ⁽¹⁾	(0.2)	(1.9)	4.6	(0.8)	(1.3)	0.7
Foreign currency remeasurement ⁽²⁾	(0.7)	(0.7)	(0.7)	1.3	1.5	0.8
Organic revenue (decline)/growth	(1.1)%	(0.5)%	(2.7)%	6.0%	6.6%	4.2%

(1) Represents the percentage change in net revenue attributed to the effect of acquisitions and divestitures for the 12 months immediately following the respective transaction dates. The percentage amounts presented relate to the divestiture of the Valves Business in August 2018 and the acquisition of GIGAVAC in October 2018, each of which is discussed in Note 17, "Acquisitions and Divestitures," of our Financial Statements.

(2) Represents the percentage change in net revenue between the comparative periods attributed to differences in exchange rates used to remeasure foreign denominated revenue transactions into USD, which is the functional currency of the Company and each of its subsidiaries. The USD to Chinese Renminbi exchange rate was a significant driver for both periods presented. The Euro to USD exchange rate was also a significant driver for fiscal year 2018 compared to fiscal year 2017.

We are currently confronting numerous operational limitations due to the outbreak of the coronavirus in China in early 2020. We have two manufacturing locations and one business center located in Baoying, Changzhou and Shanghai, China, respectively, that have been, and continue to be, impacted due to national and regional Chinese government declarations requiring closures, quarantines and travel restrictions. Numerous variables and uncertainties related to this outbreak limit our ability to calculate the overall impact on our business; however, we expect that the impact on our revenue in both Performance Sensing and Sensing Solutions will be material in the first quarter of fiscal year 2020. Although we are taking numerous actions to address the situation, we currently do not expect this region, market and the impact to be fully recovered by the end of 2020.

Performance Sensing

For fiscal year 2019, Performance Sensing net revenue declined 3.1%, or 0.5% on an organic basis. Our automotive business, which reported net revenue decline of 4.3%, or 0.9% on an organic basis, outperformed the automotive end market, which declined 5.6%. We refer to this outperformance, which relates to content growth partially offset by pricing, as "outgrowth." The outgrowth of the automotive market was largely due to content growth in all of our major end markets, most notably China. Our HVOR business, which reported net revenue growth of 1.6%, or 0.9% on an organic basis, outperformed the HVOR end market, which declined 5.5%. This outgrowth was primarily due to content growth in China as well as in the agriculture and on-road truck markets. In addition, price reductions of 1.6%, primarily to automotive customers, contributed to the Performance Sensing organic revenue decline. We expect sustained content growth over the next few years in both our automotive and HVOR businesses as we continue to design and develop solutions for existing and new customers in the clean & efficient and electrification megatrends.

For fiscal year 2018, Performance Sensing net revenue increased 6.8%, or 6.6% on an organic basis. Organic revenue growth was primarily attributable to content growth in our automotive business, principally in China and North America, as well as a combination of market and content growth in our HVOR business, partially offset by price reductions of 1.9%, primarily related to automotive customers. Our HVOR business benefited from production growth in the construction, North American on-road truck, and agriculture markets, and we generated content growth from sales to on-road truck customers, particularly in China and Europe, as well as off-road customers in the agriculture industry.

Sensing Solutions

For fiscal year 2019, Sensing Solutions net revenue increased 1.2% but declined 2.7% on an organic basis. This organic revenue decline was primarily attributable to weakness in the industrial markets we serve partially offset by content growth in both our industrial and aerospace businesses. This market weakness is consistent with trends in certain indicators of demand,

such as global manufacturing Purchasing Managers' Index ("PMI") data, which is signaling continued demand contraction, consistent with slowing customer production and reductions in inventory. Our industrial growth in China is particularly weak as exports out of China have further slowed as a result of tariffs and global trade actions.

For fiscal year 2018, Sensing Solutions net revenue increased 5.7%, or 4.2% on an organic basis. Organic revenue growth was primarily due to growth in our industrial sensing, aerospace, and semiconductor businesses.

Operating costs and expenses

Operating costs and expenses for the years ended December 31, 2019, 2018, and 2017 are presented in the following table (amounts and percentages have been calculated based on unrounded numbers, accordingly, certain amounts may not appear to recalculate due to the effect of rounding):

	For the year ended December 31,					
	2019		2018		2017	
	Amount	Percent of Net Revenue	Amount	Percent of Net Revenue	Amount	Percent of Net Revenue
Operating costs and expenses:						
Cost of revenue	\$ 2,267.4	65.7%	\$ 2,266.9	64.4%	\$ 2,138.9	64.7%
Research and development	148.4	4.3	147.3	4.2	130.1	3.9
Selling, general and administrative	281.4	8.2	305.6	8.7	301.9	9.1
Amortization of intangible assets	142.9	4.1	139.3	4.0	161.1	4.9
Restructuring and other charges, net	53.6	1.6	(47.8)	(1.4)	19.0	0.6
Total operating costs and expenses	<u>\$ 2,893.7</u>	<u>83.9%</u>	<u>\$ 2,811.2</u>	<u>79.8%</u>	<u>\$ 2,750.9</u>	<u>83.2%</u>

Cost of revenue

For fiscal year 2019, cost of revenue as a percentage of net revenue increased from fiscal year 2018, primarily as a result of organic revenue decline, negative mix due to new product launches, the impact of acquisitions and divestitures, and increased tariff costs, partially offset by the positive impact of changes in foreign currency exchange rates and lower variable compensation.

For fiscal year 2018, cost of revenue as a percentage of net revenue decreased from fiscal year 2017, primarily due to the favorable impact of foreign currency exchange rates, partially offset by higher trade tariffs.

Research and development expense

For fiscal year 2019, R&D expense was relatively consistent with the prior period as increased design and development effort to support new design wins and fund development activities to intersect emerging megatrends shaping our end markets was offset by the positive impact of changes in foreign currency exchange rates, primarily the Euro and British Pound Sterling.

For fiscal year 2018, R&D expense increased due to higher spend, particularly related to the emerging megatrends, and the unfavorable impact of foreign currency exchange rates, primarily the Euro.

Selling, general and administrative expense

For fiscal year 2019, SG&A expense declined from fiscal year 2018, primarily due to lower variable compensation, lower selling costs, the divestiture of the Valves Business, the favorable impact of foreign currency exchange rates (primarily the Euro, Chinese Renminbi, and British Pound Sterling), and lower costs related to our redomicile in the prior year, partially offset by additional SG&A expense related to GIGAVAC.

For fiscal year 2018, SG&A expense increased from fiscal year 2017, primarily due to the unfavorable impact of foreign currency exchange rates (primarily the Euro), higher share-based compensation expense, transaction costs related to the acquisition of GIGAVAC, and higher selling costs, partially offset by lower variable compensation, lower costs related to the cross-border merger between Sensata N.V. and Sensata plc (the "Merger"), lower integration costs, synergies from the integration of acquired businesses, and productivity improvements.

Amortization of intangible assets

For fiscal year 2019, amortization expense increased from fiscal year 2018, due to the intangible assets acquired with GIGAVAC, partially offset by the effect of the economic benefit method of amortization.

For fiscal year 2018, amortization expense decreased from fiscal year 2017, due to the effect of the economic-benefit method of amortization and the impact of certain definite-lived intangible assets reaching the end of their useful lives.

We expect amortization expense to be approximately \$127.8 million in fiscal year 2020. Refer to Note 11, "Goodwill and Other Intangible Assets, Net," of our Financial Statements for additional information regarding definite-lived intangible assets and the related amortization.

Restructuring and other charges, net

Restructuring and other charges, net for the years ended December 31, 2019, 2018, and 2017 consisted of the following (amounts have been calculated based on unrounded numbers, accordingly, certain amounts may not appear to recalculate due to the effect of rounding):

<i>(In millions)</i>	For the year ended December 31,		
	2019	2018	2017
Severance costs, net ⁽¹⁾	\$ 29.2	\$ 7.6	\$ 11.1
Facility and other exit costs ⁽²⁾	0.8	0.9	7.9
Gain on sale of Valves Business ⁽³⁾⁽⁵⁾	—	(64.4)	—
Other ⁽⁴⁾⁽⁵⁾	23.5	8.2	—
Restructuring and other charges, net	<u>\$ 53.6</u>	<u>\$ (47.8)</u>	<u>\$ 19.0</u>

⁽¹⁾ Severance costs, net for the year ended December 31, 2019 included termination benefits provided in connection with workforce reductions of manufacturing, engineering, and administrative positions including the elimination of certain positions related to site consolidations, approximately \$12.7 million of benefits provided under a voluntary retirement incentive program offered to a limited number of eligible employees in the U.S, and \$6.5 million of termination benefits provided under a one-time benefit arrangement related to the shutdown and relocation of an operating site in Germany. Severance costs, net for the year ended December 31, 2018 were primarily related to termination benefits provided in connection with limited workforce reductions of manufacturing, engineering, and administrative positions including the elimination of certain positions related to site consolidations. Severance costs, net recognized during the year ended December 31, 2017 included \$8.4 million of charges related to the closure of our facility in Minden, Germany, a site we obtained in connection with the acquisition of certain subsidiaries of Custom Sensors & Technologies Ltd.

⁽²⁾ Facility and other exit costs for the year ended December 31, 2017 included \$3.2 million of costs related to the closure of our facility in Minden, Germany and \$3.1 million of costs associated with the consolidation of two other manufacturing sites in Europe.

⁽³⁾ In the year ended December 31, 2018, we completed the sale of the Valves Business.

⁽⁴⁾ In the year ended December 31, 2019, these amounts include a \$17.8 million loss related to the termination of a supply agreement in connection with the Metal Seal litigation and \$6.1 million of expense related to the deferred compensation arrangement that we entered into in connection with the acquisition of GIGAVAC. Refer to Note 15, "Commitments and Contingencies," of our Financial Statements for additional information related to the supply agreement termination and litigation with Metal Seal. In the year ended December 31, 2018, we incurred \$5.9 million of incremental direct costs in order to transact the sale of the Valves Business and \$2.2 million of expense related to the deferred compensation arrangement that we entered into in connection with the acquisition of GIGAVAC.

⁽⁵⁾ Refer to Note 17, "Acquisitions and Divestitures," of our Financial Statements for additional information related to the acquisition of GIGAVAC and the divestiture of the Valves Business.

Operating income

For fiscal year 2019, operating income decreased from fiscal year 2018, due primarily to the divestiture of the Valves Business in the third quarter of 2018 (including the gain on sale), net productivity headwinds partly due to the scaling up of new product launches, the loss recognized in connection with the supply agreement termination related to litigation with Metal Seal, higher severance charges, the impact of increased tariffs, and lower volume, partially offset by lower variable compensation, lower selling expenses, the favorable impact of foreign currency rates, and the impact of the acquisition of GIGAVAC.

For fiscal year 2018, operating income increased from fiscal year 2017, due primarily to higher volume, the divestiture of the Valves Business in the third quarter of 2018 (including the gain on sale), the favorable impact of foreign currency rates, and lower amortization expense, partially offset by higher R&D expense.

Interest expense, net

For fiscal year 2019, interest expense, net increased from fiscal year 2018, due primarily to an increase in interest expense related to higher variable interest rates as well as the impact of the refinancing of a portion of our Term Loan (variable rate debt) through the issuance of \$450.0 million in aggregate principal amount of 4.375% senior notes due 2030 (the "4.375% Senior Notes") (fixed rate debt). The 4.375% Senior Notes accrue interest at a higher rate than the average rate of the Term Loan in fiscal year 2019.

For fiscal year 2018, interest expense, net decreased from fiscal year 2017, due primarily to an increase in interest income due to higher average cash balances in fiscal year 2018, partially offset by an increase in interest expense related to higher variable interest rates.

Other, net

Other, net for the years ended December 31, 2019, 2018, and 2017 consisted of the following (amounts have been calculated based on unrounded numbers, accordingly, certain amounts may not appear to recalculate due to the effect of rounding):

<i>(In millions)</i>	For the year ended December 31,		
	2019	2018	2017
Currency remeasurement (loss)/gain on net monetary assets ⁽¹⁾	\$ (6.8)	\$ (18.9)	\$ 18.0
Gain/(loss) on foreign currency forward contracts ⁽²⁾	2.2	2.1	(15.6)
Gain/(loss) on commodity forward contracts ⁽²⁾	4.9	(8.5)	10.0
Loss on debt financing ⁽³⁾	(4.4)	(2.4)	(2.7)
Net periodic benefit cost, excluding service cost	(3.2)	(3.6)	(3.4)
Other	(0.7)	0.9	0.1
Other, net	\$ (7.9)	\$ (30.4)	\$ 6.4

⁽¹⁾ Relates to the remeasurement of non-USD denominated monetary assets and liabilities into USD.

⁽²⁾ Relates to changes in the fair value of derivative financial instruments that are not designated as hedges. Refer to Note 19, "Derivative Instruments and Hedging Activities," of our Financial Statements for additional information related to gains and losses related to our commodity and foreign currency exchange forward contracts. Refer to Item 7A, "Quantitative and Qualitative Disclosures About Market Risk," included elsewhere in this Report for an analysis of the sensitivity of other, net to changes in foreign currency exchange rates and commodity prices.

⁽³⁾ Refer to Note 14, "Debt," of our Financial Statements for additional information related to our debt financing transactions.

Provision for/(benefit from) income taxes

The components of provision for/(benefit from) income taxes for the years ended December 31, 2019, 2018, and 2017 are described in more detail in the table below (amounts have been calculated based on unrounded numbers, accordingly, certain amounts may not appear to recalculate due to the effect of rounding):

<i>(In millions)</i>	For the year ended December 31,		
	2019	2018	2017
Tax computed at statutory rate of 21% in 2019 and 2018 and 35% in 2017 ⁽¹⁾	\$ 82.0	\$ 110.5	\$ 140.9
Reserve for tax exposure	20.1	10.8	38.0
Valuation allowances ⁽²⁾	19.6	(123.4)	(3.4)
Foreign tax rate differential ⁽³⁾	(19.1)	(41.2)	(112.0)
Withholding taxes not creditable	9.5	8.7	3.9
Research and development incentives ⁽⁴⁾	(8.4)	(19.5)	(5.9)
Change in tax laws or rates	5.1	(22.3)	3.9
U.S. Tax Reform Act impact ⁽⁵⁾	—	—	(73.7)
Other ⁽⁶⁾	(1.1)	3.7	2.4
Provision for/(benefit from) income taxes	\$ 107.7	\$ (72.6)	\$ (5.9)

- (1) Represents the product of the applicable statutory tax rate and income before taxes, as reported in the consolidated statements of operations. In fiscal year 2018 the statutory tax rate declined to 21% (i.e., compared to 35% in previous fiscal years) due to the effect of the Tax Cuts and Jobs Act of 2017 (the "Tax Reform Act").
- (2) During the years ended December 31, 2019, 2018, and 2017, we established/(released) a portion of our valuation allowance and recognized a deferred tax expense/(benefit). The valuation allowance as of December 31, 2019 and 2018 was \$146.8 million and \$157.0 million, respectively. The remaining valuation allowance mainly relates to foreign tax credit and capital loss carryforwards and suspended interest deductions. It is more likely than not that these attributes will not be utilized in the foreseeable future. However, any future release of all or a portion of this valuation allowance resulting from a change in this assessment will impact our future provision for/(benefit from) income taxes.
- (3) We operate in locations outside the U.S., including Bermuda, Bulgaria, China, Malaysia, the Netherlands, South Korea, and the U.K., that historically have had statutory tax rates different than the U.S. statutory tax rate. This can result in a foreign tax rate differential that may reflect a tax benefit or detriment. This foreign tax rate differential can change from year to year based upon the jurisdictional mix of earnings and changes in current and future enacted tax rates. Certain of our subsidiaries are currently eligible, or have been eligible, for tax exemptions or holidays in their respective jurisdictions.
- (4) Certain income of our U.K. subsidiaries is eligible for lower tax rates under the "patent box" regime, resulting in certain of our intellectual property income being taxed at a rate lower than the U.K. statutory tax rate. Certain R&D expenses are eligible for a bonus deduction under China's R&D super deduction regime. In fiscal year 2018, we substantially completed an assessment of our ability to claim an R&D credit in the U.S. As a result of this assessment, we recognized a tax benefit of \$10.0 million. Prior to fiscal year 2018, the deferred tax asset related to these R&D credits would have been offset by the valuation allowance.
- (5) Relates to the enactment of the Tax Reform Act during the fourth quarter of 2017, which required us to remeasure our U.S. deferred tax assets and liabilities associated with indefinite-lived intangible assets, including goodwill, from a rate of 35% to 21%. Absent this deferred tax liability, the U.S. operation was in a net deferred tax asset position that was offset by a full valuation allowance at December 31, 2017.
- (6) Refer to Note 7, "Income Taxes," of our Financial Statements for additional information related to other components of our rate reconciliation.

We do not believe that there are any known trends related to the reconciling items noted above that are reasonably likely to result in our liquidity increasing or decreasing in any material way.

Non-GAAP Financial Measures

This section provides additional information regarding certain non-GAAP financial measures, including organic revenue growth, adjusted operating income, adjusted operating margin, adjusted net income, and adjusted earnings per share ("EPS"), which are used by our management, Board of Directors, and investors. We use these non-GAAP financial measures internally to make operating and strategic decisions, including the preparation of our annual operating plan, evaluation of our overall business performance, and as a factor in determining compensation for certain employees.

Our non-GAAP financial measures should be considered as supplemental in nature and are not intended to be considered in isolation or as a substitute for reported net revenue growth, operating income, operating margin, net income, or diluted EPS, respectively, calculated in accordance with U.S. GAAP. In addition, our measures of organic revenue growth, adjusted operating income, adjusted operating margin, adjusted net income, and adjusted EPS may not be the same as, or comparable to, similar non-GAAP financial measures presented by other companies.

Organic revenue growth

Organic revenue growth is defined as the reported percentage change in net revenue, calculated in accordance with U.S. GAAP, excluding the period-over-period impact of foreign currency exchange rate differences as well as the net impact of material acquisitions and divestitures for the 12-month period following the respective transaction date(s). Refer to the *Net revenue* section above for a reconciliation of organic revenue growth to reported revenue growth.

We believe that organic revenue growth provides investors with helpful information with respect to our operating performance, and we use organic revenue growth to evaluate our ongoing operations as well as for internal planning and forecasting purposes. We believe that organic revenue growth provides useful information in evaluating the results of our business because it excludes items that we believe are not indicative of ongoing performance or that we believe impact comparability with the prior-year period.

Adjusted operating income, adjusted operating margin, adjusted net income, and adjusted EPS

Management uses adjusted operating income, adjusted operating margin, adjusted net income, and adjusted EPS as measures of operating performance, for planning purposes (including the preparation of our annual operating budget), to allocate resources to enhance the financial performance of our business, to evaluate the effectiveness of our business strategies, in communications with our Board of Directors and investors concerning our financial performance, and as a factor in determining compensation for certain employees. We believe investors and securities analysts also use these non-GAAP financial measures in their evaluation of our performance and the performance of other similar companies. These non-GAAP financial measures are not measures of liquidity. The use of these non-GAAP financial measures have limitations, and they should not be considered in isolation from, or as an alternative to, U.S. GAAP measures such as operating income, operating margin, net income, or diluted EPS. We believe that these measures are useful to investors and management in understanding our ongoing operations and in analysis of ongoing operating trends.

We define adjusted operating income as operating income, determined in accordance with U.S. GAAP, excluding certain non-GAAP adjustments which are described below. Adjusted operating margin is calculated by dividing adjusted operating income by net revenue.

We define adjusted net income as follows: net income, determined in accordance with U.S. GAAP, excluding certain non-GAAP adjustments which are described below. Adjusted EPS is calculated by dividing adjusted net income by the number of diluted weighted-average ordinary shares outstanding in the period.

Non-GAAP adjustments

Many of our non-GAAP adjustments relate to a series of strategic initiatives developed by our management aimed at better positioning us for future revenue growth and an improved cost structure. These initiatives have been modified from time to time to reflect changes in overall market conditions and the competitive environment facing our business. These initiatives include, among other items, acquisitions, divestitures, restructurings of certain business, supply chain, or corporate activities, and various financing transactions. We describe these adjustments in more detail below.

- Restructuring related and other - includes charges, net related to certain restructuring and other exit activities as well as other costs (or income) that we believe are either unique or unusual to the identified reporting period, and that we believe impact comparisons to prior period operating results. Such costs include charges related to optimization of our manufacturing processes to increase productivity. This type of activity occurs periodically, however each action is unique, discrete, and driven by various facts and circumstances. Such amounts are excluded from internal financial statements and analyses that management uses in connection with financial planning, and in its review and assessment of our operating and financial performance, including the performance of our segments. Restructuring related and other does not, however, include charges related to the integration of acquired businesses, including such charges that are recognized as restructuring and other charges, net in the consolidated statements of operations.
- Financing and other transaction costs – includes losses or gains related to debt financing transactions, losses or gains related to the divestiture of a business, losses or gains related to the termination of a long-term unfavorable supply

agreement, and costs incurred, including for legal, accounting, and other professional services, that are directly related to an acquisition, divestiture, or equity financing transaction.

- Deferred loss or gain on commodities and other derivative instruments - includes unrealized losses or gains on derivative instruments that do not qualify for hedge accounting as well as the impact of commodity prices on our raw material costs relative to the strike price on our commodity forward contracts.
- Step-up depreciation and amortization – includes depreciation and amortization expense associated with the step-up in fair value of assets acquired in connection with a business combination (e.g., PP&E, definite-lived intangible assets, and inventory). The current tax effect of step-up depreciation and amortization was not material, individually or in the aggregate, in any period presented.
- Deferred income taxes and other tax related – includes adjustments for book-to-tax basis differences due primarily to the step-up in fair value of fixed and intangible assets and goodwill, the utilization of net operating losses, and adjustments to our U.S. valuation allowance in connection with certain acquisitions and U.S. tax law changes. Other tax related items include certain adjustments to unrecognized tax positions and withholding tax on repatriation of foreign earnings.
- Amortization of debt issuance costs.
- Where applicable, the current tax effect of non-GAAP adjustments.

Our definition of adjusted net income excludes the deferred provision for/(benefit from) income taxes and other tax related items described above. As we treat deferred income taxes as an adjustment to compute adjusted net income, the deferred income tax effect associated with the reconciling items presented below would not change adjusted net income for any period presented.

Non-GAAP reconciliations

The following tables provide reconciliations of certain financial measures calculated in accordance with U.S. GAAP to the related non-GAAP financial measures for the periods presented (amounts have been calculated based on unrounded numbers, accordingly, certain amounts may not appear to recalculate due to the effect of rounding):

	For the year ended December 31, 2019			
<i>(Dollars in millions, except per share amounts)</i>	Operating Income	Operating Margin	Net Income	Diluted EPS
Reported (GAAP)	\$ 556.9	16.1%	\$ 282.7	\$ 1.75
Non-GAAP adjustments:				
Restructuring related and other ^(a)	61.9	1.8	62.2	0.38
Financing and other transaction costs ^{(b)(c)}	28.9	0.8	34.9	0.22
Step-up depreciation and amortization ^(c)	139.6	4.0	139.6	0.86
Deferred gain on derivative instruments ^(c)	(1.6)	(0.0)	(6.5)	(0.04)
Amortization of debt issuance costs ^(c)	—	—	7.8	0.05
Deferred taxes and other tax related ^(d)	—	—	55.2	0.34
Total adjustments	228.8	6.6	293.2	1.81
Adjusted (non-GAAP)	<u>\$ 785.7</u>	<u>22.8%</u>	<u>\$ 575.9</u>	<u>\$ 3.56</u>

- (a) Refer to summary of restructuring related and other charges for each of the fiscal years 2019, 2018, and 2017 below.
- (b) Primarily included a \$17.8 million loss related to the termination of a supply agreement in connection with the Metal Seal litigation and \$6.1 million of deferred compensation incurred in connection with the acquisition of GIGAVAC, each of which were recorded in restructuring and other charges, net in the consolidated statements of operations. Also included a loss of \$4.4 million associated with a debt financing transaction, recorded in other, net in the consolidated statement of operations.
- (c) There was no current tax effect related to the following categories of non-GAAP adjustments: financing and other transaction costs; deferred gain or loss on derivative instruments; and amortization of debt issuance costs. The current tax effect of step-up depreciation and amortization was not material, individually or in the aggregate.
- (d) A majority of this adjustment related to \$27.6 million of deferred tax provision, \$18.2 million of uncertain tax positions recorded in fiscal year 2019, and \$9.4 million of current tax expense related to the repatriation of profits from certain

subsidiaries in China to their parent companies in the Netherlands. The decision to repatriate these profits was the result of our goal to reduce our balance sheet exposure, and corresponding earnings volatility, related to the Chinese Renminbi as well as to fund our deployment of capital.

	For the year ended December 31, 2018			
	Operating Income	Operating Margin	Net Income	Diluted EPS
<i>(Dollars in millions, except per share amounts)</i>				
Reported (GAAP)	\$ 710.4	20.2%	\$ 599.0	\$ 3.53
Non-GAAP adjustments:				
Restructuring related and other ^(a)	25.4	0.7	28.0	0.17
Financing and other transaction costs ^{(b)(c)}	(47.0)	(1.3)	(40.3)	(0.24)
Step-up depreciation and amortization ^(c)	141.2	4.0	141.2	0.83
Deferred loss on derivative instruments ^(c)	2.0	0.1	12.5	0.07
Amortization of debt issuance costs ^(c)	—	—	7.3	0.04
Deferred taxes and other tax related ^(d)	—	—	(128.3)	(0.76)
Total adjustments	121.5	3.5	20.4	0.12
Adjusted (non-GAAP)	\$ 832.0	23.6%	\$ 619.4	\$ 3.65

- (a) Refer to summary of restructuring related and other charges for each of the fiscal years 2019, 2018, and 2017 below.
- (b) Primarily included a \$64.4 million gain on the sale of the Valves Business, \$5.9 million of transaction costs related to this sale, and \$2.2 million of deferred compensation incurred in connection with the acquisition of GIGAVAC, all of which were recorded in restructuring and other charges, net in the consolidated statements of operations. Also included are: costs associated with debt financing transactions of \$2.4 million, which were recorded in other, net in the consolidated statements of operations; costs to complete the Merger of \$4.1 million, which were recorded in SG&A expense in the consolidated statements of operations; and costs associated with acquisition activity, including \$2.5 million of transaction costs related to the acquisition of GIGAVAC in fiscal year 2018, which were recorded in SG&A expense in the consolidated statements of operations.
- (c) There was no current tax effect related to the following categories of non-GAAP adjustments: financing and other transaction costs; deferred gain or loss on derivative instruments; and amortization of debt issuance costs. The current tax effect of step-up depreciation and amortization was not material, individually or in the aggregate.
- (d) We recognized a deferred tax benefit of \$144.1 million, which primarily included a \$122.1 million deferred tax benefit related to the release of a portion of our U.S. valuation allowance as discussed in Note 7, "Income Taxes," of our Financial Statements. Also included in our fiscal year 2018 results is \$10.0 million of current tax expense related to the repatriation of profits from certain subsidiaries in China to their parent companies, primarily in the Netherlands. The decision to repatriate these profits was the result of our goal to reduce our balance sheet exposure, and corresponding earnings volatility, related to the Chinese Renminbi as well as to fund our deployment of capital.

	For the year ended December 31, 2017			
	Operating Income	Operating Margin	Net Income	Diluted EPS
<i>(Dollars in millions, except per share amounts)</i>				
Reported (GAAP)	\$ 555.8	16.8%	\$ 408.4	\$ 2.37
Non-GAAP adjustments:				
Restructuring related and other ^(a)	21.3	0.6	21.3	0.12
Financing and other transaction costs ^{(b)(c)}	6.6	0.2	9.3	0.05
Step-up depreciation and amortization ^(c)	165.0	5.0	165.0	0.96
Deferred loss/(gain) on derivative instruments ^(c)	2.6	0.1	(7.4)	(0.04)
Amortization of debt issuance costs ^(c)	—	—	7.2	0.04
Deferred taxes and other tax related ^(d)	—	—	(55.2)	(0.32)
Total adjustments	195.6	5.9	140.4	0.82
Adjusted (non-GAAP)	\$ 751.4	22.7%	\$ 548.7	\$ 3.19

- (a) Refer to summary of restructuring related and other charges for each of the fiscal years 2019, 2018, and 2017 below.
- (b) Primarily included \$6.6 million of costs to complete the Merger and \$2.7 million of costs associated with debt financing transactions.

- (c) There was no current tax effect related to the following categories of non-GAAP adjustments: financing and other transaction costs; deferred gain or loss on derivative instruments; and amortization of debt issuance costs. The current tax effect of step-up depreciation and amortization was not material, individually or in the aggregate.
- (d) Primarily included \$73.7 million of income tax benefits related to the remeasurement of the deferred tax liabilities associated with indefinite-lived intangible assets due to the reduction of the U.S. corporate income tax rate from 35% to 21% as a part of the Tax Reform Act.

The following table presents the components of our restructuring related and other non-GAAP adjustment to net income for fiscal years 2019, 2018, and 2017 (amounts have been calculated based on unrounded numbers, accordingly, certain amounts may not appear to recalculate due to the effect of rounding):

<i>(in millions)</i>	For the year ended December 31,		
	2019	2018	2017
Business and corporate repositioning ⁽ⁱ⁾	\$ 40.1	\$ 8.8	\$ 3.9
Supply chain repositioning and transition ⁽ⁱⁱ⁾	16.0	15.3	11.4
Preacquisition legal matters ⁽ⁱⁱⁱ⁾	5.3	2.9	4.7
Other	2.7	1.0	1.4
Income tax effect ^(iv)	(1.8)	—	—
Total non-GAAP restructuring related and other ^(v)	\$ 62.2	\$ 28.0	\$ 21.3

- i. Fiscal year 2019 primarily includes approximately \$12.7 million of benefits provided under a voluntary retirement incentive program, \$10.2 million of costs associated with business and corporate workforce rationalization, and \$9.5 million of costs (both termination and other costs) related to the shutdown and relocation of an operating site in Germany. Refer to Note 5, "Restructuring and Other Charges, Net," included in our Financial Statements for additional information about the voluntary retirement incentive program. Amounts presented in fiscal years 2018 and 2017 primarily represent costs related to business and corporate workforce rationalization.
- ii. Fiscal years 2019, 2018, and 2017 primarily include costs related to optimization of our manufacturing processes to increase productivity and rationalize our manufacturing footprint of \$14.1 million, \$14.0 million, and \$10.0 million, respectively. The remaining amounts presented primarily represent costs related to supply chain workforce rationalization.
- iii. Represents charges incurred related to legal matters associated with an acquired business, for which new information is brought to light after the measurement period for the business combination is closed, but for which the liability relates to events or activities that occurred prior to our acquisition of the business. Fiscal year 2017 primarily includes \$3.0 million of costs associated with the closing of our Schrader Brazil manufacturing facility.
- iv. We treat deferred taxes as a non-GAAP adjustment. Accordingly, the tax effect of the restructuring related and other non-GAAP adjustment refers only to the current tax effect. With respect to the years ended December 31, 2018 and 2017, the current tax effect was not material, individually or in the aggregate.
- v. Total presented is the non-GAAP adjustment to net income. Certain portions of these adjustments are non-operating and are excluded from the non-GAAP adjustments to operating income.

Liquidity and Capital Resources

As of December 31, 2019 and 2018 we held cash and cash equivalents in the following regions:

<i>(in millions)</i>	As of December 31,	
	2019	2018
United Kingdom	\$ 8.8	\$ 8.8
United States	7.0	4.6
The Netherlands	522.9	482.1
China	119.3	125.2
Other	116.1	109.1
Total	\$ 774.1	\$ 729.8

The amount of cash and cash equivalents held in these geographic regions fluctuates throughout the year due to a variety of factors, such as our use of intercompany loans and dividends and the timing of cash receipts and disbursements in the normal course of business. Our earnings are not considered to be permanently reinvested in certain jurisdictions in which they were

earned. We recognize a deferred tax liability on these unremitted earnings to the extent the remittance of such earnings cannot be recovered in a tax free manner.

Cash Flows

The table below summarizes our primary sources and uses of cash for the years ended December 31, 2019, 2018, and 2017. We have derived the summarized statements of cash flows from our Financial Statements. Amounts in the table below have been calculated based on unrounded numbers. Accordingly, certain amounts may not appear to recalculate due to the effect of rounding.

<i>(in millions)</i>	For the year ended December 31,		
	2019	2018	2017
Net cash provided by/(used in):			
Operating activities:			
Net income adjusted for non-cash items	\$ 630.3	\$ 687.5	\$ 652.5
Changes in operating assets and liabilities, net	(10.7)	(66.9)	(94.8)
Operating activities	<u>619.6</u>	<u>620.6</u>	<u>557.6</u>
Investing activities	(208.8)	(237.6)	(140.7)
Financing activities	<u>(366.5)</u>	<u>(406.2)</u>	<u>(15.3)</u>
Net change	<u>\$ 44.3</u>	<u>\$ (23.3)</u>	<u>\$ 401.7</u>

Operating Activities

The decrease in cash provided by operating activities in fiscal year 2019 compared to fiscal year 2018 relates primarily to lower operating profitability and the timing of supplier payments and customer receipts.

The increase in cash provided by operating activities in fiscal year 2018 compared to fiscal year 2017 relates primarily to improved operating profitability and timing of supplier payments and customer receipts.

Investing Activities

Investing activities include additions to PP&E and capitalized software, the acquisition or divestiture of a business or assets, and the acquisition or sale of certain debt and equity securities.

In fiscal year 2019, net cash used in investing activities decreased primarily due to lower cash used in acquisitions, as the GIGAVAC merger was completed in fiscal year 2018. This was partially offset by the impact of the divestiture of the Valves Business, for which proceeds were received in fiscal year 2018, cash paid for the acquisition of assets from Metal Seal (as further discussed in Note 15, "Commitments and Contingencies" of the Financial Statements), and cash used to acquire debt and equity securities.

In fiscal year 2018, net cash used in investing activities increased primarily due to the cash used in the merger with GIGAVAC, partially offset by proceeds from the divestiture of the Valves Business. In addition, more cash was used to purchase PP&E and capitalized software in fiscal year 2018 compared to fiscal year 2017.

Refer to Note 17, "Acquisitions and Divestitures," for additional information related to the divestiture of the Valves Business and the acquisition of GIGAVAC.

In fiscal year 2020, we anticipate additions to PP&E and capitalized software of approximately \$165.0 million to \$175.0 million, which we expect to be funded with cash flows from operations.

Financing Activities

In fiscal year 2019, net cash used in financing activities decreased primarily due to a lower volume of ordinary share repurchases.

In fiscal year 2018, net cash used in financing activities increased primarily as a result of the commencement of our share buyback program, and the resulting ordinary share repurchases during the year.

Indebtedness and Liquidity

The following table details our gross outstanding indebtedness as of December 31, 2019, and the associated interest expense for the year then ended:

<i>(in millions)</i>	Balance as of December 31, 2019	Interest Expense, net for the year ended December 31, 2019
Term Loan	\$ 460.7	\$ 32.7
4.875% Senior Notes	500.0	24.4
5.625% Senior Notes	400.0	22.5
5.0% Senior Notes	700.0	35.0
6.25% Senior Notes	750.0	46.9
4.375% Senior Notes	450.0	5.5
Finance lease and other financing obligations	31.1	3.0
Total gross outstanding indebtedness	<u>\$ 3,291.8</u>	
Other interest expense, net ⁽¹⁾		<u>(11.4)</u>
Interest expense, net		<u>\$ 158.6</u>

⁽¹⁾ Other interest expense, net includes interest income, amortization of debt issuance costs, and interest costs capitalized in accordance with Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") Subtopic 835-20, *Capitalization of Interest*.

Debt Instruments

Refer to Note 14, "Debt," of our Financial Statements for additional information related to the terms of our debt instruments.

Capital Resources

Our sources of liquidity include cash on hand, cash flows from operations, and available capacity under the Revolving Credit Facility. In addition, the Senior Secured Credit Facilities provide for the Accordion, under which additional secured debt may be issued or the capacity of the Revolving Credit Facility may be increased. Availability under the Accordion varies each period based on our attainment of certain financial metrics as set forth in the terms of the Credit Agreement and the indentures under which our senior notes were issued (the "Senior Notes Indentures"). As of December 31, 2019, availability under the Accordion was approximately \$1.0 billion.

We believe, based on our current level of operations as reflected in our results of operations for the year ended December 31, 2019, and taking into consideration the restrictions and covenants discussed below and in Note 14, "Debt," of our Financial Statements, that these sources of liquidity will be sufficient to fund our operations, capital expenditures, ordinary share repurchases, and debt service for at least the next twelve months. However, we cannot make assurances that our business will generate sufficient cash flows from operations or that future borrowings will be available to us in an amount sufficient to enable us to pay our indebtedness or to fund our other liquidity needs. Further, our highly-leveraged nature may limit our ability to procure additional financing in the future.

The Credit Agreement provides that, if our senior secured net leverage ratio exceeds a specified level, we are required to use a portion of our excess cash flow, as defined in the Credit Agreement, generated by operating, investing, or financing activities to prepay some or all of the outstanding borrowings under the Senior Secured Credit Facilities. The Credit Agreement also requires mandatory prepayments of the outstanding borrowings under the Senior Secured Credit Facilities upon certain asset dispositions and casualty events, in each case subject to certain reinvestment rights, and upon the incurrence of certain indebtedness (excluding any permitted indebtedness). These provisions were not triggered during the year ended December 31, 2019.

All obligations under the Senior Secured Credit Facilities are unconditionally guaranteed by certain of our subsidiaries (the "Guarantors"). The collateral for such borrowings under the Senior Secured Credit Facilities consists of substantially all present and future property and assets of Sensata Technologies B.V. ("STBV") and the Guarantors.

Our ability to raise additional financing, and our borrowing costs, may be impacted by short- and long-term debt ratings assigned by independent rating agencies, which are based, in significant part, on our performance as measured by certain credit

metrics such as interest coverage and leverage ratios. As of January 31, 2020, Moody's Investors Service's corporate credit rating for STBV was Ba2 with a stable outlook, and Standard & Poor's corporate credit rating for STBV was BB+ with a stable outlook. Any future downgrades to STBV's credit ratings may increase our future borrowing costs, but will not reduce availability under the Credit Agreement.

The Credit Agreement and the the Senior Notes Indentures contain restrictions and covenants (described in more detail in Note 14, "Debt," of our Financial Statements) that limit the ability of STBV and its subsidiaries to, among other things, incur subsequent indebtedness, sell assets, pay dividends, and make other restricted payments. These restrictions and covenants, which are subject to important exceptions and qualifications set forth in the Credit Agreement and Senior Notes Indentures, were taken into consideration in establishing our share repurchase programs, and are evaluated periodically with respect to future potential funding. We do not believe that these restrictions and covenants will prevent us from funding share repurchases under our share repurchase programs with available cash and cash flows from operations, should we decide to do so. As of December 31, 2019, we believe that we were in compliance with all the covenants and default provisions under the Credit Agreement and the Senior Notes Indentures.

Share repurchase program

From time to time, our Board of Directors has authorized various share repurchase programs. Under these programs, we may repurchase ordinary shares at such times and in amounts to be determined by our management, based on market conditions, legal requirements, and other corporate considerations, on the open market or in privately negotiated transactions, provided that such transactions were completed pursuant to an agreement and with a third party approved by our shareholders at the annual general meeting. The authorized amount of our various share repurchase programs may be modified or terminated by our Board of Directors at any time.

During the year ended December 31, 2019, we repurchased ordinary shares under a \$250.0 million share repurchase program authorized by our Board of Directors in October 2018 (the "October 2018 Program") and a \$500.0 million share repurchase program authorized by our Board of Directors in July 2019 (the "July 2019 Program"). We repurchased approximately 7.2 million ordinary shares at a weighted-average price of \$48.87 per share under these programs. The October 2018 Program was terminated upon commencement of the July 2019 Program.

During the year ended December 31, 2018, we repurchased approximately 7.6 million ordinary shares at a weighted-average price of \$52.75 per share under a \$400.0 million share repurchase program authorized by our Board of Directors in May 2018.

Contractual Obligations and Commercial Commitments

The table below reflects our contractual obligations as of December 31, 2019. Amounts we pay in future periods may vary from those reflected in the table. Amounts in the table below have been calculated based on unrounded numbers. Accordingly, certain amounts may not appear to recalculate due to the effect of rounding.

<i>(In millions)</i>	Payments Due by Period				
	Total	Less than One Year	One to Three Years	Three to Five Years	More than Five Years
Debt obligations principal ⁽¹⁾	\$ 3,260.7	\$ 4.6	\$ 9.3	\$ 909.3	\$ 2,337.6
Debt obligations interest ⁽²⁾	1,040.7	164.7	328.4	304.8	242.8
Finance lease obligations principal ⁽³⁾	30.6	2.0	3.0	3.3	22.4
Finance lease obligations interest ⁽³⁾	21.7	2.6	4.8	4.3	10.1
Other financing obligations principal ⁽⁴⁾	0.5	0.4	0.2	—	—
Other financing obligations interest ⁽⁴⁾	0.1	0.1	0.0	—	—
Operating lease obligations ⁽⁵⁾	74.0	14.8	20.1	14.5	24.5
Non-cancelable purchase obligations ⁽⁶⁾	61.5	26.6	29.4	5.2	0.3
Total contractual obligations ⁽⁷⁾⁽⁸⁾	<u>\$ 4,489.8</u>	<u>\$ 215.8</u>	<u>\$ 395.2</u>	<u>\$ 1,241.4</u>	<u>\$ 2,637.7</u>

(1) Represents the contractually required principal payments, in accordance with the required payment schedule, on our debt obligations in existence as of December 31, 2019.

(2) Represents the contractually required interest payments, in accordance with the required payment schedule, on our debt obligations in existence as of December 31, 2019. Cash flows associated with the next interest payment to be made on our

variable rate debt subsequent to December 31, 2019 were calculated using the interest rates in effect as of the latest interest rate reset date prior to December 31, 2019, plus the applicable spread.

- (3) Represents the contractually required payments, in accordance with the required payment schedule, under our finance lease obligations in existence as of December 31, 2019. No assumptions were made with respect to renewing these leases beyond their current terms.
- (4) Represents the contractually required payments, in accordance with the required payment schedule, under our financing obligations in existence as of December 31, 2019. No assumptions were made with respect to renewing these financing arrangements beyond their current terms.
- (5) Represents the contractually required payments, in accordance with the required payment schedule, under our operating lease obligations in existence as of December 31, 2019. No assumptions were made with respect to renewing these leases beyond their current terms.
- (6) Represents the contractually required payments under our various purchase obligations in existence as of December 31, 2019. No assumptions were made with respect to renewing the purchase obligations at the expiration date of their initial terms.
- (7) Contractual obligations denominated in a foreign currency were calculated utilizing the USD to local currency exchange rates in effect as of December 31, 2019.
- (8) This table does not include the contractual obligations associated with our pension and other post-retirement benefit plans. As of December 31, 2019, we had recognized a net benefit liability of \$36.5 million, representing the net unfunded benefit obligations of the defined benefit and retiree healthcare plans. Refer to Note 13, "Pension and Other Post-Retirement Benefits," of our Financial Statements for additional information related to our pension and other post-retirement benefits, including expected benefit payments for the next 10 years. This table also does not include \$26.0 million of unrecognized tax benefits as of December 31, 2019, as we are unable to make reasonably reliable estimates of when cash settlement, if any, will occur with a tax authority, as the timing and the ultimate resolution of the examination is uncertain. Refer to Note 7, "Income Taxes," of our Financial Statements for additional information related to our unrecognized tax benefits.

Critical Accounting Policies and Estimates

As discussed in Note 2, "Significant Accounting Policies," of our Financial Statements, which more fully describes our significant accounting policies, the preparation of consolidated financial statements in accordance with U.S. GAAP requires us to exercise judgment in the process of applying our accounting policies. It also requires that we make estimates and assumptions about future events that affect the amounts reported in the consolidated financial statements and accompanying notes. The accounting policies and estimates that we believe are most critical to the portrayal of our financial condition and results of operations are listed below. We believe these policies require the most difficult, subjective, and complex judgments in estimating the effect of inherent uncertainties.

Revenue Recognition

The discussion below details the most significant judgments and estimates we make regarding recognition of revenue in accordance with FASB ASC Topic 606, *Revenue from Contracts with Customers*. We adopted FASB ASC Topic 606 on January 1, 2018. Periods presented prior to January 1, 2018 are presented under the previous revenue recognition guidance, including FASB ASC Topic 605, *Revenue Recognition*. The adoption of FASB ASC Topic 606 did not have a material effect on our financial position or results of operations, and no cumulative catch-up adjustment was recognized.

In accordance with FASB ASC Topic 606, we recognize revenue to depict the transfer of promised goods to customers in an amount that reflects the consideration to which we expect to be entitled in exchange for those goods using a five step model. The most critical judgments and estimates we make in the implementation of this model relate to identifying the contract with the customer and determination of the transaction price associated with the performance obligation(s) in the contract, specifically related to variable consideration.

While many of the agreements with our customers specify certain terms and conditions that apply to any transaction between the parties, many of which are in effect for a defined term, the vast majority of these agreements do not result in contracts (as defined in FASB ASC Topic 606) because they do not create enforceable rights and obligations on the parties. Specifically, (1) the parties are not committed to perform any obligations in accordance with the specified terms and conditions until a customer purchase order ("PO") is received and accepted by us and (2) there is a unilateral right of each party to terminate the agreement at any time without compensating the other party. For this reason, the vast majority of our contracts (as defined in FASB ASC Topic 606) are customer POs. If this assessment were to change, it could result in a material change to the amount of net revenue recognized in a period.

The transaction price is the amount of consideration to which an entity expects to be entitled in exchange for transferring promised goods or services to a customer. In determining the transaction price related to a contract, we determine whether the amount promised in a contract includes a variable amount (variable consideration). Variable consideration may be specified in the customer PO, in another agreement that identifies terms and conditions of the transaction, or based on our customary practices. We have identified certain types of variable consideration that may be included in the transaction price related to our contracts, including sales returns (which generally include a right of return for defective or non-conforming product) and trade discounts (including retrospective volume discounts and early payment incentives). Such variable consideration has not historically been material. However, should our judgments and estimates regarding variable consideration change, it could result in a material change to the amount of net revenue recognized in a period.

Goodwill, Intangible Assets, and Long-Lived Assets

Businesses acquired are recognized at their fair value on the date of acquisition, with the excess of the purchase price over the fair value of identifiable assets acquired and liabilities assumed recognized as goodwill. Assets acquired may include either definite-lived or indefinite-lived intangible assets, or both. In accordance with the requirements of FASB ASC Topic 350, *Intangibles—Goodwill and Other*, goodwill and intangible assets determined to have an indefinite useful life are not amortized. Instead these assets are evaluated for impairment on an annual basis, and whenever events or business conditions change that could indicate that the asset is impaired.

Goodwill

Our judgments regarding the existence of indicators of goodwill impairment are based on several factors, including the performance of the end markets served by our customers, as well as the actual financial performance of our reporting units and their respective financial forecasts over the long-term. We evaluate goodwill and indefinite-lived intangible assets for impairment in the fourth quarter of each fiscal year, unless events occur which trigger the need for an earlier impairment review.

Identification of reporting units. We have identified six reporting units: Performance Sensing, Electrical Protection, Industrial Sensing, Aerospace, Power Management, and Interconnection. These reporting units have been identified based on the definitions and guidance provided in FASB ASC Topic 350. Identification of reporting units includes an analysis of the components that comprise each of our operating segments, which considers, among other things, the manner in which we operate our business and the availability of discrete financial information. Components of an operating segment are aggregated to form one reporting unit if the components have similar economic characteristics. We periodically review these reporting units to ensure that they continue to reflect the manner in which the business is operated.

Assignment of assets, liabilities, and goodwill to reporting units. Some assets and liabilities relate to the operations of multiple reporting units. We allocate these assets and liabilities to the reporting units based on methods that we believe are reasonable and supportable. We apply that allocation method on a consistent basis from year to year. We view some assets and liabilities, such as cash and cash equivalents, PP&E associated with our corporate offices, and debt, as being corporate in nature. Accordingly, we do not assign these assets and liabilities to our reporting units.

In the event we reorganize our business, we reassign the assets (including goodwill) and liabilities among the affected reporting units using a reasonable and supportable methodology. As businesses are acquired, we assign assets acquired (including goodwill) and liabilities assumed to a new or existing reporting unit as of the date of the acquisition. In the event a disposal group meets the definition of a business, goodwill is allocated to the disposal group based on the relative fair value of the disposal group to the related reporting unit.

Evaluation of goodwill for impairment. We have the option to first assess qualitative factors to determine whether a quantitative analysis must be performed. The objective of a qualitative analysis is to determine whether it is more likely than not that the fair value of a reporting unit is less than its net book value.

If we elect not to use this option, or if we determine that it is more likely than not that the fair value of a reporting unit is less than its net book value, then we perform the first step of the quantitative analysis prescribed by FASB ASC Topic 350. In this step we compare the estimated fair values of our reporting units to their respective net book values, including goodwill, to determine whether there is an indicator of potential impairment. If the net book value of a reporting unit exceeds its estimated fair value, we conduct a second step in which we calculate the implied fair value of goodwill. If the carrying value of the reporting unit's goodwill exceeds its calculated implied fair value, an impairment loss is recognized in an amount equal to that excess. The implied fair value of goodwill is determined in the same manner as the amount of goodwill recognized in a business combination. That is, the fair value of the reporting unit is allocated to all of its identifiable assets and liabilities (including any unrecognized intangible assets) as if the reporting unit had been acquired in a business combination at the date

of assessment, and the fair value of the reporting unit was the purchase price paid to acquire the reporting unit. The excess of the fair value of the reporting unit over the sum of the fair values of each of its identifiable assets and liabilities is the implied fair value of goodwill.

We evaluated the goodwill of each reporting unit for impairment as of October 1, 2019. All reporting units were evaluated using the quantitative method. We estimated the fair values of our reporting units using the discounted cash flow method. For this method, we prepared detailed annual projections of future cash flows for each reporting unit for the subsequent five fiscal years (the "Discrete Projection Period"). We estimated the value of the cash flows beyond the fifth fiscal year (the "Terminal Year"), by applying a multiple to the projected Terminal Year net earnings before interest, taxes, depreciation, and amortization. The cash flows from the Discrete Projection Period and the Terminal Year were discounted at an estimated weighted-average cost of capital ("WACC") appropriate for each reporting unit. The estimated WACC was derived, in part, from comparable companies appropriate to each reporting unit. We believe that our procedures for estimating discounted future cash flows, including the Terminal Year valuation, were reasonable and consistent with accepted valuation practices.

The preparation of forecasts of revenue growth and profitability for use in the long-range forecasts, the selection of the discount rates, and the estimation of the multiples used in valuing the Terminal Year involve significant judgments. Changes to these assumptions could affect the estimated fair value of one or more of our reporting units and could result in a goodwill impairment charge in a future period.

Types of events that could result in a goodwill impairment. As noted above, the assumptions used in the quantitative calculation of fair value of our reporting units, including the long-range forecasts, the selection of the discount rates, and the estimation of the multiples or long-term growth rates used in valuing the Terminal Year involve significant judgments. Changes to these assumptions could affect the estimated fair values of our reporting units calculated in prior years and could result in a goodwill impairment charge in a future period. We believe that certain factors, such as a future recession, any material adverse conditions in the automotive industry and other industries in which we operate, and other factors identified in Item 1A, "Risk Factors," included elsewhere in this Report could cause us to revise our long-term projections and could reduce the multiples used to determine Terminal Year value. Such revisions could result in a goodwill impairment charge in the future.

However, we do not consider any of our reporting units to be at risk of failing Step 1 of the goodwill impairment test.

Evaluation of other intangible assets for impairment

Indefinite-lived intangible assets. Similar to goodwill, we perform an annual impairment review of our indefinite-lived intangible assets in the fourth quarter of each fiscal year, unless events occur that trigger the need for an earlier impairment review. We have the option to first assess qualitative factors in determining whether it is more likely than not that an indefinite-lived intangible asset is impaired. If we elect not to use this option, or we determine that it is more likely than not that the asset is impaired, we perform a quantitative impairment review in which we estimate the fair value of the indefinite-lived intangible asset and compare that amount to its carrying value.

In performing the quantitative impairment review, we estimate the fair value by using the relief-from-royalty method, in which we make assumptions about future conditions impacting the fair value of our indefinite-lived intangible assets, including projected growth rates, cost of capital, effective tax rates, and royalty rates. Impairment, if any, is based on the excess of the carrying value over the fair value of these assets.

We evaluated our indefinite-lived intangible assets for impairment as of October 1, 2019 (using the quantitative method) and determined that the estimated fair values of these assets exceeded their carrying values at that date. Should certain assumptions used in the development of the fair values of our indefinite-lived intangible assets change, we may be required to recognize an impairment charge in the future.

Definite-lived intangible assets. Reviews are regularly performed to determine whether facts or circumstances exist that indicate that the carrying values of our definite-lived intangible assets to be held and used are impaired. If we determine that such facts or circumstances exist, we estimate the recoverability of these assets by comparing the projected undiscounted net cash flows associated with these assets to their respective carrying values. If the sum of the projected undiscounted net cash flows falls below the carrying value of an asset, the impairment charge is measured as the excess of the carrying value over the fair value of that asset. We determine fair value by using the appropriate income approach valuation methodology depending on the nature of the definite-lived intangible asset.

Evaluation of long-lived assets for impairment

We periodically re-evaluate the carrying values and estimated useful lives of long-lived assets whenever events or changes in circumstances indicate that the carrying values of these assets may not be recoverable. We use estimates of

undiscounted cash flows from long-lived assets to determine whether the carrying values of such assets are recoverable over the assets' remaining useful lives. These estimates include assumptions about our future performance and the performance of the end markets we serve. If an asset is determined to be impaired, the impairment is the amount by which its carrying value exceeds its fair value. These evaluations are performed at a level where discrete cash flows may be attributed to either an individual asset or a group of assets.

Income Taxes

As part of the process of preparing our financial statements, we are required to estimate our provision for income taxes in each of the jurisdictions in which we operate. This involves estimating our actual current tax exposure, including assessing the risks associated with tax audits, together with assessing temporary differences resulting from the different treatment of items for tax and accounting purposes. These differences result in deferred tax assets and liabilities. Management judgment is required in determining various elements of our provision for income taxes, including the amount of tax benefits on uncertain tax positions, and deferred tax assets that should be recognized.

In accordance with FASB ASC Topic 740, *Income Taxes*, we record uncertain tax positions on the basis of a two-step process. First, we determine whether it is more likely than not that the tax positions will be sustained based on the technical merits of the position. Second, for those tax positions that meet the more-likely-than-not recognition threshold, we recognize the largest amount of tax benefit that is greater than 50 percent likely to be realized upon ultimate settlement with the relevant tax authority. Significant judgment is required in evaluating whether our tax positions meet this two-step process. The more-likely-than-not recognition threshold must be met in each reporting period to support continued recognition of any tax benefits claimed, both in the current year, as well as any year which remains open for review by the relevant tax authority at the balance sheet date. Penalties and interest related to uncertain tax positions may be classified as either income taxes or another expense line item in the consolidated statements of operations. We classify interest and penalties related to uncertain tax positions within the provision for/(benefit from) income taxes line of the consolidated statements of operations.

We recognize deferred tax assets to the extent that we believe these assets are more likely than not to be realized. In measuring our deferred tax assets, we consider all available positive and negative evidence, including future reversals of existing taxable temporary differences, projected future taxable income, tax-planning strategies, and results of recent operations in various jurisdictions. Significant judgment is required in considering the relative impact of these items along with the weight that should be given to each category. Ultimately, the ability to realize our deferred tax assets is based on our assessment of future taxable income, which is based on estimated future results. In the event that actual results differ from these estimates, or we adjust our estimates in the future, we may need to adjust our valuation allowance assessment, which could materially impact our consolidated financial position and results of operations.

Pension and Other Post-Retirement Benefits

We sponsor various pension and other post-retirement benefit plans covering our current and former employees in several countries.

The funded status of pension and other post-retirement benefit plans is measured as the difference between the fair value of plan assets and the benefit obligation at the measurement date. Changes in the funded status of a pension or other post-retirement benefit plan are recognized in the year in which they occur by adjusting the recognized (net) liability or asset with an offsetting adjustment to either net income or other comprehensive income.

Our most difficult and subjective judgments and estimates relate to the valuation of our benefit obligations. Benefit obligations represent the actuarial present value of all benefits attributed by the pension formula as of the measurement date to employee service rendered before that date, and can be categorized as projected benefit obligations or accumulated benefit obligations. The value of projected benefit obligations take into consideration various actuarial assumptions including future compensation levels and the probability of payment between the measurement date and the expected date of payment. Accumulated benefit obligations differ from projected benefit obligations only in that they include no assumptions about future compensation levels.

The most significant assumptions used to determine a plan's funded status and net periodic benefit cost relate to discount rate, expected return on plan assets, and rate of increase in healthcare costs. These assumptions are reviewed annually. Refer to Note 13, "Pension and Other Post-Retirement Benefits," of our Financial Statements for additional information related to the values determined for each of these assumptions in the last three fiscal years.

The discount rate reflects the current rate at which the pension and other post-retirement liabilities could be effectively settled, considering the timing of expected payments for plan participants. It is used to discount the estimated future obligations

of the plans to the present value of the liability reflected in the financial statements. In estimating this rate in countries that have a market of high-quality fixed-income investments, we consider rates of return on these investments included in various bond indices, adjusted to eliminate the effects of call provisions and differences in the timing and amounts of cash outflows related to the bonds. In other countries where a market of high-quality fixed-income investments does not exist, we estimate the discount rate using government bond yields or long-term inflation rates.

The expected return on plan assets reflects the average rate of earnings expected on the funds invested to provide for the benefits included in the projected benefit obligation. To determine the expected return on plan assets, we consider the historical returns earned by similarly invested assets, the rates of return expected on plan assets in the future, and our investment strategy and asset mix with respect to the plans' funds.

The rate of increase of healthcare costs directly impacts the estimate of our future obligations in connection with our post-retirement medical benefits. Our estimate of healthcare cost trends is based on historical increases in healthcare costs under similarly designed plans, the level of increase in healthcare costs expected in the future, and the design features of the underlying plan.

Other assumptions used include employee demographic factors such as compensation rate increases, retirement patterns, employee turnover rates, and mortality rates. Our review of demographic assumptions includes analyzing historical patterns and/or referencing industry standard tables, combined with our expectations around future compensation and staffing strategies. The difference between these assumptions and our actual experience results in the recognition of an actuarial gain or loss.

Future changes to assumptions, or differences between actual and expected outcomes, can significantly affect our future net periodic benefit cost, projected benefit obligations, and accumulated other comprehensive loss.

Share-Based Compensation

FASB ASC Topic 718, *Compensation—Stock Compensation*, requires that a company measure at fair value any new or modified share-based compensation arrangements with employees, such as stock options and restricted securities, and recognize as compensation expense that fair value over the requisite service period.

We estimate the fair value of stock options on the date of grant using the Black-Scholes-Merton option-pricing model. Key assumptions used in this model are (1) the fair value of the underlying ordinary shares, (2) the time period for which we expect the stock options will be outstanding (the expected term), (3) the expected volatility of the price of our ordinary shares, (4) the risk-free interest rate, and (5) the expected dividend yield. Expected term and expected volatility are the judgments that we believe are the most critical and subjective in estimating fair value (and related share-based compensation expense) of our stock option awards.

The expected term is determined based upon our own historical average term of exercised and outstanding stock options. We consider our own historical volatility, as well as our implied volatility, in estimating expected volatility for stock options. Implied volatility provides a forward-looking indication and may offer insight into expected volatility.

Other assumptions used include risk-free interest rate and expected dividend yield. The risk-free interest rate is based on the yield for a U.S. Treasury security having a maturity similar to the expected term of the related stock option grant. This assumption is dependent on the assumed expected term. The dividend yield of 0% is based on our history of having never declared or paid any dividends on our ordinary shares, and our current intention of not declaring any such dividends in the foreseeable future. Refer to Item 5, "Market for Registrant's Common Equity, Related Stockholder Matters, and Issuer Purchases of Equity Securities," included elsewhere in this Report for additional information related to limitations on our ability to pay dividends.

Certain of our restricted securities include performance conditions that require us to estimate the probable outcome of the performance condition. This assessment is based on management's judgment using internally developed forecasts and is assessed at each reporting period. Compensation expense is recognized if it is probable that the performance condition will be achieved.

Under the fair value recognition provisions of FASB ASC Topic 718, we recognize share-based compensation net of estimated forfeitures and, therefore, only recognize compensation expense for those awards expected to vest over the requisite service period. The forfeiture rate is based on our estimate of forfeitures by plan participants after consideration of historical forfeiture rates. Compensation expense recognized for each award ultimately reflects the number of units that actually vest.

Material changes to any of these assumptions may have a significant effect on our valuation of stock options, and, ultimately, the share-based compensation expense recognized in the consolidated statements of operations.

Off-Balance Sheet Arrangements

From time to time, we execute contracts that require us to indemnify the other parties to the contracts. These indemnification obligations generally arise in two contexts. First, in connection with certain transactions, such as the divestiture of a business or the issuance of debt or equity securities, the agreement typically contains standard provisions requiring us to indemnify the purchaser against breaches by us of representations and warranties contained in the agreement. These indemnities are generally subject to time and liability limitations. Second, we enter into agreements in the ordinary course of business, such as customer contracts, that might contain indemnification provisions relating to product quality, intellectual property infringement, governmental regulations and employment related matters, and other typical indemnities. In certain cases, indemnification obligations arise by law.

We believe that our indemnification obligations are consistent with other companies in the markets in which we compete. Performance under any of these indemnification obligations would generally be triggered by a breach of the terms of the contract or by a third-party claim. Historically, we have experienced only immaterial and irregular losses associated with these indemnifications. Consequently, any future liabilities brought about by these indemnifications cannot reasonably be estimated or accrued.

Refer to Note 15, "Commitments and Contingencies," of our Financial Statements for additional information related to our off-balance sheet arrangements.

Recent Accounting Pronouncements

Recently issued accounting standards adopted in the current period:

In February 2016, the FASB issued Accounting Standards Update ("ASU") No. 2016-02, *Leases (Topic 842)*, which establishes new accounting and disclosure requirements for leases. We adopted the provisions of FASB ASU No. 2016-02 on January 1, 2019 using the modified retrospective transition method. Refer to Note 2, "Significant Accounting Policies" and Note 21, "Leases," each of our Financial Statements, for additional information related to this adoption. We do not expect adoption of FASB ASU No. 2016-02 to have a material impact on our future results of operations.

No other recently issued accounting standards adopted in the current period had a material impact on our consolidated financial position or results of operations, and we do not believe they are reasonably likely to have a material effect on our future consolidated financial position or results of operations.

Recently issued accounting standards to be adopted in a future period:

There are no recently issued accounting standards to be adopted in future periods that are expected to have a material impact on our consolidated financial position or results of operations.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We are exposed to changes in foreign currency exchange rates because we transact in a variety of foreign currencies. We are also exposed to changes in the prices of certain commodities (primarily metals) that we use in production. Changes in these foreign currency exchange rates and commodity prices may have an impact on future cash flows and earnings. We monitor our exposure to these risks, and may employ derivative financial instruments to limit the volatility to earnings and cash flows generated by these exposures. We employ derivative contracts that may or may not be designated for hedge accounting treatment under Financial Accounting Standards Board Accounting Standards Codification Topic 815, *Derivatives and Hedging*, which can result in volatility to earnings depending upon fluctuations in the underlying markets.

By using derivative instruments, we are subject to credit and market risk. The fair market values of these derivative instruments are based upon valuation models whose inputs are derived using market observable inputs, including foreign currency exchange and commodity spot and forward rates, and reflect the asset and liability positions as of the end of each reporting period. When the fair value of a derivative contract is positive, the counterparty is liable to us, thus creating a receivable risk for us. We are exposed to counterparty credit (or repayment) risk in the event of non-performance by counterparties to our derivative agreements. We attempt to minimize this risk by entering into transactions with major financial institutions of investment grade credit rating.

Interest Rate Risk

As discussed further in Note 14, "Debt," of our audited consolidated financial statements and accompanying notes thereto (our "Financial Statements") included elsewhere in this Annual Report on Form 10-K, the credit agreement governing our secured credit facility (as amended, the "Credit Agreement") provides for senior secured credit facilities consisting of a term loan facility (the "Term Loan"), a \$420.0 million revolving credit facility (the "Revolving Credit Facility"), and incremental availability under which additional secured credit facilities could be issued under certain circumstances.

The Term Loan accrues interest at a variable rate that is currently based on LIBOR, plus an interest rate margin, in accordance with the terms of the Credit Agreement.

Sensitivity Analysis

As of December 31, 2019, we had an outstanding balance on the Term Loan (excluding debt discount and deferred financing costs) of \$460.7 million. The applicable interest rate associated with the Term Loan at December 31, 2019 was 3.59%. An increase of 100 basis points in this rate would result in additional interest expense of \$4.7 million in fiscal year 2020. An additional 100 basis point increase in this rate would result in incremental interest expense of \$4.7 million in fiscal year 2020.

As of December 31, 2018, we had an outstanding balance on the Term Loan (excluding debt discount and deferred financing costs) of \$917.8 million. The applicable interest rate associated with the Term Loan at December 31, 2018 was 4.21%. An increase of 100 basis points in this rate would have resulted in additional interest expense of \$9.3 million in fiscal year 2019. An additional 100 basis point increase in this rate would have resulted in incremental interest expense of \$9.3 million in fiscal year 2019.

Foreign Currency Risk

Consistent with our risk management objective and strategy to reduce exposure to variability in cash flows, and for non-trading purposes, we enter into foreign currency exchange rate derivatives that qualify as cash flow hedges, and that are intended to offset the effect of exchange rate fluctuations on forecasted sales and certain manufacturing costs. We also enter into foreign currency forward contracts that are not designated for hedge accounting purposes. Refer to Note 19, "Derivative Instruments and Hedging Activities," of our Financial Statements for additional information related to the foreign currency forward contracts outstanding as of December 31, 2019.

Sensitivity Analysis

The tables below present our foreign currency forward contracts as of December 31, 2019 and 2018 and the estimated impact to future pre-tax earnings as a result of a 10% strengthening/weakening in the foreign currency exchange rate:

<i>(In millions)</i>	Net Asset/(Liability) Balance as of December 31, 2019	(Decrease)/Increase to Future Pre-tax Earnings Due to:	
		10% Strengthening of the Value of the Foreign Currency Relative to the United States ("U.S.") Dollar	10% Weakening of the Value of the Foreign Currency Relative to the U.S. Dollar
Euro	\$ 12.6	\$ (41.2)	\$ 41.2
Chinese Renminbi	\$ (0.7)	\$ (10.7)	\$ 10.7
Japanese Yen	\$ 0.0	\$ 0.5	\$ (0.5)
Korean Won	\$ 0.3	\$ (2.1)	\$ 2.1
Malaysian Ringgit	\$ 0.0	\$ 0.5	\$ (0.5)
Mexican Peso	\$ 8.5	\$ 15.5	\$ (15.5)
British Pound Sterling	\$ 0.8	\$ 6.7	\$ (6.7)

<i>(In millions)</i>	Net Asset/(Liability) Balance as of December 31, 2018	(Decrease)/Increase to Future Pre-tax Earnings Due to:	
		10% Strengthening of the Value of the Foreign Currency Relative to the U.S. Dollar	10% Weakening of the Value of the Foreign Currency Relative to the U.S. Dollar
Euro	\$ 14.5	\$ (45.1)	\$ 45.1
Chinese Renminbi	\$ (0.3)	\$ (4.1)	\$ 4.1
Korean Won	\$ 0.3	\$ (2.8)	\$ 2.8
Malaysian Ringgit	\$ 0.1	\$ 0.6	\$ (0.6)
Mexican Peso	\$ 0.7	\$ 14.2	\$ (14.2)
British Pound Sterling	\$ (2.6)	\$ 6.2	\$ (6.2)

Commodity Risk

We are exposed to the potential change in prices associated with certain commodities used in the manufacturing of our products. We offset a portion of this exposure by entering into forward contracts that fix the price at a future date for various notional amounts associated with these commodities. These forward contracts are not designated as accounting hedges. Refer to Note 19, "Derivative Instruments and Hedging Activities," of our Financial Statements for additional information related to the commodity forward contracts outstanding as of December 31, 2019.

Sensitivity Analysis

The tables below present our commodity forward contracts as of December 31, 2019 and 2018 and the estimated impact to pre-tax earnings associated with a 10% increase/(decrease) in the related forward price for each commodity:

<i>(In millions, except per unit amounts)</i>	Net Asset/(Liability) Balance as of December 31, 2019	Average Forward Price Per Unit as of December 31, 2019	Increase/(Decrease) to Pre-tax Earnings Due to	
			10% Increase in the Forward Price	10% Decrease in the Forward Price
Silver	\$ 1.2	\$ 18.15	\$ 1.6	\$ (1.6)
Gold	\$ 1.1	\$ 1,539.13	\$ 1.2	\$ (1.2)
Nickel	\$ 0.0	\$ 6.41	\$ 0.1	\$ (0.1)
Aluminum	\$ (0.2)	\$ 0.84	\$ 0.3	\$ (0.3)
Copper	\$ (0.0)	\$ 2.81	\$ 0.7	\$ (0.7)
Platinum	\$ 0.6	\$ 986.68	\$ 0.7	\$ (0.7)
Palladium	\$ 0.4	\$ 1,873.95	\$ 0.2	\$ (0.2)

<i>(In millions, except per unit amounts)</i>	Net (Liability)/Asset Balance as of December 31, 2018	Average Forward Price Per Unit as of December 31, 2018	Increase/(Decrease) to Pre-tax Earnings Due to	
			10% Increase in the Forward Price	10% Decrease in the Forward Price
Silver	\$ (0.8)	\$ 15.72	\$ 1.7	\$ (1.7)
Gold	\$ (0.0)	\$ 1,303.51	\$ 1.3	\$ (1.3)
Nickel	\$ (0.2)	\$ 4.93	\$ 0.1	\$ (0.1)
Aluminum	\$ (0.3)	\$ 0.86	\$ 0.2	\$ (0.2)
Copper	\$ (1.3)	\$ 2.71	\$ 0.8	\$ (0.8)
Platinum	\$ (0.9)	\$ 805.38	\$ 0.7	\$ (0.7)
Palladium	\$ 0.2	\$ 1,175.96	\$ 0.1	\$ (0.1)

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

1. Financial Statements

The following audited consolidated financial statements of Sensata Technologies Holding plc are included in this Annual Report on Form 10-K:

Report of Independent Registered Public Accounting Firm	61
Consolidated Balance Sheets	63
Consolidated Statements of Operations	64
Consolidated Statements of Comprehensive Income	65
Consolidated Statements of Cash Flows	66
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Notes to Consolidated Financial Statements	68

2. Financial Statement Schedules

The following schedules are included elsewhere in this Annual Report on Form 10-K:

Schedule I — Condensed Financial Information of the Registrant	119
Schedule II — Valuation and Qualifying Accounts	124

Schedules other than those listed above have been omitted since the required information is not present, or not present in amounts sufficient to require submission of the schedule, or because the information required is included in the audited consolidated financial statements or the notes thereto.

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of
Sensata Technologies Holding plc

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Sensata Technologies Holding plc (the Company) as of December 31, 2019 and 2018, the related consolidated statements of operations, comprehensive income, cash flows and changes in shareholders' equity for each of the three years in the period ended December 31, 2019, and the related notes and financial statement schedules listed in the Index at Item 15(a) (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated February 11, 2020 expressed an unqualified opinion thereon.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the 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 audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the 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 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 financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) 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 matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Valuation of goodwill

<i>Description of the Matter</i>	As of December 31, 2019, the Company's goodwill balance was \$3.1 billion. The Company's goodwill is initially assigned to its reporting units as of the acquisition date. As discussed in Note 2 of the consolidated financial statements, goodwill is tested for impairment at the reporting unit level. The Company evaluated goodwill for impairment as of October 1, 2019. A quantitative goodwill impairment assessment was completed for all reporting units.
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Auditing management's goodwill impairment analysis was complex and judgmental due to the estimation required in determining the fair value of the reporting units. In particular, the fair value estimates included significant assumptions such as the long-range forecasts, the selection of the discount rates, and the estimation of the multiples or long-term growth rates used in valuing the terminal year which are affected by expectations about future market or economic conditions.

How We Addressed the Matter in Our Audit

We obtained an understanding, evaluated the design and tested the operating effectiveness of controls over the Company's goodwill impairment review process. For example, we tested controls over management's review of the data used in their valuation models and reviewed significant assumptions discussed above used in determining the reporting unit fair values.

To test the estimated fair value of the Company's reporting units, with the assistance of our valuation specialists, our audit procedures included, among others, assessing fair value methodologies and testing the significant assumptions discussed above. We compared the significant assumptions used by management to current industry and economic trends, the Company's historical trends with consideration given to changes in the Company's business, customer base or product mix and other relevant factors. We assessed the historical accuracy of management's estimates and performed sensitivity analyses of significant assumptions to evaluate the changes in the fair value of the reporting units that would result from changes in the assumptions. We also evaluated the reconciliation of the estimated aggregate fair value of the reporting units to the Company's market capitalization.

Income taxes – uncertain tax positions

Description of the Matter

As discussed in Note 7, at December 31, 2019, the Company had approximately \$117.6 million of unrecognized tax benefits associated with uncertain tax positions. Uncertainty in a tax position may arise as tax laws are subject to interpretation. The Company uses significant judgment in (1) determining whether a tax position's technical merits are more-likely-than-not to be sustained and (2) measuring the amount of tax benefit that qualifies for recognition.

Auditing the recognition and measurement of tax positions related to uncertain tax positions involved significant auditor judgment and use of tax professionals with specialized skills and knowledge because both the recognition and measurement of the tax positions are complex, highly judgmental and based on interpretations of tax laws and legal rulings.

How We Addressed the Matter in Our Audit

We obtained an understanding, evaluated the design and tested the operating effectiveness of controls over the Company's process to record the reserve for uncertain tax positions. For example, we tested controls over management's evaluation of the technical merits of tax positions and identification of uncertain tax positions and the controls to measure the benefit of those tax positions, including management's review of the inputs and calculations of unrecognized tax benefits resulting from uncertain tax positions.

To test the amounts recorded as uncertain tax positions we involved our tax professionals to evaluate the technical merits of the Company's tax positions. Our procedures included, among others, inspecting correspondence, assessments and settlements from the relevant tax authorities and evaluating income tax opinions or other third-party advice obtained by the Company. We also applied our knowledge and experience with the application of federal, foreign and state income tax laws to evaluate the Company's accounting for those tax positions. We analyzed the Company's assumptions and data used to determine the amount of tax benefit to recognize and tested the accuracy of the calculations. We also evaluated the Company's income tax disclosures included in Note 7 in relation to these matters.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 2005.

Boston, Massachusetts
February 11, 2020

SENSATA TECHNOLOGIES HOLDING PLC

Consolidated Balance Sheets

(In thousands, except per share amounts)

	As of December 31,	
	2019	2018
Assets		
Current assets:		
Cash and cash equivalents	\$ 774,119	\$ 729,833
Accounts receivable, net of allowances of \$15,129 and \$13,762 as of December 31, 2019 and 2018, respectively	557,874	581,769
Inventories	506,678	492,319
Prepaid expenses and other current assets	126,981	113,234
Total current assets	1,965,652	1,917,155
Property, plant and equipment, net	830,998	787,178
Goodwill	3,093,598	3,081,302
Other intangible assets, net	770,904	897,191
Deferred income tax assets	21,150	27,971
Other assets	152,217	86,890
Total assets	\$ 6,834,519	\$ 6,797,687
Liabilities and shareholders' equity		
Current liabilities:		
Current portion of long-term debt, finance lease and other financing obligations	\$ 6,918	\$ 14,561
Accounts payable	376,968	379,824
Income taxes payable	35,234	27,429
Accrued expenses and other current liabilities	215,626	218,130
Total current liabilities	634,746	639,944
Deferred income tax liabilities	251,033	225,694
Pension and other post-retirement benefit obligations	36,100	33,958
Finance lease and other financing obligations, less current portion	28,810	30,618
Long-term debt, net	3,219,885	3,219,762
Other long-term liabilities	90,190	39,277
Total liabilities	4,260,764	4,189,253
Commitments and contingencies (Note 15)		
Shareholders' equity:		
Ordinary shares, €0.01 nominal value per share, 177,069 shares authorized and 172,561 and 171,719 shares issued as of December 31, 2019 and 2018, respectively	2,212	2,203
Treasury shares, at cost, 14,733 and 7,571 shares as of December 31, 2019 and 2018, respectively	(749,421)	(399,417)
Additional paid-in capital	1,725,091	1,691,190
Retained earnings	1,616,357	1,340,636
Accumulated other comprehensive loss	(20,484)	(26,178)
Total shareholders' equity	2,573,755	2,608,434
Total liabilities and shareholders' equity	\$ 6,834,519	\$ 6,797,687

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

SENSATA TECHNOLOGIES HOLDING PLC

Consolidated Statements of Operations

(In thousands, except per share amounts)

	For the year ended December 31,		
	2019	2018	2017
Net revenue	\$ 3,450,631	\$ 3,521,627	\$ 3,306,733
Operating costs and expenses:			
Cost of revenue	2,267,433	2,266,863	2,138,898
Research and development	148,425	147,279	130,127
Selling, general and administrative	281,442	305,558	301,896
Amortization of intangible assets	142,886	139,326	161,050
Restructuring and other charges, net	53,560	(47,818)	18,975
Total operating costs and expenses	2,893,746	2,811,208	2,750,946
Operating income	556,885	710,419	555,787
Interest expense, net	(158,554)	(153,679)	(159,761)
Other, net	(7,908)	(30,365)	6,415
Income before taxes	390,423	526,375	402,441
Provision for/(benefit from) income taxes	107,709	(72,620)	(5,916)
Net income	\$ 282,714	\$ 598,995	\$ 408,357
Basic net income per share	\$ 1.76	\$ 3.55	\$ 2.39
Diluted net income per share	\$ 1.75	\$ 3.53	\$ 2.37

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

SENSATA TECHNOLOGIES HOLDING PLC
Consolidated Statements of Comprehensive Income
(In thousands)

	For the year ended December 31,		
	2019	2018	2017
Net income	\$ 282,714	\$ 598,995	\$ 408,357
Other comprehensive income/(loss), net of tax:			
Cash flow hedges	7,362	37,363	(28,202)
Defined benefit and retiree healthcare plans	(1,668)	(377)	(895)
Other comprehensive income/(loss)	5,694	36,986	(29,097)
Comprehensive income	\$ 288,408	\$ 635,981	\$ 379,260

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

SENSATA TECHNOLOGIES HOLDING PLC

Consolidated Statements of Cash Flows

(In thousands)

	For the year ended December 31,		
	2019	2018	2017
Cash flows from operating activities:			
Net income	\$ 282,714	\$ 598,995	\$ 408,357
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation	115,862	106,014	109,321
Amortization of debt issuance costs	7,804	7,317	7,241
Gain on sale of business	—	(64,423)	—
Share-based compensation	18,757	23,825	19,819
Loss on debt financing	4,364	2,350	2,670
Amortization of intangible assets	142,886	139,326	161,050
Deferred income taxes	27,623	(144,068)	(56,757)
Unrealized loss on derivative instruments and other	30,292	18,176	781
Changes in operating assets and liabilities, net of the effects of acquisitions and divestitures:			
Accounts receivable, net	26,605	(34,877)	(56,330)
Inventories	(10,924)	(55,445)	(57,119)
Prepaid expenses and other current assets	10,073	(11,891)	(12,412)
Accounts payable and accrued expenses	(34,563)	48,371	23,841
Income taxes payable	2,308	(353)	7,655
Other	(4,239)	(12,754)	(471)
Net cash provided by operating activities	<u>619,562</u>	<u>620,563</u>	<u>557,646</u>
Cash flows from investing activities:			
Acquisitions, net of cash received	(32,465)	(228,307)	—
Additions to property, plant and equipment and capitalized software	(161,259)	(159,787)	(144,584)
Investment in debt and equity securities	(9,950)	—	—
Proceeds from sale of business, net of cash sold	—	149,777	—
Other	(5,103)	711	3,862
Net cash used in investing activities	<u>(208,777)</u>	<u>(237,606)</u>	<u>(140,722)</u>
Cash flows from financing activities:			
Proceeds from exercise of stock options and issuance of ordinary shares	15,150	6,093	7,450
Payment of employee restricted stock tax withholdings	(6,990)	(3,674)	(2,910)
Proceeds from issuance of debt	450,000	—	927,794
Payments on debt	(464,605)	(15,653)	(943,554)
Payments to repurchase ordinary shares	(350,004)	(399,417)	—
Payments of debt and equity issuance costs	(10,050)	(9,931)	(4,043)
Other	—	16,369	—
Net cash used in financing activities	<u>(366,499)</u>	<u>(406,213)</u>	<u>(15,263)</u>
Net change in cash and cash equivalents	44,286	(23,256)	401,661
Cash and cash equivalents, beginning of year	729,833	753,089	351,428
Cash and cash equivalents, end of year	<u>\$ 774,119</u>	<u>\$ 729,833</u>	<u>\$ 753,089</u>
Supplemental cash flow items:			
Cash paid for interest	\$ 169,543	\$ 163,478	\$ 164,370
Cash paid for income taxes	\$ 61,031	\$ 72,924	\$ 48,482

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

SENSATA TECHNOLOGIES HOLDING PLC
Consolidated Statements of Changes in Shareholders' Equity
(In thousands)

	Ordinary Shares		Treasury Shares		Additional Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Loss	Total Shareholders' Equity
	Number	Amount	Number	Amount				
Balance as of December 31, 2016	178,437	\$ 2,289	(7,557)	\$ (306,505)	\$ 1,643,449	\$ 636,841	\$ (34,067)	\$ 1,942,007
Surrender of shares for tax withholding	—	—	(67)	(2,910)	—	—	—	(2,910)
Stock options exercised	—	—	326	12,465	99	(5,114)	—	7,450
Vesting of restricted securities	—	—	222	8,472	—	(8,472)	—	—
Share-based compensation	—	—	—	—	19,819	—	—	19,819
Net income	—	—	—	—	—	408,357	—	408,357
Other comprehensive loss	—	—	—	—	—	—	(29,097)	(29,097)
Balance as of December 31, 2017	178,437	2,289	(7,076)	(288,478)	1,663,367	1,031,612	(63,164)	2,345,626
Surrender of shares for tax withholding	—	—	(71)	(3,674)	—	—	—	(3,674)
Stock options exercised	114	1	58	2,250	3,998	(156)	—	6,093
Vesting of restricted securities	257	3	—	—	—	(3)	—	—
Retirement of ordinary shares due to Merger	(7,018)	(89)	7,018	286,228	—	(286,139)	—	—
Repurchase of ordinary shares	—	—	(7,571)	(399,417)	—	—	—	(399,417)
Other retirements of ordinary shares	(71)	(1)	71	3,674	—	(3,673)	—	—
Share-based compensation	—	—	—	—	23,825	—	—	23,825
Net income	—	—	—	—	—	598,995	—	598,995
Other comprehensive income	—	—	—	—	—	—	36,986	36,986
Balance as of December 31, 2018	171,719	2,203	(7,571)	(399,417)	1,691,190	1,340,636	(26,178)	2,608,434
Surrender of shares for tax withholding	—	—	(149)	(6,990)	—	—	—	(6,990)
Stock options exercised	537	6	—	—	15,144	—	—	15,150
Vesting of restricted securities	454	5	—	—	—	(5)	—	—
Repurchase of ordinary shares	—	—	(7,162)	(350,004)	—	—	—	(350,004)
Retirement of ordinary shares	(149)	(2)	149	6,990	—	(6,988)	—	—
Share-based compensation	—	—	—	—	18,757	—	—	18,757
Net income	—	—	—	—	—	282,714	—	282,714
Other comprehensive income	—	—	—	—	—	—	5,694	5,694
Balance as of December 31, 2019	172,561	\$ 2,212	(14,733)	\$ (749,421)	\$ 1,725,091	\$ 1,616,357	\$ (20,484)	\$ 2,573,755

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

SENSATA TECHNOLOGIES HOLDING PLC
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Business Description and Basis of Presentation

Description of Business

The accompanying audited consolidated financial statements reflect the financial position, results of operations, comprehensive income, cash flows, and changes in shareholders' equity of Sensata Technologies Holding plc ("Sensata plc"), a public limited company incorporated under the laws of England and Wales, and its wholly-owned subsidiaries, collectively referred to as the "Company," "Sensata," "we," "our," and "us."

Prior to March 28, 2018, our parent company issuer was Sensata Technologies Holding N.V. ("Sensata N.V."), which was incorporated under the laws of the Netherlands. On March 28, 2018, Sensata plc completed a cross-border merger (the "Merger") with Sensata N.V., which changed the location of our incorporation from the Netherlands to England and Wales, but did not change the business being conducted by us or our subsidiaries.

We are a global industrial technology company that develops, manufactures, and sells sensors, sensor-based solutions, controls, and other products used in mission-critical systems and applications that create valuable business insights for our customers and end users. Our sensors are devices that translate a physical parameter, such as pressure, temperature, or position, into electronic signals that our customers' products and solutions can act upon. These actionable insights lead to products that are safer, cleaner and more efficient, more electrified, and increasingly more connected. Our sensor-based solutions can be comprised of various sensors, controllers, receivers, and software, which provide comprehensive solutions to critical problems. Our controls are devices embedded within systems to protect them from excessive heat or current.

Sensata plc conducts its operations through subsidiary companies that operate business and product development centers primarily in Belgium, Bulgaria, China, Germany, Japan, the Netherlands, South Korea, the United Kingdom (the "U.K."), and the United States (the "U.S."); and manufacturing operations primarily in Bulgaria, China, Malaysia, Mexico, the U.K., and the U.S.

We operate in, and report financial information for, the following two segments: Performance Sensing and Sensing Solutions. Refer to Note 20, "Segment Reporting," for additional information related to each of our segments.

Basis of Presentation

The accompanying audited consolidated financial statements have been prepared in accordance with U.S. generally accepted accounting principles ("U.S. GAAP") and present separately our financial position, results of operations, comprehensive income, cash flows, and changes in shareholders' equity.

All intercompany balances and transactions have been eliminated. All U.S. dollar ("USD") and share amounts presented, except per share amounts, are stated in thousands, unless otherwise indicated. Certain reclassifications have been made to prior periods to conform to current period presentation.

2. Significant Accounting Policies

Use of Estimates

The preparation of consolidated financial statements in accordance with U.S. GAAP requires us to exercise our judgment in the process of applying our accounting policies. It also requires that we make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingencies at the date of the financial statements and the reported amounts of net revenue and expense during the reporting periods.

Estimates are used when accounting for certain items such as allowance for doubtful accounts and sales returns, depreciation and amortization, inventory obsolescence, asset impairments (including goodwill and other intangible assets), contingencies, the value of certain equity awards and the measurement of share-based compensation, the determination of accrued expenses, certain asset valuations including deferred tax asset valuations, the useful lives of plant and equipment, measurement of our post-retirement benefit obligations, and the identification, valuation, and determination of useful lives of identifiable intangible assets acquired in business combinations. The accounting estimates used in the preparation of the consolidated financial statements may change as new events occur, as more experience is acquired, as additional information is obtained, and as the operating environment changes. Actual results could differ from those estimates.

Revenue Recognition

We recognize revenue to depict the transfer of promised goods to customers in an amount that reflects the consideration to which we expect to be entitled in exchange for those goods. In order to achieve this, we use the five step model outlined in Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") Topic 606, *Revenue from Contracts with Customers*. This five step model requires us to identify the contract with the customer, identify the performance obligation(s) in the contract, determine the transaction price, allocate the transaction price to the performance obligation(s), and recognize revenue when (or as) we satisfy the performance obligation(s).

The vast majority of our contracts (as defined in FASB ASC Topic 606) are customer purchase orders ("POs" and each, a "PO") that require us to transfer specified quantities of tangible products to our customers. These performance obligations are generally satisfied within a short period of time. Amounts billed to our customers for shipping and handling after control has transferred are recognized as revenue and the related costs that we incur are presented in cost of revenue.

In determining the transaction price, we evaluate whether the consideration promised in the contract includes a variable amount and, if applicable, we include in the transaction price some or all of an amount of variable consideration only to the extent it is probable that a significant reversal in the amount of cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is subsequently resolved. Variable consideration may be explicitly stated in the contract or implied based on our customary practices. Examples of variable consideration present in our contracts include rights of return, in the case of a defective or non-conforming product, and trade discounts, including early payment discounts and retrospective volume discounts. Such variable consideration has not historically been material in relation to our net revenue.

Our contract terms generally require the customer to make payment shortly after (that is, less than one year) the shipment date. In such instances, we do not consider the effects of a significant financing component in determining the transaction price. Lastly, we exclude from our determination of the transaction price value-added tax and other similar taxes.

Our performance obligations are satisfied, and revenue is recognized, when control of the product is transferred to the customer. The transfer of control generally occurs at the point in time the product is shipped from our warehouse or, less often, at the point in time it is received by the customer, depending on the specific terms of the arrangement. Many of our products are designed and engineered to meet customer specifications. These activities, and the testing of our products to determine compliance with those specifications, occur prior to any revenue being recognized. Products are then manufactured and sold to customers. However, in certain cases, pre-production activities are a performance obligation in a customer PO, and revenue is recognized when the performance obligation is satisfied. Customer arrangements do not involve post-installation or post-sale testing and acceptance.

Our standard terms of sale provide our customers with a warranty against faulty workmanship and the use of defective materials, which is not considered a distinct performance obligation in accordance with FASB ASC Topic 606. Depending on the product, we generally provide such warranties for a period of twelve to eighteen months after the date we ship the product to our customer or for a period of twelve months after the date the customer resells our product, whichever comes first. Our liability associated with this warranty is, at our option, to repair the product, replace the product, or provide the customer with a credit. We do not offer separately priced extended warranty or product maintenance contracts.

We also sell products to customers under negotiated agreements or where we have accepted the customer's terms of purchase. In these instances, we may provide additional warranties for longer durations, consistent with differing end market practices, and where our liability is not limited. In addition, many sales take place in situations where commercial or civil codes, or other laws, would imply various warranties and restrict limitations on liability.

Refer to Note 3, "Revenue Recognition," for additional information related to the net revenue recognized in the consolidated statements of operations.

Share-Based Compensation

We measure at fair value any new or modified share-based compensation arrangements with employees, such as stock options and restricted securities, and recognize as compensation expense that fair value over the requisite service period as required in accordance with FASB ASC Topic 718, *Compensation—Stock Compensation*. Share-based compensation expense is generally recognized as a component of selling, general and administrative ("SG&A") expense, which is consistent with where the related employee costs are presented, however, such costs, or a portion thereof, may be capitalized provided certain criteria are met.

Share-based awards may be subject to either cliff vesting (i.e., the entire award vests on a particular date) or graded vesting (i.e., portions of the award vest at different points in time). In accordance with FASB ASC Topic 718, compensation expense associated with share-based awards subject to cliff vesting must be recognized on a straight-line basis. For awards without performance conditions that are subject to graded vesting, companies have the option to recognize compensation expense either on a straight-line or accelerated basis. We have elected to recognize compensation expense for these awards on a straight-line basis. However, awards that are subject to both graded vesting and performance conditions must be expensed on an accelerated basis.

We estimate the fair value of options on the grant date using the Black-Scholes-Merton option-pricing model. Key inputs and assumptions used in this model are as follows:

- The fair value of the underlying ordinary shares. This is determined as the closing price of our ordinary shares on the New York Stock Exchange (the "NYSE") on the grant date.
- The expected term. This is determined based upon our own historical average term of exercised and outstanding options.
- Expected volatility. We consider our own historical volatility, as well as our implied volatility, in estimating expected volatility for stock options. Implied volatility provides a forward-looking indication and may offer insight into expected volatility.
- Risk-free interest rate. The risk-free interest rate is based on the yield for a U.S. Treasury security having a maturity similar to the expected term of the related option grant.
- Expected dividend yield. The dividend yield of 0% is based on our history of having never declared or paid any dividends on our ordinary shares, and our current intention of not declaring any such dividends in the foreseeable future.

Restricted securities are valued using the closing price of our ordinary shares on the NYSE on the grant date. Certain of our restricted securities include performance conditions that require us to estimate the probable outcome of the performance condition. Compensation expense is recognized if it is probable that the performance condition will be achieved.

Under the fair value recognition provisions of FASB ASC Topic 718, we recognize share-based compensation net of estimated forfeitures. Accordingly, we only recognize compensation expense for those awards expected to vest over the requisite service period. Compensation expense recognized for each award ultimately reflects the number of units that actually vest.

Refer to Note 4, "Share-Based Payment Plans," for additional information related to share-based compensation.

Financial Instruments

Our financial instruments include derivative instruments, debt instruments, debt and equity investments, and trade accounts receivable.

Derivative financial instruments: We account for our derivative financial instruments in accordance with FASB ASC Topic 820, *Fair Value Measurements and Disclosures* and FASB ASC Topic 815, *Derivatives and Hedging*. In accordance with FASB ASC Topic 815, we recognize all derivatives on the balance sheet at fair value. The fair value of our derivative financial instruments is determined using widely accepted valuation techniques, including discounted cash flow analysis on the expected cash flows of each instrument. These analyses utilize observable market-based inputs, including foreign currency exchange rates and commodity forward curves, and reflect the contractual terms of these instruments, including the period to maturity.

Derivative instruments that are designated and qualify as hedges of the exposure to changes in the fair value of an asset, liability, or commitment, and that are attributable to a particular risk, such as interest rate risk, are considered fair value hedges. Derivative instruments that are designated and qualify as hedges of the exposure to variability in expected future cash flows are considered cash flow hedges. Derivative instruments may also be designated as hedges of the foreign currency exposure of a net investment in a foreign operation. Currently, our derivative instruments that are designated as accounting hedges are all cash flow hedges. We also hold derivative instruments that are not designated as accounting hedges.

The accounting for changes in the fair value of our cash flow hedges depends on whether we have elected to designate the derivative as a hedging instrument for accounting purposes and whether the hedging relationship has satisfied the criteria necessary to apply hedge accounting. In accordance with FASB ASC Topic 815, both the effective and ineffective portion of changes in the fair value of derivatives designated and qualifying as cash flow hedges is recognized in accumulated other comprehensive loss and is subsequently reclassified into earnings in the period in which the hedged forecasted transaction

affects earnings. Changes in the fair value of derivative instruments that are not designated as accounting hedges are recognized immediately in other, net. Refer to Note 16, "Shareholders' Equity," and Note 19, "Derivative Instruments and Hedging Activities," for additional information related to the reclassification of amounts from accumulated other comprehensive loss into earnings.

We present the cash flows arising from our derivative financial instruments in a manner consistent with the presentation of cash flows that relate to the underlying hedged items.

We incorporate credit valuation adjustments to appropriately reflect both our own non-performance risk and the respective counterparty's non-performance risk in the fair value measurements. In adjusting the fair value of our derivative contracts for the effect of non-performance risk, we have considered the impact of netting and any applicable credit enhancements, such as collateral postings, thresholds, mutual puts, and guarantees. We do not offset the fair value amounts recognized for derivative instruments against fair value amounts recognized for the right to reclaim cash collateral or the obligation to return cash collateral.

We maintain derivative instruments with major financial institutions of investment grade credit rating and monitor the amount of credit exposure to any one issuer. We believe there are no significant concentrations of risk associated with our derivative instruments.

Refer to Note 19, "Derivative Instruments and Hedging Activities," for additional information related to our derivative instruments.

Debt Instruments: A premium or discount on a debt instrument is recognized on the balance sheet as an adjustment to the carrying amount of the debt liability. In general, amounts paid to creditors are considered a reduction in the proceeds received from the issuance of the debt and are accounted for as a component of the premium or discount on the issuance, not as an issuance cost.

Direct and incremental costs associated with the issuance of debt instruments such as legal fees, printing costs, and underwriters' fees, among others, paid to parties other than creditors, are also reported and presented as a reduction of debt on the consolidated balance sheets.

Debt issuance costs and premiums or discounts are amortized over the term of the respective financing arrangement using the effective interest method. Amortization of these amounts is included as a component of interest expense, net in the consolidated statements of operations.

In accounting for debt refinancing transactions, we apply the provisions of FASB ASC Subtopic 470-50, *Modifications and Extinguishments*. Our evaluation of the accounting under FASB ASC Subtopic 470-50 is done on a creditor by creditor basis in order to determine if the terms of the debt are substantially different and, as a result, whether to apply modification or extinguishment accounting. In the event that an individual holder of existing debt did not invest in new debt, we apply extinguishment accounting. Borrowings associated with individual holders of new debt that are not holders of existing debt are accounted for as new issuances.

Refer to Note 14, "Debt," for additional information related to our debt instruments and transactions.

Equity Investments: We measure equity investments (other than those accounted for under the equity method, those that result in consolidation of the investee, and certain other investments) either at fair value, with changes to fair value recognized in net income, or in certain instances, by use of a measurement alternative prescribed in FASB ASC Topic 321, *Investments - Equity Securities*. Under the measurement alternative, such investments are measured at cost, less any impairment, plus or minus changes resulting from observable price changes in orderly transactions for an identical or similar investment of the same issuer.

Refer to Note 18, "Fair Value Measures," for additional information related to our measurement of financial instruments.

Trade accounts receivable: Trade accounts receivable are recognized at invoiced amounts and do not bear interest. Trade accounts receivable are reduced by an allowance for losses on receivables, as described elsewhere in this Note 2. Concentrations of risk with respect to trade accounts receivable are generally limited due to the large number of customers in various industries and their dispersion across several geographic areas. Although we do not foresee that credit risk associated with these receivables will deviate from historical experience, repayment is dependent upon the financial stability of these individual customers. Our largest customer accounted for approximately 7% of our net revenue for the year ended December 31, 2019.

Allowance for Losses on Receivables

The allowance for losses on receivables is used to present accounts receivable, net at an amount that represents our estimate of the related transaction price recognized as revenue in accordance with FASB ASC Topic 606. The allowance represents an estimate of probable but unconfirmed losses in the receivable portfolio. We estimate the allowance on the basis of specifically identified receivables that are evaluated individually for impairment and a statistical analysis of the remaining receivables determined by reference to past default experience. Customers are generally not required to provide collateral for purchases. The allowance for losses on receivables also includes an allowance for sales returns (variable consideration).

Management judgments are used to determine when to charge off uncollectible trade accounts receivable. We base these judgments on the age of the receivable, credit quality of the customer, current economic conditions, and other factors that may affect a customer's ability and intent to pay.

Losses on receivables have not historically been significant.

Goodwill and Other Intangible Assets

Businesses acquired are recognized at their fair value on the date of acquisition, with the excess of the purchase price over the fair value of identifiable assets acquired and liabilities assumed recognized as goodwill. Intangible assets acquired may include either definite-lived or indefinite-lived intangible assets, or both.

In accordance with the requirements of FASB ASC Topic 350, *Intangibles—Goodwill and Other*, goodwill and intangible assets determined to have an indefinite useful life are not amortized. Instead these assets are evaluated for impairment on an annual basis, and whenever events or business conditions change that could indicate that the asset is impaired. We evaluate goodwill and indefinite-lived intangible assets for impairment in the fourth quarter of each fiscal year, unless events occur which trigger the need for an earlier impairment review.

Goodwill: We have identified six reporting units: Performance Sensing, Electrical Protection, Industrial Sensing, Aerospace, Power Management, and Interconnection. These reporting units have been identified based on the definitions and guidance provided in FASB ASC Topic 350. We periodically review these reporting units to ensure that they continue to reflect the manner in which the business is operated.

Certain assets and liabilities relate to the operations of multiple reporting units. We allocate these assets and liabilities to the related reporting units based on methods that we believe are reasonable and supportable, and we apply that allocation method on a consistent basis from year to year. Other assets and liabilities, such as cash and cash equivalents and property, plant and equipment ("PP&E") associated with our corporate offices, and debt, we view as being corporate in nature. Accordingly, we do not assign these assets and liabilities to our reporting units.

In the event we reorganize our business, we reassign the assets and liabilities among the affected reporting units using a reasonable and supportable methodology. As businesses are acquired, we assign assets acquired and liabilities assumed to a new or existing reporting unit as of the date of the acquisition.

In the event a disposal group meets the definition of a business, goodwill is allocated to the disposal group based on the relative fair value of the disposal group to the retained portion of the related reporting unit.

We have the option to first assess qualitative factors to determine whether a quantitative analysis must be performed. The objective of a qualitative analysis is to determine whether it is more likely than not that the fair value of a reporting unit is less than its net book value.

If we elect not to use this option, or if we determine that it is more likely than not that the fair value of a reporting unit is less than its net book value, then we perform the first step of the quantitative analysis prescribed by FASB ASC Topic 350. In this step we compare the estimated fair values of our reporting units to their respective net book values, including goodwill, to determine whether there is an indicator of potential impairment. If the net book value of a reporting unit exceeds its estimated fair value, we conduct a second step in which we calculate the implied fair value of goodwill. If the carrying value of the reporting unit's goodwill exceeds its calculated implied fair value, an impairment loss is recognized in an amount equal to that excess. The implied fair value of goodwill is determined in the same manner as the amount of goodwill recognized in a business combination. That is, the fair value of the reporting unit is allocated to all of its identifiable assets and liabilities as if the reporting unit had been acquired in a business combination at the date of assessment, and the fair value of the reporting unit was the purchase price paid to acquire the reporting unit. The excess of the fair value of the reporting unit over the sum of the fair values of each of its identifiable assets and liabilities is the implied fair value of goodwill. The fair value measurements of our reporting units are categorized in level 3 of the fair value hierarchy.

Indefinite-lived intangible assets: Similar to goodwill, we perform an annual impairment review of our indefinite-lived intangible assets in the fourth quarter of each fiscal year, unless events occur that trigger the need for an earlier impairment review. We have the option to first assess qualitative factors in determining whether it is more likely than not that an indefinite-lived intangible asset is impaired. If we elect not to use this option, or we determine that it is more likely than not that the asset is impaired, we perform a quantitative impairment review that requires us to estimate the fair value of the indefinite-lived intangible asset and compare that amount to its carrying value. We estimate the fair value by using the relief-from-royalty method, which requires us to make assumptions about future conditions impacting the value of the indefinite-lived intangible assets, including projected growth rates, cost of capital, effective tax rates, and royalty rates. Impairment, if any, is based on the excess of the carrying value over the fair value of these assets.

Definite-lived intangible assets: Acquisition-related definite-lived intangible assets are amortized on an economic-benefit basis according to the useful lives of the assets, or on a straight-line basis if a pattern of economic benefits cannot be reliably determined. Capitalized software and capitalized software licenses are presented on the consolidated balance sheets as intangible assets. Capitalized software licenses are amortized on a straight-line basis over the lesser of the term of the license or the estimated useful life of the software. Capitalized software is amortized on a straight-line basis over its estimated useful life.

Reviews are regularly performed to determine whether facts or circumstances exist that indicate that the carrying values of our definite-lived intangible assets are impaired. If we determine that such facts or circumstances exist, we estimate the recoverability of these assets by comparing the projected undiscounted net cash flows associated with these assets to their respective carrying values. If the sum of the projected undiscounted net cash flows is less than the carrying value of an asset, the impairment charge is measured as the excess of the carrying value over the fair value of that asset. We determine fair value by using the appropriate income approach valuation methodology, depending on the nature of the definite-lived intangible asset.

Refer to Note 11, "Goodwill and Other Intangible Assets, Net," for additional information related to our goodwill and other intangible assets.

Income Taxes

We estimate our provision for income taxes in each of the jurisdictions in which we operate. The provision for income taxes includes both our current and deferred tax exposure. Our deferred tax exposure is measured using the asset and liability method, under which deferred income taxes are recognized to reflect the future tax consequences of differences between the tax bases of assets and liabilities and their financial reporting amounts at each balance sheet date, based on enacted tax laws and statutory tax rates applicable to the periods in which the differences are expected to reverse or settle. The effect on deferred tax assets and liabilities of a change in statutory tax rates is recognized in the consolidated statements of operations as an adjustment to income tax expense in the period that includes the enactment date.

In measuring our deferred tax assets, we consider all available evidence, both positive and negative, to determine whether, based on the weight of that evidence, a valuation allowance is needed for all or some portion of the deferred tax assets. If it is determined that it is more likely than not that future tax benefits associated with a deferred tax asset will not be realized, a valuation allowance is provided. As a result, we maintain valuation allowances against the deferred tax assets in jurisdictions that have incurred losses in recent periods and in which it is more likely than not that such deferred tax assets will not be utilized in the foreseeable future.

On December 22, 2017, the Tax Cuts and Jobs Act of 2017 (the "Tax Reform Act") was signed into law. The Tax Reform Act introduced two new U.S. tax base erosion provisions: the global intangible low-taxed income ("GILTI") and the base erosion and anti-abuse tax ("BEAT"). We elected to account for GILTI in the period in which it is incurred rather than adjusting our deferred tax assets for any future impacts of this provision. Similarly, we account for BEAT tax in the year incurred as a period expense only, and have followed the guidance found in the FASB Staff Q&A, Topic 740, No. 4, *Accounting for the Base Erosion Anti-Abuse Tax*, which states that an entity does not need to evaluate the potential of paying BEAT in future years on the realization of its deferred tax assets and liabilities. We have followed this guidance in our current tax calculation and evaluation of the realizability of our deferred tax assets.

In accordance with FASB ASC Topic 740, *Income Taxes*, we record uncertain tax positions on the basis of a two-step process. First, we determine whether it is more likely than not that the tax positions will be sustained based on the technical merits of the position. Second, for those tax positions that meet the more-likely-than-not recognition threshold, we recognize the largest amount of tax benefit that is greater than 50 percent likely to be realized upon ultimate settlement with the relevant tax authority. Significant judgment is required in evaluating whether our tax positions meet this two-step process. The more-likely-than-not recognition threshold must be met in each reporting period to support continued recognition of any tax benefits claimed, both in the current year, as well as any year which remains open for review by the relevant tax authority at the balance sheet date. Penalties and interest related to uncertain tax positions may be classified as either income taxes or another expense

line item in the consolidated statements of operations. We classify interest and penalties related to uncertain tax positions within the provision for/(benefit from) income taxes line of the consolidated statements of operations.

Refer to Note 7, "Income Taxes," for additional information related to our income taxes.

Pension and Other Post-Retirement Benefits

We sponsor various pension and other post-retirement benefit plans covering our current and former employees in several countries.

The funded status of pension and other post-retirement benefit plans, recognized on our consolidated balance sheets as an asset, current liability, or long-term liability, is measured as the difference between the fair value of plan assets and the benefit obligation at the measurement date. In general, the measurement date coincides with our fiscal year end, however, certain significant events, such as (1) plan amendments, (2) business combinations, (3) settlements or curtailments, or (4) plan mergers, may trigger the need for an interim measurement of both the plan assets and benefit obligations.

Benefit obligations represent the actuarial present value of all benefits attributed by the pension formula as of the measurement date to employee service rendered before that date. The value of benefit obligations takes into consideration various financial assumptions, including assumed discount rate and the rate of increase in healthcare costs, and demographic assumptions, including compensation rate increases, retirement patterns, employee turnover rates, and mortality rates. We review these assumptions annually.

Our review of demographic assumptions includes analyzing historical patterns and/or referencing industry standard tables, combined with our expectations around future compensation and staffing strategies. The difference between these assumptions and our actual experience results in the recognition of an actuarial gain or loss. Actuarial gains and losses are recorded directly to other comprehensive income or loss. If the total net actuarial gain or loss included in accumulated other comprehensive loss exceeds a threshold of 10% of the greater of the projected benefit obligation or the market related value of plan assets, it is subject to amortization and recorded as a component of net periodic benefit cost over the average remaining service lives of the employees participating in the pension or post-retirement benefit plan.

The discount rate reflects the current rate at which the pension and other post-retirement liabilities could be effectively settled, considering the timing of expected payments for plan participants. It is used to discount the estimated future obligations of the plans to the present value of the liability reflected in the financial statements. In estimating this rate in countries that have a market of high-quality, fixed-income investments, we consider rates of return on these investments included in various bond indices, adjusted to eliminate the effects of call provisions and differences in the timing and amounts of cash outflows related to the bonds. In other countries where a market of high-quality, fixed-income investments does not exist, we estimate the discount rate using government bond yields or long-term inflation rates.

The expected return on plan assets reflects the average rate of earnings expected on the funds invested to provide for the benefits included in the projected benefit obligation. To determine the expected return on plan assets, we use the fair value of plan assets and consider the historical returns earned by similarly invested assets, the rates of return expected on plan assets in the future, and our investment strategy and asset mix with respect to the plans' funds.

Changes to benefit obligations may also be initiated by a settlement or curtailment. A settlement of a defined benefit obligation is an irrevocable transaction that relieves us (or the plan) of primary responsibility for the defined benefit obligation and eliminates significant risks related to the obligation and the assets used to effect the settlement. The settlement of all or more than a minor portion of the pension obligation constitutes an event that requires recognition of all or part of the net actuarial gains or losses deferred in accumulated other comprehensive loss. Our policy is to apply settlement accounting to the extent our year-to date settlements for a given plan exceed the sum of our forecasted full year service cost and interest cost for that particular plan.

A curtailment is an event that significantly reduces the expected years of service of active employees or eliminates for a significant number of employees the accrual of defined benefits for some or all of their future service. The curtailment accounting provisions are applied on a plan-by-plan basis. The total gain or loss resulting from a curtailment is the sum of two distinct elements: (1) prior service cost write-off and (2) curtailment gain or loss. Our policy is that a curtailment event represents one for which we expect a 10% (or greater) reduction in future years of service or an elimination of the accrual of defined benefits for some or all of the future services of 10% (or greater) of the plan's participants.

Contributions made to pension and other post-retirement benefit plans are presented as cash used in operations within the consolidated statements of cash flows.

We present the service cost component of net periodic benefit cost in the cost of revenue, research and development ("R&D"), and SG&A expense line items, and we present the non-service components of net periodic benefit cost in other, net.

Refer to Note 13, "Pension and Other Post-Retirement Benefits," for additional information related to our pension and other post-retirement benefit plans.

Inventories

Inventories are stated at the lower of cost or estimated net realizable value. The cost of raw materials, work-in-process, and finished goods is determined based on a first-in, first-out basis and includes material, labor, and applicable manufacturing overhead. We conduct quarterly inventory reviews for salability and obsolescence, and inventory considered unlikely to be sold is adjusted to net realizable value.

Refer to Note 9, "Inventories," for additional information related to our inventory balances.

Property, Plant and Equipment and Other Capitalized Costs

PP&E is stated at cost, and in the case of plant and equipment, is depreciated on a straight-line basis over its estimated economic useful life. The depreciable lives of plant and equipment are as follows:

Buildings and improvements	2 – 40 years
Machinery and equipment	2 – 15 years

Leasehold improvements are amortized using the straight-line method over the shorter of the remaining lease term or the estimated economic useful lives of the improvements. Amortization of leasehold improvements is included in depreciation expense.

Assets held under finance leases are recognized at the lower of the present value of the minimum lease payments or the fair value of the leased asset at the inception of the lease. Depreciation expense associated with finance leases is computed using the straight-line method over the shorter of the estimated useful lives of the assets or the period of the related lease, unless ownership is transferred by the end of the lease or there is a bargain purchase option, in which case the asset is depreciated, normally on a straight-line basis, over the useful life that would be assigned if the asset were owned.

Expenditures for maintenance and repairs are charged to expense as incurred, whereas major improvements that increase asset values and extend useful lives are capitalized.

Refer to Note 10, "Property, Plant and Equipment," for additional information related to our PP&E balances.

Foreign Currency

We derive a significant portion of our net revenue from markets outside of the U.S. For financial reporting purposes, the functional currency of all of our subsidiaries is the USD because of the significant influence of the USD on our operations. In certain instances, we enter into transactions that are denominated in a currency other than the USD. At the date that such transaction is recognized, each asset, liability, revenue, expense, gain, or loss arising from the transaction is measured and recorded in USD using the exchange rate in effect at that date. At each balance sheet date, recorded monetary balances denominated in a currency other than USD are adjusted to USD using the exchange rate at the balance sheet date, with gains or losses recognized in other, net in the consolidated statements of operations.

Cash and Cash Equivalents

Cash comprises cash on hand. Cash equivalents are short-term, highly liquid investments that are readily convertible to known amounts of cash, are subject to an insignificant risk of change in value, and have original maturities of three months or less.

Recently issued accounting standards adopted in the current period:

In February 2016, the FASB issued Accounting Standards Update ("ASU") No. 2016-02, *Leases (Topic 842)*, which establishes new accounting and disclosure requirements for leases. FASB ASC Topic 842, *Leases*, requires lessees to classify most leases as either finance or operating leases and to recognize a lease liability and right-of-use asset. For finance leases, the statements of operations include separate recognition of interest on the lease liability and amortization of the right-of-use asset. For operating leases, the statements of operations include a single lease cost, calculated so that the cost of the lease is allocated

over the lease term on a straight-line basis. We adopted the provisions of FASB ASU No. 2016-02 on January 1, 2019 using the modified retrospective transition method. Refer to Note 21, "Leases" for additional information related to this adoption.

No other recently issued accounting standards adopted in the current period had a material impact on our consolidated financial position or results of operations.

Recently issued accounting standards to be adopted in a future period:

There are no recently issued accounting standards to be adopted in future periods that are expected to have a material impact on our consolidated financial position or results of operations.

3. Revenue Recognition

We recognize revenue to depict the transfer of promised goods to customers in an amount that reflects the consideration to which we expect to be entitled in exchange for those goods. The vast majority of our revenue is derived from the sale of tangible products whereby control of the product transfers to the customer at a point in time, we recognize revenue at a point in time, and the underlying contract is a PO that establishes a firm purchase commitment for a short period of time. Our standard terms of sale provide our customers with a warranty against faulty workmanship and the use of defective materials. We do not offer separately priced extended warranty or product maintenance contracts. Refer to Note 2, "Significant Accounting Policies" for additional information.

We have elected to apply certain practical expedients that allow for more limited disclosures than those that would otherwise be required by FASB ASC Topic 606, including (1) the disclosure of transaction price allocated to the remaining unsatisfied performance obligations at the end of the period and (2) an explanation of when we expect to recognize the related revenue.

We believe that our end markets are the categories that best depict how the nature, amount, timing, and uncertainty of revenue and cash flows are affected by economic factors. The following table presents net revenue disaggregated by segment and end market for the years ended December 31, 2019, 2018, and 2017:

	Performance Sensing			Sensing Solutions			Total		
	For the year ended December 31,			For the year ended December 31,			For the year ended December 31,		
	2019	2018	2017	2019	2018	2017	2019	2018	2017
Net revenue:									
Automotive	\$ 1,986,537	\$ 2,076,834	\$ 1,989,152	\$ 42,446	\$ 49,961	\$ 50,463	\$ 2,028,983	\$ 2,126,795	\$ 2,039,615
HVOR ⁽¹⁾	559,479	550,817	471,448	—	—	—	559,479	550,817	471,448
Industrial	—	—	—	351,942	336,617	312,137	351,942	336,617	312,137
Appliance and HVAC ⁽²⁾	—	—	—	201,745	208,482	209,958	201,745	208,482	209,958
Aerospace	—	—	—	176,505	164,294	150,782	176,505	164,294	150,782
Other	—	—	—	131,977	134,622	122,793	131,977	134,622	122,793
Net revenue	<u>\$ 2,546,016</u>	<u>\$ 2,627,651</u>	<u>\$ 2,460,600</u>	<u>\$ 904,615</u>	<u>\$ 893,976</u>	<u>\$ 846,133</u>	<u>\$ 3,450,631</u>	<u>\$ 3,521,627</u>	<u>\$ 3,306,733</u>

(1) Heavy vehicle and off-road

(2) Heating, ventilation and air conditioning

In addition, refer to Note 20, "Segment Reporting," for a presentation of net revenue disaggregated by product category and geographic region.

Contract Assets and Liabilities

Accounts receivable represent our only contract asset. Contract liabilities, whereby we receive payment from customers related to our promise to satisfy performance obligations in the future, are not material.

4. Share-Based Payment Plans

We issue share-based compensation awards under the Sensata Technologies Holding plc First Amended and Restated 2010 Equity Incentive Plan (the "2010 Equity Incentive Plan"). The purpose of the 2010 Equity Incentive Plan is to promote long-term growth and profitability by providing our present and future eligible directors, officers, and employees with incentives to contribute to, and participate in, our success. There are 10.0 million ordinary shares authorized for grants of awards under the 2010 Equity Incentive Plan, of which 2.5 million were available as of December 31, 2019.

Refer to Note 2, "Significant Accounting Policies," for additional information related to our to share-based compensation accounting policies.

Share-Based Compensation Awards

We grant option, restricted stock unit ("RSU"), and performance restricted stock unit ("PRSU") awards under the 2010 Equity Incentive Plan. For option and RSU awards vesting is typically subject only to continued employment and the passage of time. For PRSU awards vesting is also subject to continued employment and the passage of time, however the number of awarded units that ultimately vest also depends on the attainment of certain predefined performance criteria. Throughout this Annual Report on Form 10-K, RSU and PRSU awards are often referred to collectively as "restricted securities."

Options

A summary of stock option activity for the years ended December 31, 2019, 2018, and 2017 is presented in the table below (amounts have been calculated based on unrounded shares):

	Number of Options (thousands)	Weighted-Average Exercise Price Per Option	Weighted-Average Remaining Contractual Term (years)	Aggregate Intrinsic Value
Balance as of December 31, 2016	3,546	\$ 35.67	6.3	\$ 19,844
Granted	387	\$ 43.67		
Forfeited or expired	(1)	\$ 32.03		
Exercised	(326)	\$ 22.86		\$ 7,175
Balance as of December 31, 2017	3,606	\$ 37.69	6.0	\$ 50,130
Granted	307	\$ 51.83		
Forfeited or expired	(39)	\$ 45.59		
Exercised	(172)	\$ 35.31		\$ 3,143
Balance as of December 31, 2018	3,702	\$ 38.89	5.3	\$ 27,846
Granted	382	\$ 46.92		
Forfeited or expired	(83)	\$ 48.92		
Exercised	(537)	\$ 28.21		\$ 11,690
Balance as of December 31, 2019	3,464	\$ 41.19	5.0	\$ 44,696
Options vested and exercisable as of December 31, 2019	2,646	\$ 39.49	4.0	\$ 38,811
Vested and expected to vest as of December 31, 2019	3,385	\$ 41.05	4.9	\$ 44,145

A summary of the status of our unvested options as of December 31, 2019, and of the changes during the year then ended, is presented in the table below (amounts have been calculated based on unrounded shares):

	Number of Options (thousands)	Weighted-Average Grant-Date Fair Value
Balance as of December 31, 2018	1,077	\$ 13.98
Granted during the year	382	\$ 13.90
Vested during the year	(579)	\$ 13.41
Forfeited during the year	(62)	\$ 14.39
Balance as of December 31, 2019	818	\$ 14.33

The fair value of stock options that vested during the years ended December 31, 2019, 2018, and 2017 was \$7.8 million, \$5.5 million, and \$5.6 million, respectively.

Option awards granted to employees under the 2010 Equity Incentive Plan generally vest 25% per year over four years from the grant date.

We recognize compensation expense for options on a straight-line basis over the requisite service period, which is generally the same as the vesting period. The options generally expire ten years from the date of grant.

For options granted prior to April 2019, except as otherwise provided in specific option award agreements, if a participant ceases to be employed by us, options not yet vested generally expire and are forfeited at the termination date, and options that

are fully vested generally expire 60 days after termination of the participant's employment. Exclusions to the general policy for terminated employees include termination for cause (in which case the options expire on the participant's termination date) and termination due to death or disability (in which case any unvested options shall immediately vest and expire six months after the participant's termination date).

For options granted in or after April 2019, the same terms apply, except that fully vested options expire 90 days after termination of the participant's employment for any reason other than termination for cause (in which case the options expire on the participant's termination date), termination due to death or disability (in which case the options expire one year after the participant's termination date), and termination for a qualified retirement (in which case options will continue to vest and expire ten years from the grant date).

The weighted-average grant-date fair value per option granted during the years ended December 31, 2019, 2018, and 2017 was \$13.90, \$15.70, and \$14.50, respectively. The fair value of options was estimated on the date of grant using the Black-Scholes-Merton option-pricing model. The weighted-average key assumptions used in estimating the grant-date fair value of options for the years ended December 31, 2019, 2018, and 2017 are as follows:

	For the year ended December 31,		
	2019	2018	2017
Expected dividend yield	0.00%	0.00%	0.00%
Expected volatility	25.00%	25.00%	30.00%
Risk-free interest rate	2.35%	2.62%	2.08%
Expected term (years)	6.0	6.0	6.0
Fair value per share of underlying ordinary shares	\$ 46.92	\$ 51.83	\$ 43.67

Restricted Securities

We grant RSU awards that cliff vest between one year and three years from the grant date, and we grant PRSU awards that cliff vest three years after the grant date. For PRSU awards, the number of units that ultimately vest depends on the extent to which certain performance criteria are met, as described in the table below. For restricted securities granted in or after April 2019, terms include provisions allowing continued or accelerated vesting for a qualified retirement.

A summary of restricted securities granted in the years ended December 31, 2019, 2018, and 2017 is presented below:

(Awards in thousands)	RSU Awards Granted	Weighted- Average Grant-Date Fair Value	Percentage Range of Units That May Vest ⁽¹⁾					
			0.0% to 150.0%		0.0% to 172.5%		0.0% to 200.0%	
			PRSU Awards Granted	Weighted- Average Grant-Date Fair Value	PRSU Awards Granted	Weighted- Average Grant-Date Fair Value	PRSU Awards Granted	Weighted- Average Grant-Date Fair Value
2019	298	\$ 47.73	76	\$ 46.92	138	\$ 46.92	—	\$ —
2018	218	\$ 51.05	63	\$ 51.83	118	\$ 51.83	—	\$ —
2017	182	\$ 43.24	—	\$ —	183	\$ 43.67	53	\$ 43.33

⁽¹⁾ Represents the percentage range of PRSU award units granted that may vest according to the terms of the awards. The amounts presented within this table do not reflect our current assessment of the probable outcome of vesting based on the achievement or expected achievement of performance conditions.

Compensation expense for the year ended December 31, 2019 reflects our estimate of the probable outcome of the performance conditions associated with the PRSU awards granted in fiscal years 2019, 2018, and 2017.

A summary of activity related to outstanding restricted securities for fiscal years 2019, 2018, and 2017 is presented in the table below (amounts have been calculated based on unrounded shares):

	Restricted Securities (thousands)	Weighted-Average Grant-Date Fair Value
Balance as of December 31, 2016	920	\$ 44.35
Granted	418	\$ 43.44
Forfeited	(35)	\$ 43.94
Vested	(222)	\$ 42.24
Balance as of December 31, 2017	1,081	\$ 44.43
Granted	399	\$ 51.40
Forfeited	(121)	\$ 48.28
Vested	(240)	\$ 53.01
Balance as of December 31, 2018	1,119	\$ 44.66
Granted ⁽¹⁾	555	\$ 46.73
Forfeited	(115)	\$ 47.07
Vested	(454)	\$ 39.62
Balance as of December 31, 2019	1,105	\$ 47.51

⁽¹⁾ Includes 43 thousand PRSU awards granted due to greater than 100% vesting.

Aggregate intrinsic value information for restricted securities as of December 31, 2019, 2018, and 2017 is presented below:

	As of December 31,		
	2019	2018	2017
Outstanding	\$ 59,526	\$ 50,161	\$ 55,271
Expected to vest	\$ 34,717	\$ 44,203	\$ 42,106

The weighted-average remaining periods over which the restrictions will lapse as of December 31, 2019, 2018, and 2017 are as follows:

	As of December 31,		
	2019	2018	2017
Outstanding	1.1	1.2	1.3
Expected to vest	1.0	1.2	1.4

The expected to vest restricted securities are calculated based on the application of a forfeiture rate assumption to all outstanding restricted securities as well as our assessment of the probability of meeting the required performance conditions that pertain to the PRSU awards.

Share-Based Compensation Expense

The table below presents non-cash compensation expense related to our equity awards, which is recognized within SG&A expense in the consolidated statements of operations, during the identified periods:

	For the year ended December 31,		
	2019	2018	2017
Stock options	\$ 6,552	\$ 5,739	\$ 6,046
Restricted securities	12,205	18,086	13,773
Share-based compensation expense	\$ 18,757	\$ 23,825	\$ 19,819

In fiscal years 2019 and 2018, we recognized \$3.2 million and \$3.0 million of income tax benefit associated with share-based compensation expense. We recognized no such tax benefit in fiscal year 2017.

The table below presents unrecognized compensation expense at December 31, 2019 for each class of award, and the remaining expected term for this expense to be recognized:

	Unrecognized Compensation Expense	Expected Recognition (years)
Options	\$ 8,419	1.8
Restricted securities	14,789	1.5
Total unrecognized compensation expense	<u>\$ 23,208</u>	

5. Restructuring and Other Charges, Net

Restructuring and other charges, net for the years ended December 31, 2019, 2018, and 2017 were as follows:

	For the year ended December 31,		
	2019	2018	2017
Severance costs, net ⁽¹⁾	\$ 29,240	\$ 7,566	\$ 11,125
Facility and other exit costs ⁽²⁾	808	877	7,850
Gain on sale of Valves Business ⁽³⁾⁽⁵⁾	—	(64,423)	—
Other ⁽⁴⁾⁽⁵⁾	23,512	8,162	—
Restructuring and other charges, net	<u>\$ 53,560</u>	<u>\$ (47,818)</u>	<u>\$ 18,975</u>

- (1) Severance costs, net for the year ended December 31, 2019 included termination benefits provided in connection with workforce reductions of manufacturing, engineering, and administrative positions including the elimination of certain positions related to site consolidations, approximately \$12.7 million of benefits provided under a voluntary retirement incentive program offered to a limited number of eligible employees in the U.S, and \$6.5 million of termination benefits provided under a one-time benefit arrangement related to the shutdown and relocation of an operating site in Germany. Severance costs, net for the year ended December 31, 2018 were primarily related to termination benefits provided in connection with limited workforce reductions of manufacturing, engineering, and administrative positions including the elimination of certain positions related to site consolidations. Severance costs, net recognized during the year ended December 31, 2017 included \$8.4 million of charges related to the closure of our facility in Minden, Germany, a site we obtained in connection with the acquisition of certain subsidiaries of Custom Sensors & Technologies Ltd. ("CST").
- (2) Facility and other exit costs for the year ended December 31, 2017 included \$3.2 million of costs related to the closure of our facility in Minden, Germany and \$3.1 million of costs associated with the consolidation of two other manufacturing sites in Europe.
- (3) In the year ended December 31, 2018, we completed the sale of the capital stock of Schrader Bridgeport International, Inc. and August France Holding Company SAS (collectively, the "Valves Business").
- (4) In the year ended December 31, 2019, these amounts included a \$17.8 million loss related to the termination of a supply agreement in connection with the Metal Seal Precision, Ltd. ("Metal Seal") litigation and \$6.1 million of expense related to the deferred compensation arrangement that we entered into in connection with the acquisition of GIGAVAC, LLC ("GIGAVAC"). Refer to Note 15, "Commitments and Contingencies," for additional information related to the supply agreement termination and litigation with Metal Seal. In the year ended December 31, 2018, we incurred \$5.9 million of incremental direct costs in order to transact the sale of the Valves Business and \$2.2 million of expense related to the deferred compensation arrangement that we entered into connection with the acquisition of GIGAVAC.
- (5) Refer to Note 17, "Acquisitions and Divestitures," for additional information related to the acquisition of GIGAVAC and the divestiture of the Valves Business.

Changes to our severance liability during the years ended December 31, 2019 and 2018 were as follows:

	Severance
Balance as of December 31, 2017	\$ 7,583
Charges, net of reversals	7,566
Payments	(8,341)
Foreign currency remeasurement	(217)
Balance as of December 31, 2018	6,591
Charges, net of reversals	29,240
Payments	(21,095)
Foreign currency remeasurement	43
Balance as of December 31, 2019	<u>\$ 14,779</u>

The severance liability as of December 31, 2019 and 2018 was entirely recorded in accrued expenses and other current liabilities on our consolidated balance sheets. Refer to Note 12, "Accrued Expenses and Other Current Liabilities."

6. Other, Net

Other, net consisted of the following for the years ended December 31, 2019, 2018, and 2017:

	For the year ended December 31,		
	2019	2018	2017
Currency remeasurement (loss)/gain on net monetary assets ⁽¹⁾	\$ (6,802)	\$ (18,905)	\$ 18,041
Gain/(loss) on foreign currency forward contracts ⁽²⁾	2,225	2,070	(15,618)
Gain/(loss) on commodity forward contracts ⁽²⁾	4,888	(8,481)	9,989
Loss on debt financing ⁽³⁾	(4,364)	(2,350)	(2,670)
Net periodic benefit cost, excluding service cost	(3,186)	(3,585)	(3,402)
Other	(669)	886	75
Other, net	<u>\$ (7,908)</u>	<u>\$ (30,365)</u>	<u>\$ 6,415</u>

⁽¹⁾ Relates to the remeasurement of non-USD denominated net monetary assets and liabilities into USD. Refer to the *Foreign Currency* section of Note 2, "Significant Accounting Policies," for additional information.

⁽²⁾ Relates to changes in the fair value of derivative financial instruments not designated as cash flow hedges. Refer to Note 19, "Derivative Instruments and Hedging Activities," for additional information related to gains and losses on our commodity and foreign currency exchange forward contracts.

⁽³⁾ Refer to Note 14, "Debt," for additional information related to our debt financing transactions.

7. Income Taxes

Effective April 27, 2006 (inception), and concurrent with the completion of the acquisition of the Sensors & Controls business ("S&C") of Texas Instruments Incorporated ("TI") (the "2006 Acquisition"), we commenced filing tax returns in the Netherlands as a stand-alone entity. On March 28, 2018, the Company reincorporated its headquarters in the U.K. We file income tax returns in the countries in which our subsidiaries are incorporated and/or operate, including Belgium, Bulgaria, China, France, Germany, Japan, Malaysia, Mexico, the Netherlands, South Korea, the U.S., and the U.K. The 2006 Acquisition purchase accounting and the related debt and equity capitalization of the various subsidiaries of the consolidated company, and the realignment of the functions performed and risks assumed by the various subsidiaries, are of significant consequence to the determination of future book and taxable income of the respective subsidiaries and Sensata as a whole.

Refer to Note 2, "Significant Accounting Policies," for detailed discussion of the accounting policies related to income taxes.

Effects of the Tax Cuts and Jobs Act

The Tax Reform Act reduced the U.S. federal corporate tax rate from 35% to 21%, required companies to pay a one-time transition tax on earnings of certain foreign subsidiaries that were previously tax deferred, and created new taxes on certain foreign sourced earnings. In fiscal year 2017 we recognized a tax benefit related to the enactment-date effects of the Tax

Reform Act resulting from the adjustment of our deferred tax assets and liabilities, net of the impact from recognizing the one-time transition tax liability related to undistributed earnings of certain foreign subsidiaries which were not previously taxed.

Deferred tax assets and liabilities

In the year ended December 31, 2017, we remeasured certain deferred tax assets and liabilities based on the rates at which they are expected to reverse in the future, which is generally 21%, by recognizing a tax benefit of \$73.7 million, which was principally associated with indefinite-lived intangible assets. Absent this deferred tax liability, we would have been in a net deferred tax asset position that was offset by a valuation allowance at December 31, 2017. Upon further analysis of certain aspects of the Tax Reform Act and refinement of our calculations during the year ended December 31, 2018, we determined that no further adjustment was necessary.

Global intangible low-taxed income

The Tax Reform Act subjects a U.S. shareholder to tax on GILTI earned by certain foreign subsidiaries. The FASB Staff Q&A, Topic 740, No. 5, *Accounting for Global Intangible Low-Taxed Income*, states that an entity can make an accounting policy election to either recognize deferred taxes for temporary basis differences expected to reverse as GILTI in future years or to provide for the tax expense related to GILTI in the year the tax is incurred as a period expense only. We have elected to account for GILTI in the year the tax is incurred.

Income before taxes

Income/(loss) before taxes for the years ended December 31, 2019, 2018, and 2017 was categorized by jurisdiction as follows:

	U.S.	Non-U.S.	Total
2019	\$ 13,183	\$ 377,240	\$ 390,423
2018	\$ 68,027	\$ 458,348	\$ 526,375
2017	\$ (11,425)	\$ 413,866	\$ 402,441

Provision for/(benefit from) income taxes

Provision for/(benefit from) income taxes for the years ended December 31, 2019, 2018, and 2017 was categorized by jurisdiction as follows:

	U.S. Federal	Non-U.S.	U.S. State	Total
2019				
Current	\$ 5,643	\$ 73,947	\$ 496	\$ 80,086
Deferred	9,687	17,339	597	27,623
Total	<u>\$ 15,330</u>	<u>\$ 91,286</u>	<u>\$ 1,093</u>	<u>\$ 107,709</u>
2018				
Current	\$ 5,700	\$ 64,666	\$ 1,082	\$ 71,448
Deferred	(109,663)	(18,770)	(15,635)	(144,068)
Total	<u>\$ (103,963)</u>	<u>\$ 45,896</u>	<u>\$ (14,553)</u>	<u>\$ (72,620)</u>
2017				
Current	\$ —	\$ 50,601	\$ 240	\$ 50,841
Deferred	(56,956)	(1,104)	1,303	(56,757)
Total	<u>\$ (56,956)</u>	<u>\$ 49,497</u>	<u>\$ 1,543</u>	<u>\$ (5,916)</u>

Effective tax rate reconciliation

The principal reconciling items from income tax computed at the U.S. statutory tax rate for the years ended December 31, 2019, 2018, and 2017 were as follows:

	For the year ended December 31,		
	2019	2018	2017
Tax computed at statutory rate of 21% in 2019 and 2018, and 35% in 2017	\$ 81,989	\$ 110,539	\$ 140,854
Reserve for tax exposure	20,079	10,775	38,013
Valuation allowances	19,640	(123,426)	(3,368)
Foreign tax rate differential	(19,107)	(41,200)	(111,990)
Withholding taxes not creditable	9,509	8,734	3,896
Research and development incentives	(8,410)	(19,475)	(5,922)
Change in tax laws or rates	5,121	(22,264)	3,912
U.S. state taxes, net of federal benefit	863	(11,499)	1,087
Unrealized foreign currency exchange losses, net	(43)	11,346	830
U.S. Tax Reform Act impact	—	—	(73,668)
Other	(1,932)	3,850	440
Provision for/(benefit from) income taxes	<u>\$ 107,709</u>	<u>\$ (72,620)</u>	<u>\$ (5,916)</u>

Valuation allowance impact on tax expense

During the year ended December 31, 2018, we released a substantial portion of our valuation allowance against our deferred tax assets in the U.S. We continue to maintain a valuation allowance against certain of our interest, foreign tax, and state tax credit carryforwards. Refer to the discussion below related to the release of the valuation allowance.

U.S. Tax Reform Act Impact

As a result of the Tax Reform Act, the U.S. statutory tax rate was lowered from 35% to 21%, effective on January 1, 2018. We were required to remeasure our U.S. deferred tax assets and liabilities to the new tax rate. For the year ended December 31, 2017 we recognized \$73.7 million of income tax benefit for the remeasurement of the deferred tax liabilities associated with indefinite-lived intangible assets that will reverse at the new 21% rate. Absent this deferred tax liability, the U.S. operation was in a net deferred tax asset position that was offset by a full valuation allowance at December 31, 2017. We reduced our net deferred tax assets excluding the indefinite-lived intangible assets and the corresponding valuation allowance by \$120.0 million.

Foreign tax rate differential

We operate in locations outside the U.S., including Bermuda, Bulgaria, China, Malaysia, the Netherlands, South Korea, and the U.K., that historically have had statutory tax rates different than the U.S. statutory tax rate. This can result in a foreign tax rate differential that may reflect a tax benefit or detriment. This foreign tax rate differential can change from year to year based upon the jurisdictional mix of earnings and changes in current and future enacted tax rates.

Our subsidiary in Changzhou, China is currently eligible for a reduced tax rate of 15%, which is effective through 2021. The impact on current tax expense of the tax holidays and exemptions is included in the foreign tax rate differential line in the reconciliation of the statutory tax rate to effective rate. The remeasurement of the deferred tax assets and liabilities is included in the change in tax laws or rates line.

Research and development incentives

Certain income of our U.K. subsidiaries is eligible for lower tax rates under the "patent box" regime, resulting in certain of our intellectual property income being taxed at a rate lower than the U.K. statutory tax rate. Certain R&D expenses are eligible for a bonus deduction under China's R&D super deduction regime. In fiscal year 2018, we substantially completed an assessment of our ability to claim an R&D credit in the U.S. As a result of this assessment, we recognized a tax benefit of \$10.0 million. Prior to fiscal year 2018, the deferred tax asset related to these R&D credits would have been offset by the valuation allowance.

Withholding taxes not creditable

Withholding taxes may apply to intercompany interest, royalty, management fees, and certain payments to third parties. Such taxes are deducted if they cannot be credited against the recipient's tax liability in its country of residence. Additional consideration also has been given to the withholding taxes associated with unremitted earnings and the recipient's ability to obtain a tax credit for such taxes. Earnings are not considered to be indefinitely reinvested in the jurisdictions in which they were earned. In certain jurisdictions we recognize a deferred tax liability on withholding and other taxes on intercompany payments including dividends.

Deferred income tax assets and liabilities

The primary components of deferred income tax assets and liabilities as of December 31, 2019 and 2018 were as follows:

	As of December 31,	
	2019	2018
Deferred tax assets:		
Net operating loss, interest expense, and other carryforwards	\$ 283,094	\$ 305,277
Prepaid and accrued expenses	67,143	72,093
Intangible assets	20,457	27,122
Inventories and related reserves	16,712	14,171
Property, plant and equipment	14,749	14,571
Share-based compensation	10,288	11,332
Pension liability and other	7,158	8,741
Unrealized exchange loss	1,959	4,255
Total deferred tax assets	421,560	457,562
Valuation allowance	(146,775)	(157,043)
Net deferred tax asset	274,785	300,519
Deferred tax liabilities:		
Intangible assets and goodwill	(440,009)	(440,348)
Tax on undistributed earnings of subsidiaries	(31,636)	(35,187)
Property, plant and equipment	(13,762)	(15,795)
Operating lease right of use assets	(12,522)	—
Unrealized exchange gain	(6,739)	(6,912)
Total deferred tax liabilities	(504,668)	(498,242)
Net deferred tax liability	\$ (229,883)	\$ (197,723)

Valuation allowance and net operating loss carryforwards

In measuring our deferred tax assets, we consider all available evidence, both positive and negative, to determine whether, based on the weight of that evidence, a valuation allowance is needed for all or some portion of the deferred tax assets. Significant judgment is required in considering the relative impact of the negative and positive evidence, and weight given to each category of evidence is commensurate with the extent to which it can be objectively verified. The more negative evidence that exists, the more positive evidence is necessary, and the more difficult it is to support a conclusion that a valuation allowance is not needed. Additionally, we utilize the "more likely than not" criteria established in FASB ASC Topic 740 to determine whether the future tax benefit from the deferred tax assets should be recognized. As a result, we have established valuation allowances on the deferred tax assets in jurisdictions that have incurred net operating losses and in which it is more likely than not that such losses will not be utilized in the foreseeable future.

As of each reporting date, we consider new evidence, both positive and negative, that could impact our view with regard to future realization of deferred tax assets. In the fourth quarter of 2018, based on reversals of existing taxable differences, projections of future taxable income, and taxable income in the current year, we determined that sufficient positive evidence existed as of December 31, 2018, to conclude that it is more likely than not the additional deferred taxes of \$122.1 million were realizable, and therefore, we reduced the valuation allowance accordingly.

One of the provisions of the Tax Reform Act limits the deduction for net interest expense incurred by U.S. corporations to 30% of adjusted taxable income. As a result of this provision, we have determined that certain of our interest carryforwards

may be subject to limitation, and as result, determined that it was appropriate to retain the valuation allowance on a significant portion of these carryforwards.

For tax purposes, certain goodwill and indefinite-lived intangible assets are generally amortizable over 6 to 20 years. For book purposes, goodwill and indefinite-lived intangible assets are not amortized, but are tested for impairment annually. The tax amortization of goodwill and indefinite-lived intangible assets will result in a taxable temporary difference, which will not reverse unless the related book goodwill or indefinite-lived intangible asset is impaired or written off. This liability may not be used to support deductible temporary differences, such as net operating loss carryforwards, which may expire within a definite period.

The total valuation allowance for the years ended December 31, 2019 and 2018 decreased \$10.3 million and \$120.3 million, respectively. Subsequently reported tax benefits relating to the valuation allowance for deferred tax assets as of December 31, 2019 will be allocated to income tax benefit recognized in the consolidated statements of operations.

As of December 31, 2019, we have U.S. federal net operating loss carryforwards of \$472.0 million and suspended interest expense carryforwards of \$511.4 million. Substantially all of our U.S. federal net operating loss carryforwards will expire from 2027 to 2037. Our state net operating loss carryforwards will expire from 2020 to 2037. Our interest carryovers have an unlimited life. We also have non-U.S. net operating loss carryforwards of \$221.9 million, which will begin to expire in 2020.

Unrecognized tax benefits

A reconciliation of the amount of unrecognized tax benefits is as follows:

	For the year ended December 31,		
	2019	2018	2017
Balance at beginning of year	\$ 89,609	\$ 59,884	\$ 45,898
Increases related to current year tax positions	17,378	15,676	14,585
Increases related to prior year tax positions	15,356	14,609	7,968
Decreases related to settlements with tax authorities	(3,515)	—	(7,211)
Decreases related to prior year tax positions	(1,773)	(1,144)	—
Increases related to business combinations	450	1,000	—
Decreases related to lapse of applicable statute of limitations	(87)	—	(1,356)
Increases/(decreases) related to foreign currency exchange rate	173	(416)	—
Balance at end of year	<u>\$ 117,591</u>	<u>\$ 89,609</u>	<u>\$ 59,884</u>

We recognize interest and penalties related to unrecognized tax benefits in the consolidated statements of operations and the consolidated balance sheets. The table that follows presents the expense/(income) related to such interest and penalties recognized in the consolidated statements of operations during the years ended December 31, 2019, 2018, and 2017, and the amount of interest and penalties recorded on the consolidated balance sheets as of December 31, 2019 and 2018:

<i>(In millions)</i>	Statements of Operations			Balance Sheets	
	For the year ended December 31,			As of December 31,	
	2019	2018	2017	2019	2018
Interest	\$ 0.9	\$ (0.2)	\$ 0.2	\$ 1.3	\$ 0.4
Penalties	\$ (0.1)	\$ (0.2)	\$ (0.1)	\$ 0.3	\$ 0.4

At December 31, 2019, we anticipate that the liability for unrecognized tax benefits could decrease by up to \$6.5 million within the next twelve months due to the expiration of certain statutes of limitation or the settlement of examinations or issues with tax authorities. The amount of unrecognized tax benefits as of December 31, 2019 that if recognized, would impact our effective tax rate is \$67.8 million.

Our major tax jurisdictions include Belgium, Bulgaria, China, France, Germany, Japan, Malaysia, Mexico, the Netherlands, South Korea, the U.K., and the U.S. These jurisdictions generally remain open to examination by the relevant tax authority for the tax years 2006 through 2019.

Indemnifications

We have various indemnification provisions in place with parties including TI, Honeywell, William Blair, Tomkins Limited, and Custom Sensors & Technologies Ltd. These provisions provide for the reimbursement of future tax liabilities paid by us that relate to the pre-acquisition periods of the acquired businesses including S&C, First Technology Automotive and Special Products, Airpax Holdings, Inc., August Cayman Company, Inc. ("Schrader"), CST, and GIGAVAC.

8. Net Income per Share

Basic and diluted net income per share are calculated by dividing net income by the number of basic and diluted weighted-average ordinary shares outstanding during the period. For the years ended December 31, 2019, 2018, and 2017, the weighted-average ordinary shares outstanding used to calculate basic and diluted net income per share were as follows:

<i>(In thousands)</i>	For the year ended December 31,		
	2019	2018	2017
Basic weighted-average ordinary shares outstanding	160,946	168,570	171,165
Dilutive effect of stock options	600	822	616
Dilutive effect of unvested restricted securities	422	467	388
Diluted weighted-average ordinary shares outstanding	161,968	169,859	172,169

Net income and net income per share are presented in the consolidated statements of operations.

Certain potential ordinary shares were excluded from our calculation of diluted weighted-average ordinary shares outstanding because either they would have had an anti-dilutive effect on net income per share or they related to equity awards that were contingently issuable for which the contingency had not been satisfied. Refer to Note 4, "Share-Based Payment Plans," for additional information related to our equity awards. These potential ordinary shares are as follows:

<i>(In thousands)</i>	For the year ended December 31,		
	2019	2018	2017
Anti-dilutive shares excluded	1,170	930	1,410
Contingently issuable shares excluded	641	687	871

9. Inventories

The components of inventories as of December 31, 2019 and 2018 were as follows:

	As of December 31,	
	2019	2018
Finished goods	\$ 197,531	\$ 187,095
Work-in-process	104,007	104,405
Raw materials	205,140	200,819
Inventories	\$ 506,678	\$ 492,319

Refer to Note 2, "Significant Accounting Policies," for a discussion of our accounting policies related to inventories.

10. Property, Plant and Equipment, Net

PP&E, net as of December 31, 2019 and 2018 consisted of the following:

	As of December 31,	
	2019	2018
Land	\$ 17,880	\$ 22,021
Buildings and improvements	266,864	259,182
Machinery and equipment	1,367,293	1,220,285
Total property, plant and equipment	1,652,037	1,501,488
Accumulated depreciation	(821,039)	(714,310)
Property, plant and equipment, net	\$ 830,998	\$ 787,178

Depreciation expense for PP&E, including amortization of leasehold improvements and depreciation of assets under finance leases, totaled \$115.9 million, \$106.0 million, and \$109.3 million for the years ended December 31, 2019, 2018, and 2017, respectively.

PP&E, net as of December 31, 2019 and 2018 included the following assets under finance leases:

	<u>As of December 31,</u>	
	<u>2019</u>	<u>2018</u>
Assets under finance leases in property, plant and equipment	\$ 49,714	\$ 49,714
Accumulated depreciation	(24,316)	(22,508)
Assets under finance leases in property, plant and equipment, net	<u>\$ 25,398</u>	<u>\$ 27,206</u>

Refer to Note 2, "Significant Accounting Policies," for a discussion of our accounting policies related to PP&E, net.

11. Goodwill and Other Intangible Assets, Net

The following table outlines the changes in net goodwill by segment for the years ended December 31, 2019 and 2018.

	<u>Performance Sensing</u>	<u>Sensing Solutions</u>	<u>Total</u>
Balance as of December 31, 2017	\$ 2,148,135	\$ 857,329	\$ 3,005,464
Divestiture of Valves Business	(38,800)	—	(38,800)
Acquisition of GIGAVAC	46,298	68,340	114,638
Balance as of December 31, 2018	2,155,633	925,669	3,081,302
GIGAVAC purchase accounting adjustment	16,387	(16,564)	(177)
Other acquisition	—	12,473	12,473
Balance as of December 31, 2019	<u>\$ 2,172,020</u>	<u>\$ 921,578</u>	<u>\$ 3,093,598</u>

At each of December 31, 2019, 2018, and 2017, accumulated goodwill impairment was \$0.0 million related to Performance Sensing and \$18.5 million related to Sensing Solutions.

Goodwill attributed to acquisitions reflects our allocation of purchase price to the estimated fair value of certain assets acquired and liabilities assumed, and has been assigned to our segments based on a methodology using anticipated future earnings of the components of business. Goodwill attributed to the divestiture of the Valves Business is based on the relative fair value of the Valves Business to the Performance Sensing reporting unit. Refer to Note 17, "Acquisitions and Divestitures," for additional information related to our acquisition and divestiture transactions.

We own the Klixon[®] and Airpax[®] tradenames, which are indefinite-lived intangible assets, as they have each been in continuous use for over 65 years, and we have no plans to discontinue using them. We have recorded \$59.1 million and \$9.4 million, respectively, on the consolidated balance sheets related to these tradenames.

We evaluated our goodwill and other indefinite-lived intangible assets for impairment as of October 1, 2019 using quantitative analyses. Refer to Note 2, "Significant Accounting Policies," for additional information related to the methodology used. Based on these analyses, we have determined that as of October 1, 2019 the fair value of each of our reporting units and indefinite-lived intangible assets exceeded their carrying values.

The following tables outline the components of definite-lived intangible assets as of December 31, 2019 and 2018:

	As of December 31, 2019				
	Weighted-Average Life (years)	Gross Carrying Amount	Accumulated Amortization	Accumulated Impairment	Net Carrying Value
Completed technologies	14	\$ 770,608	\$ (529,926)	\$ (2,430)	\$ 238,252
Customer relationships	11	1,827,998	(1,430,515)	(12,144)	385,339
Non-compete agreements	8	23,400	(23,400)	—	—
Tradenames	21	66,654	(16,598)	—	50,056
Capitalized software and other ⁽¹⁾	7	67,784	(38,997)	—	28,787
Total	12	\$ 2,756,444	\$ (2,039,436)	\$ (14,574)	\$ 702,434

	As of December 31, 2018				
	Weighted-Average Life (years)	Gross Carrying Amount	Accumulated Amortization	Accumulated Impairment	Net Carrying Value
Completed technologies	14	\$ 759,008	\$ (475,295)	\$ (2,430)	\$ 281,283
Customer relationships	11	1,825,698	(1,352,189)	(12,144)	461,365
Non-compete agreements	8	23,400	(23,400)	—	—
Tradenames	21	66,154	(13,468)	—	52,686
Capitalized software and other ⁽¹⁾	7	65,896	(32,509)	—	33,387
Total	12	\$ 2,740,156	\$ (1,896,861)	\$ (14,574)	\$ 828,721

⁽¹⁾ During the years ended December 31, 2019 and 2018, we wrote-off approximately \$0.3 million and \$0.2 million, respectively, of fully-amortized capitalized software that was not in use.

Refer to Note 17, "Acquisitions and Divestitures," for additional information related to the definite-lived intangible assets recognized as a result of the acquisition of GIGAVAC.

The following table outlines amortization of definite-lived intangible assets for the years ended December 31, 2019, 2018, and 2017:

	For the year ended December 31,		
	2019	2018	2017
Acquisition-related definite-lived intangible assets	\$ 136,087	\$ 132,235	\$ 153,729
Capitalized software	6,799	7,091	7,321
Amortization of definite-lived intangible assets	\$ 142,886	\$ 139,326	\$ 161,050

The table below presents estimated amortization of definite-lived intangible assets for each of the next five years:

For the year ended December 31,	
2020	\$ 127,787
2021	\$ 111,177
2022	\$ 97,620
2023	\$ 83,802
2024	\$ 68,818

12. Accrued Expenses and Other Current Liabilities

Accrued expenses and other current liabilities as of December 31, 2019 and 2018 consisted of the following:

	As of December 31,	
	2019	2018
Accrued compensation and benefits	\$ 52,394	\$ 68,936
Accrued interest	42,803	40,550
Accrued severance	14,779	6,591
Current portion of operating lease liabilities	11,543	—
Current portion of pension and post-retirement benefit obligations	3,220	3,176
Foreign currency and commodity forward contracts	1,925	7,710
Other accrued expenses and current liabilities	88,962	91,167
Accrued expenses and other current liabilities	<u>\$ 215,626</u>	<u>\$ 218,130</u>

13. Pension and Other Post-Retirement Benefits

We provide various pension and other post-retirement plans for current and former employees, including defined benefit, defined contribution, and retiree healthcare benefit plans. Refer to Note 2, "Significant Accounting Policies," for a detailed discussion of the accounting policies related to our pension and other post-retirement benefit plans.

U.S. Benefit Plans

The principal retirement plans in the U.S. include a qualified defined benefit pension plan and a defined contribution plan. In addition, we provide post-retirement medical coverage and non-qualified benefits to certain employees.

Defined Benefit Pension Plans

The benefits under the qualified defined benefit pension plan are determined using a formula based upon years of service and the highest five consecutive years of compensation.

TI closed the qualified defined benefit pension plan to participants hired after November 1997. In addition, participants eligible to retire under the TI plan as of April 26, 2006 were given the option of continuing to participate in the qualified defined benefit pension plan or retiring under the qualified defined benefit pension plan and thereafter participating in an enhanced defined contribution plan.

We intend to contribute amounts to the qualified defined benefit pension plan in order to meet the minimum funding requirements of federal laws and regulations, plus such additional amounts as we deem appropriate. During the year ended December 31, 2019, we contributed \$3.3 million to the qualified defined benefit plan. We do not expect to contribute to the qualified defined benefit pension plan in fiscal year 2020.

We also sponsor a non-qualified defined benefit pension plan, which is closed to new participants and is unfunded.

Effective January 31, 2012, we froze the defined benefit pension plans and eliminated future benefit accruals.

Defined Contribution Plans

We have one defined contribution plan for U.S. employees, which provides for an employer matching contribution of up to 4% of the employee's annual eligible earnings. The aggregate expense related to the defined contribution plan was \$5.5 million, \$5.7 million, and \$5.9 million for the years ended December 31, 2019, 2018, and 2017, respectively.

Retiree Healthcare Benefit Plan

We offer access to group medical coverage during retirement to some of our U.S. employees. We make contributions toward the cost of those retiree medical benefits for certain retirees. The contribution rates are based upon varying factors, the most important of which are an employee's date of hire, date of retirement, years of service, and eligibility for Medicare benefits. The balance of the cost is borne by the participants in the plan. For the year ended December 31, 2019, we did not and do not expect to, receive any amount of Medicare Part D Federal subsidy. Our projected benefit obligation as of December 31, 2019 and 2018 did not include an assumption for a Federal subsidy.

Non-U.S. Benefit Plans

Retirement coverage for non-U.S. employees is provided through separate defined benefit and defined contribution plans. Retirement benefits are generally based on an employee's years of service and compensation. Funding requirements are determined on an individual country and plan basis and are subject to local country practices and market circumstances. We do not expect to contribute to the non-U.S. defined benefit plans during 2020.

Impact on Financial Statements

The components of net periodic benefit cost/(credit) associated with our defined benefit and retiree healthcare plans for the years ended December 31, 2019, 2018, and 2017 were as follows:

	For the year ended December 31,								
	2019			2018			2017		
	U.S. Plans		Non-U.S. Plans	U.S. Plans		Non-U.S. Plans	U.S. Plans		Non-U.S. Plans
	Defined Benefit	Retiree Healthcare	Defined Benefit	Defined Benefit	Retiree Healthcare	Defined Benefit	Defined Benefit	Retiree Healthcare	Defined Benefit
Service cost	\$ —	\$ 7	\$ 2,836	\$ —	\$ 50	\$ 3,122	\$ —	\$ 74	\$ 2,582
Interest cost	1,483	203	1,344	1,473	272	1,310	1,604	325	1,053
Expected return on plan assets	(1,694)	—	(702)	(1,710)	—	(929)	(2,151)	—	(905)
Amortization of net loss	946	—	766	1,080	5	407	1,149	54	287
Amortization of net prior service (credit)/cost	—	(1,306)	9	—	(1,728)	6	—	(1,335)	(4)
Loss on settlement	565	—	1,572	1,047	—	1,461	3,225	—	100
Loss on curtailment	—	—	—	—	—	891	—	—	—
Net periodic benefit cost/(credit)	\$ 1,300	\$ (1,096)	\$ 5,825	\$ 1,890	\$ (1,401)	\$ 6,268	\$ 3,827	\$ (882)	\$ 3,113

The following table outlines the rollforward of the benefit obligation and plan assets for the defined benefit and retiree healthcare benefit plans for the years ended December 31, 2019 and 2018:

	For the year ended December 31,					
	2019			2018		
	U.S. Plans		Non-U.S. Plans	U.S. Plans		Non-U.S. Plans
	Defined Benefit	Retiree Healthcare	Defined Benefit	Defined Benefit	Retiree Healthcare	Defined Benefit
Change in benefit obligation:						
Beginning balance	\$ 45,169	\$ 6,017	\$ 65,691	\$ 48,615	\$ 9,692	\$ 67,413
Service cost	—	7	2,836	—	50	3,122
Interest cost	1,483	203	1,344	1,473	272	1,310
Plan participants' contributions	—	474	31	—	475	60
Plan amendment	—	—	—	—	(3,243)	—
Actuarial loss/(gain)	1,711	(92)	9,344	(519)	(124)	2,777
Curtailments	—	—	—	—	—	931
Benefits paid	(2,815)	(1,021)	(5,235)	(4,400)	(1,105)	(6,262)
Divestiture	—	—	—	—	—	(3,310)
Foreign currency remeasurement	—	—	161	—	—	(350)
Ending balance	\$ 45,548	\$ 5,588	\$ 74,172	\$ 45,169	\$ 6,017	\$ 65,691
Change in plan assets:						
Beginning balance	\$ 39,875	\$ —	\$ 39,868	\$ 41,101	\$ —	\$ 41,222
Actual return on plan assets	4,484	—	4,125	(811)	—	(1,308)
Employer contributions	3,326	547	4,889	3,985	630	5,992
Plan participants' contributions	—	474	31	—	475	60
Benefits paid	(2,815)	(1,021)	(5,235)	(4,400)	(1,105)	(6,262)
Foreign currency remeasurement	—	—	228	—	—	164
Ending balance	\$ 44,870	\$ —	\$ 43,906	\$ 39,875	\$ —	\$ 39,868
Funded status at end of year	\$ (678)	\$ (5,588)	\$ (30,266)	\$ (5,294)	\$ (6,017)	\$ (25,823)
Accumulated benefit obligation at end of year	\$ 45,548	NA	\$ 65,633	\$ 45,169	NA	\$ 59,948

The following table outlines the funded status amounts recognized in the consolidated balance sheets as of December 31, 2019 and 2018:

	As of December 31,					
	2019			2018		
	U.S. Plans		Non-U.S. Plans	U.S. Plans		Non-U.S. Plans
	Defined Benefit	Retiree Healthcare	Defined Benefit	Defined Benefit	Retiree Healthcare	Defined Benefit
Noncurrent assets	\$ 2,788	\$ —	\$ —	\$ —	\$ —	\$ —
Current liabilities	(952)	(717)	(1,551)	(595)	(1,116)	(1,465)
Noncurrent liabilities	(2,514)	(4,871)	(28,715)	(4,699)	(4,901)	(24,358)
Funded status	\$ (678)	\$ (5,588)	\$ (30,266)	\$ (5,294)	\$ (6,017)	\$ (25,823)

Balances recognized within accumulated other comprehensive loss that have not been recognized as components of net periodic benefit cost, net of tax, as of December 31, 2019, 2018, and 2017 are as follows:

	As of December 31,								
	2019			2018			2017		
	U.S. Plans		Non-U.S. Plans	U.S. Plans		Non-U.S. Plans	U.S. Plans		Non-U.S. Plans
	Defined Benefit	Retiree Healthcare	Defined Benefit	Defined Benefit	Retiree Healthcare	Defined Benefit	Defined Benefit	Retiree Healthcare	Defined Benefit
Net prior service cost/(credit)	\$ —	\$ 306	\$ (16)	\$ —	\$ (692)	\$ (10)	\$ —	\$ 823	\$ (220)
Net loss	\$ 18,780	\$ 809	\$ 17,151	\$ 20,759	\$ 880	\$ 14,425	\$ 20,884	\$ 1,009	\$ 12,489

We expect to amortize a loss of \$1.4 million from accumulated other comprehensive loss to net periodic benefit cost during fiscal year 2020.

Information for plans with an accumulated benefit obligation in excess of plan assets as of December 31, 2019 and 2018 is as follows:

	As of December 31,			
	2019		2018	
	U.S. Plans	Non-U.S. Plans	U.S. Plans	Non-U.S. Plans
Projected benefit obligation	\$ 3,465	\$ 74,020	\$ 45,169	\$ 65,691
Accumulated benefit obligation	\$ 3,465	\$ 65,633	\$ 45,169	\$ 59,948
Plan assets	\$ —	\$ 43,754	\$ 39,875	\$ 39,868

Information for plans with a projected benefit obligation in excess of plan assets as of December 31, 2019 and 2018 is as follows:

	As of December 31,			
	2019		2018	
	U.S. Plans	Non-U.S. Plans	U.S. Plans	Non-U.S. Plans
Projected benefit obligation	\$ 9,053	\$ 74,020	\$ 51,186	\$ 65,691
Plan assets	\$ —	\$ 43,754	\$ 39,875	\$ 39,868

Other changes in plan assets and benefit obligations, net of tax, recognized in other comprehensive income/(loss) for the years ended December 31, 2019, 2018, and 2017 are as follows:

	For the year ended December 31,								
	2019			2018			2017		
	U.S. Plans		Non-U.S. Plans	U.S. Plans		Non-U.S. Plans	U.S. Plans		Non-U.S. Plans
	Defined Benefit	Retiree Healthcare	Defined Benefit	Defined Benefit	Retiree Healthcare	Defined Benefit	Defined Benefit	Retiree Healthcare	Defined Benefit
Net (gain)/loss	\$ (824)	\$ (71)	\$ 4,365	\$ 2,002	\$ (124)	\$ 3,669	\$ 2,768	\$ (197)	\$ 1,618
Amortization of net loss	(723)	—	(539)	(1,080)	(5)	(298)	(1,149)	(54)	(130)
Amortization of net prior service credit/(cost)	—	998	(6)	—	1,728	(4)	—	1,335	3
Divestiture	—	—	—	—	—	(228)	—	—	—
Plan amendment	—	—	—	—	(3,243)	—	—	—	(5)
Settlement effect	(432)	—	(1,100)	(1,047)	—	(1,023)	(3,225)	—	(69)
Curtailment effect	—	—	—	—	—	30	—	—	—
Total in other comprehensive (income)/loss	\$ (1,979)	\$ 927	\$ 2,720	\$ (125)	\$ (1,644)	\$ 2,146	\$ (1,606)	\$ 1,084	\$ 1,417

Assumptions and Investment Policies

Weighted-average assumptions used to calculate the projected benefit obligations of our defined benefit and retiree healthcare benefit plans as of December 31, 2019 and 2018 are as follows:

	As of December 31,			
	2019		2018	
	Defined Benefit	Retiree Healthcare	Defined Benefit	Retiree Healthcare
U.S. assumed discount rate	2.60%	2.80%	3.79%	3.90%
Non-U.S. assumed discount rate	1.90%	NA	2.17%	NA
Non-U.S. average long-term pay progression	2.87%	NA	2.66%	NA

Weighted-average assumptions used to calculate the net periodic benefit cost of our defined benefit and retiree healthcare benefit plans for the years ended December 31, 2019, 2018, and 2017 are as follows:

	For the year ended December 31,					
	2019		2018		2017	
	Defined Benefit	Retiree Healthcare	Defined Benefit	Retiree Healthcare	Defined Benefit	Retiree Healthcare
U.S. assumed discount rate	3.79%	3.90%	3.45%	3.10%	3.20%	3.30%
Non-U.S. assumed discount rate	5.76%	NA	5.87%	NA	3.90%	NA
U.S. average long-term rate of return on plan assets	4.53%	NA	4.57%	NA	4.50%	NA
Non-U.S. average long-term rate of return on plan assets	1.77%	NA	2.26%	NA	2.29%	NA
Non-U.S. average long-term pay progression	4.43%	NA	4.82%	NA	3.75%	NA

Assumed healthcare cost trend rates for the U.S. retiree healthcare benefit plan as of December 31, 2019, 2018, and 2017 are as follows:

	As of December 31,		
	2019	2018	2017
Assumed healthcare trend rate for next year:			
Attributed to less than age 65	6.30%	6.60%	6.90%
Attributed to age 65 or greater	6.70%	7.10%	7.50%
Ultimate trend rate	4.50%	4.50%	4.50%
Year in which ultimate trend rate is reached:			
Attributed to less than age 65	2038	2038	2038
Attributed to age 65 or greater	2038	2038	2038

Assumed healthcare trend rates could have a significant effect on the amounts reported for retiree healthcare plans. A one percentage point change in the assumed healthcare trend rates for the year ended December 31, 2019 would have the following effect:

	One Percentage Point:	
	Increase	Decrease
Effect on total service and interest cost components	\$ 8	\$ (7)
Effect on post-retirement benefit obligations	\$ 314	\$ (287)

The table below outlines the benefits expected to be paid to participants in each of the following years, taking into consideration expected future service, as appropriate. The majority of the payments will be paid from plan assets and not company assets.

For the year ended December 31,	Expected Benefit Payments		
	U.S. Defined Benefit	U.S. Retiree Healthcare	Non-U.S. Defined Benefit
2020	\$ 8,985	\$ 717	\$ 3,346
2021	\$ 7,868	\$ 653	\$ 3,299
2022	\$ 6,116	\$ 653	\$ 3,896
2023	\$ 5,219	\$ 534	\$ 3,499
2024	\$ 3,804	\$ 516	\$ 3,456
2025 - 2029	\$ 12,201	\$ 1,838	\$ 21,775

Plan Assets

We hold assets for our defined benefit plans in the U.S., Japan, the Netherlands, and Belgium. Information about the assets for each of these plans is detailed below. Refer to Note 18, "Fair Value Measures," for additional information related to the levels of the fair value hierarchy in accordance with FASB ASC Topic 820.

U.S. Plan Assets

Our target asset allocation for the U.S. defined benefit plan is 83% fixed income and 17% equity securities. To arrive at the targeted asset allocation, we and our investment adviser reviewed market opportunities using historical data, as well as the actuarial valuation for the plan, to ensure that the levels of acceptable return and risk are well-defined and monitored.

The following table presents information about the plan's target and actual asset allocation, as of December 31, 2019:

	Target Allocation	Actual Allocation as of December 31, 2019
U.S. large cap equity	7%	5%
U.S. small / mid cap equity	2%	1%
Globally managed volatility fund	3%	2%
International (non-U.S.) equity	4%	3%
Fixed income (U.S. investment grade) ⁽¹⁾	68%	42%
High-yield fixed income	2%	1%
International (non-U.S.) fixed income	1%	1%
Money market funds ⁽¹⁾	13%	45%

⁽¹⁾ As of December 31, 2019, our holdings in the Money market funds exceed the target allocation as we prepare to make payments resulting from the voluntary retirement incentive program. Refer to Note 5, "Restructuring and Other Charges, Net" for additional information about the voluntary retirement incentive program.

The portfolio is monitored for automatic rebalancing on a monthly basis.

The following table presents information about the plan assets measured at fair value as of December 31, 2019 and 2018:

	As of December 31,	
	2019	2018
U.S. large cap equity	\$ 2,221	\$ 2,960
U.S. small / mid cap equity	637	833
Global managed volatility fund	849	1,214
International (non-U.S.) equity	1,195	1,493
Total equity mutual funds	4,902	6,500
Fixed income (U.S. investment grade)	18,830	26,884
High-yield fixed income	561	792
International (non-U.S.) fixed income	264	402
Total fixed income mutual funds	19,655	28,078
Money market funds	20,313	5,297
Total plan assets	\$ 44,870	\$ 39,875

All fair value measures presented above are categorized in Level 1 of the fair value hierarchy. Investments in mutual funds are based on the publicly-quoted final net asset values on the last business day of the year.

Permitted asset classes include U.S. and non-U.S. equity, U.S. and non-U.S. fixed income, cash, and cash equivalents. Fixed income includes both investment grade and non-investment grade. Permitted investment vehicles include mutual funds, individual securities, derivatives, and long-duration fixed income securities. While investments in individual securities, derivatives, long-duration fixed income securities, cash, and cash equivalents are permitted, the plan did not hold these types of investments as of December 31, 2019 and 2018.

Prohibited investments include direct investments in real estate, commodities, unregistered securities, uncovered options, currency exchange contracts, and natural resources (such as timber, oil, and gas).

Japan Plan Assets

The target asset allocation of the Japan defined benefit plan is 50% fixed income securities and 50% equity securities, cash, and cash equivalents, with allowance for a 40% deviation in either direction. We, along with the trustee of the plan's assets, minimize investment risk by thoroughly assessing potential investments based on indicators of historical returns and current credit ratings. Additionally, investments are diversified by type and geography.

The following table presents information about the plan's target asset allocation, as well as the actual allocation, as of December 31, 2019:

	Target Allocation	Actual Allocation as of December 31, 2019
Fixed income securities, cash, and cash equivalents	10%-90%	65%
Equity securities	10%-90%	35%

The following table presents information about the plan assets measured at fair value as of December 31, 2019 and 2018:

	As of December 31,	
	2019	2018
U.S. equity	\$ 2,413	\$ 2,212
International (non-U.S.) equity	6,343	5,158
Total equity securities	8,756	7,370
U.S. fixed income	3,835	3,345
International (non-U.S.) fixed income	9,716	8,811
Total fixed income securities	13,551	12,156
Cash and cash equivalents	9,726	10,339
Total plan assets	\$ 32,033	\$ 29,865

All fair value measures presented above are categorized in Level 1 of the fair value hierarchy, with the exception of U.S. fixed income securities of \$0.3 million and \$0.3 million as of December 31, 2019 and 2018, respectively, which are categorized as Level 2. The fair values of equity and fixed income securities are based on publicly-quoted closing stock and bond values on the last business day of the year.

Permitted asset classes include equity securities that are traded on the official stock exchange(s) of the respective countries, fixed income securities with certain credit ratings, cash, and cash equivalents.

The Netherlands Plan Assets

The assets of the Netherlands defined benefit plan are insurance policies. The contributions we make to the plan are used to purchase insurance policies that provide for specific benefit payments to plan participants. The benefit formula is determined independently by us. Upon retirement of an individual plan participant, the insurance contracts purchased are converted to provide specific benefits for the participant. The contributions paid by us are commingled with contributions paid to the insurance provider by other employers for investment purposes and to reduce plan administration costs. However, this defined benefit plan is not considered a multi-employer plan.

The following table presents information about the plan assets measured at fair value as of December 31, 2019 and 2018:

	<u>As of December 31,</u>	
	<u>2019</u>	<u>2018</u>
Insurance policies	\$ 10,472	\$ 8,897

All fair value measures presented above are categorized in Level 3 of the fair value hierarchy. The following table presents a rollforward of these assets for the years ended December 31, 2019 and 2018:

	<u>Insurance Policies</u>	
Balance as of December 31, 2017	\$	9,059
Actual return on plan assets still held at reporting date		177
Purchases, sales, settlements, and exchange rate changes		(339)
Balance as of December 31, 2018		8,897
Actual return on plan assets still held at reporting date		1,821
Purchases, sales, settlements, and exchange rate changes		(246)
Balance as of December 31, 2019	<u>\$</u>	<u>10,472</u>

The fair values of the insurance contracts are measured based on the future benefit payments that would be made by the insurance company to vested plan participants if we were to switch to another insurance company without actually surrendering our policy. In this case, the insurance company would guarantee to pay the vested benefits at retirement accrued under the plan based on current salaries and service to date (i.e., with no allowance for future salary increases or pension increases). The cash flows of the future benefit payments are discounted using the same discount rate that is applied to value the related defined benefit plan liability.

Belgium Plan Assets

The assets of the Belgium defined benefit plan are insurance policies. As of December 31, 2019 and 2018 the fair values of these assets were \$1.3 million and \$1.1 million, respectively. These fair value measurements are categorized in Level 3 of the fair value hierarchy.

14. Debt

Our long-term debt and finance lease and other financing obligations as of December 31, 2019 and 2018 consisted of the following:

	Maturity Date	As of December 31,	
		2019	2018
Term Loan	September 20, 2026	\$ 460,725	\$ 917,794
4.875% Senior Notes	October 15, 2023	500,000	500,000
5.625% Senior Notes	November 1, 2024	400,000	400,000
5.0% Senior Notes	October 1, 2025	700,000	700,000
6.25% Senior Notes	February 15, 2026	750,000	750,000
4.375% Senior Notes	February 15, 2030	450,000	—
Less: debt discount		(11,758)	(15,169)
Less: deferred financing costs		(24,452)	(23,159)
Less: current portion		(4,630)	(9,704)
Long-term debt, net		\$ 3,219,885	\$ 3,219,762
Finance lease and other financing obligations		\$ 31,098	\$ 35,475
Less: current portion		(2,288)	(4,857)
Finance lease and other financing obligations, less current portion		\$ 28,810	\$ 30,618

Secured Credit Facility

The credit agreement governing our secured credit facility (as amended, the "Credit Agreement") provides for senior secured credit facilities (the "Senior Secured Credit Facilities") consisting of a term loan facility (the "Term Loan"), a \$420.0 million revolving credit facility (the "Revolving Credit Facility"), and incremental availability under which additional secured credit facilities could be issued under certain circumstances.

On March 27, 2019 certain indirect, wholly-owned subsidiaries of Sensata plc, including Sensata Technologies B.V. ("STBV"), entered into the ninth amendment (the "Ninth Amendment") of the Credit Agreement. Among other changes to the Credit Agreement, the Ninth Amendment (i) extended the maturity date of the Revolving Credit Facility to March 27, 2024; (ii) added pounds sterling as an available currency for revolving credit loans and letters of credit under the Revolving Credit Facility; (iii) lowered the interest rate margins related to the Revolving Credit Facility (depending on our senior secured net leverage ratio); (iv) lowered our letter of credit fees (depending on our senior secured net leverage ratio); (v) reduced our revolving credit commitment fees (depending on our senior secured net leverage ratio); and (vi) modified the senior secured net leverage ratio financial covenant to increase the Revolving Credit Facility utilization threshold above which such financial covenant is tested from 10% to 20% and eliminated the requirement that such ratio be tested (regardless of utilization) for purposes of satisfying the conditions to any borrowing or other utilization under the Revolving Credit Facility.

On June 13, 2019, our subsidiaries that were at the time borrowers under the Credit Agreement entered into an amendment to the Credit Agreement with the administrative agent to correct certain technical and immaterial errors in the Credit Agreement.

On September 20, 2019 certain of our subsidiaries, including STBV and its indirect, wholly-owned subsidiary, Sensata Technologies Inc. ("STI"), entered into the tenth amendment of the Credit Agreement (the "Tenth Amendment"). Under the terms of the Tenth Amendment, among other changes to the Credit Agreement, (i) the final maturity date of the Term Loan was extended to September 20, 2026; (ii) STI became the sole borrower under the Credit Agreement and assumed substantially all of the obligations of STBV and Sensata Technologies Finance Company, LLC ("STFC") thereunder; (iii) STBV became a guarantor of STI's obligations under the Credit Agreement, and STFC ceased to be a guarantor with respect to the Credit Agreement; (iv) certain subsidiaries of STBV that previously guaranteed STBV's and/or STFC's obligations under the Credit Agreement (the "Released Guarantors") were released from their guarantees under the Credit Agreement, subject to the satisfaction of certain tests (the "Guarantees Release"); (v) the permission to incur incremental additional indebtedness under the Credit Agreement was increased; and (vi) certain of the operational and restrictive covenants and other terms and conditions of the Senior Secured Credit Facilities to which STBV and its restricted subsidiaries are subject were modified to provide us with increased flexibility and permissions thereunder (including permission, subject to no default or event of default, to make restricted payments (including dividends) in an amount equal to \$50.0 million annually, which can be increased to an unlimited amount subject to compliance with a specified senior secured net leverage ratio).

All obligations under the Senior Secured Credit Facilities are unconditionally guaranteed by certain of our subsidiaries and secured by substantially all present and future property and assets of STBV and its guarantor subsidiaries.

The Credit Agreement provides that, if our senior secured net leverage ratio exceeds a specified level, we are required to use a portion of our excess cash flow, as defined in the Credit Agreement, generated by operating, investing, or financing activities to prepay the outstanding borrowings under the Senior Secured Credit Facilities. The Credit Agreement also requires mandatory prepayments of the outstanding borrowings under the Senior Secured Credit Facilities upon certain asset dispositions and casualty events, in each case subject to certain reinvestment rights, and the incurrence of certain indebtedness (excluding any permitted indebtedness). These provisions were not triggered during the year ended December 31, 2019.

Term Loan

The principal amount of the Term Loan amortizes in equal quarterly installments in an aggregate annual amount equal to 1.0% of the aggregate principal amount of the Term Loan upon completion of the Tenth Amendment, with the balance due at maturity.

In accordance with the terms of the Credit Agreement, the Term Loan may, at our option, be maintained from time to time as a Base Rate loan or a Eurodollar Rate loan (each as defined in the Credit Agreement), with each representing a different determination of interest rates. The interest rate margins for the Term Loan are fixed at, and as of December 31, 2019 were, 0.75% and 1.75% for Base Rate loans and Eurodollar Rate loans, respectively, subject to floors of 1.00% and 0.00% for Base Rate loans and Eurodollar Rate loans, respectively. As of December 31, 2019, we maintained the Term Loan as a Eurodollar Rate loan, which accrued interest at 3.59%.

Revolving Credit Facility

In accordance with the terms of the Credit Agreement, borrowings under the Revolving Credit Facility may, at our option, be maintained from time to time as Base Rate loans, Eurodollar Rate loans, or EURIBOR loans (each as defined in the Credit Agreement), with each representing a different determination of interest rates. The interest rate margins and letter of credit fees under the Revolving Credit Facility are as follows (each depending on our senior secured net leverage ratio): (i) the interest rate margin for Eurodollar Rate loans ranges from 1.00% to 1.50%; (ii) the interest rate margin for Base Rate loans ranges from 0.00% to 0.50%; and (iii) the letter of credit fees range from 0.875% to 1.375%.

We are required to pay to our revolving credit lenders, on a quarterly basis, a commitment fee on the unused portion of the Revolving Credit Facility. The commitment fee ranges from 0.125% to 0.25%, depending on our senior secured net leverage ratios.

As of December 31, 2019, there was \$416.1 million available under the Revolving Credit Facility, net of \$3.9 million of obligations in respect of outstanding letters of credit issued thereunder. Outstanding letters of credit are issued primarily for the benefit of certain operating activities. As of December 31, 2019, no amounts had been drawn against these outstanding letters of credit.

Availability under the Revolving Credit Facility may be borrowed, repaid, and re-borrowed to fund our working capital needs and for other general corporate purposes.

Senior Notes

We have various tranches of senior notes outstanding. These consisted of \$500.0 million in aggregate principal amount of 4.875% senior notes due 2023 issued by STBV (the "4.875% Senior Notes"), \$400.0 million in aggregate principal amount of 5.625% senior notes due 2024 issued by STBV (the "5.625% Senior Notes"), \$700.0 million in aggregate principal amount of 5.0% senior notes due 2025 issued by STBV (the "5.0% Senior Notes"), \$750.0 million in aggregate principal amount of 6.25% senior notes due 2026 (the "6.25% Senior Notes") issued by our subsidiary Sensata Technologies UK Financing Co. plc ("STUK"), and \$450.0 million in aggregate principal amount of 4.375% senior notes due 2030 issued by STI (the "4.375% Senior Notes" and together with the other senior notes referenced above, the "Senior Notes").

4.375% Senior Notes

On September 20, 2019, concurrently with the entry into the Tenth Amendment, we completed the issuance and sale of the 4.375% Senior Notes. The proceeds of the issuance of the 4.375% Senior Notes were used to partially repay the Term Loan. The 4.375% Senior Notes were issued under an indenture dated as of September 20, 2019 among STI, as issuer, The Bank of New York Mellon, as trustee, and our guarantor subsidiaries named therein. The 4.375% Senior Notes were offered at par, and interest is payable semi-annually on February 15 and August 15 of each year, commencing on February 15, 2020.

4.875% Senior Notes

In April 2013 we completed the issuance and sale of the 4.875% Senior Notes, which were issued under an indenture dated as of April 17, 2013 among STBV, as issuer, The Bank of New York Mellon, as trustee, and the guarantors named therein. The 4.875% Senior Notes were offered at par. Interest on the 4.875% Senior Notes is payable semi-annually on April 15 and October 15 of each year.

5.625% Senior Notes

In October 2014 we completed the issuance and sale of the 5.625% Senior Notes, which were issued under an indenture dated as of October 14, 2014, among STBV, as issuer, The Bank of New York Mellon, as trustee, and the guarantors named therein. The 5.625% Senior Notes were offered at par. Interest on the 5.625% Senior Notes is payable semi-annually on May 1 and November 1 of each year.

5.0% Senior Notes

In March 2015 we completed the issuance and sale of the 5.0% Senior Notes, which were issued under an indenture dated as of March 26, 2015, among STBV, as issuer, The Bank of New York Mellon, as trustee, and the guarantors named therein. The 5.0% Senior Notes were offered at par. Interest on the 5.0% Senior Notes is payable semi-annually on April 1 and October 1 of each year.

6.25% Senior Notes

In November 2015, we completed the issuance and sale of the 6.25% Senior Notes, which were issued under an indenture dated as of November 27, 2015 (the "6.25% Senior Notes Indenture" and, together with the indentures under which the other Senior Notes were issued, the "Senior Notes Indentures"), among STUK, as issuer, The Bank of New York Mellon, as trustee, and the guarantors named therein. The 6.25% Senior Notes were offered at par. Interest on the 6.25% Senior Notes is payable semi-annually on February 15 and August 15 of each year.

Redemption

Except as described below with respect to the 4.375% Senior Notes and the 6.25% Senior Notes, at any time, and from time to time, we may optionally redeem the Senior Notes, in whole or in part, at a price equal to 100% of the principal amount of the notes redeemed, plus accrued and unpaid interest, if any, up to, but excluding, the date of redemption, plus a "make-whole premium" set forth in the relevant Senior Notes Indenture. The "make-whole" premium will not be payable with respect to any such redemption of the 4.375% Senior Notes on or after November 15, 2029. The "make-whole" premium will not be payable with respect to any such redemption of the 6.25% Senior Notes on or after February 15, 2021; on or after such date, we may optionally redeem the 6.25% Senior Notes, in whole or in part, at the following prices (plus accrued and unpaid interest to the date of redemption, if any) during the applicable period:

Period beginning February 15,	Price
2021	103.125%
2022	102.083%
2023	101.042%
2024 and thereafter	100.000%

Upon the occurrence of certain specific kinds of changes in control, the issuers of the Senior Notes will be required to offer to repurchase the notes at 101% of their principal amount, plus accrued and unpaid interest, if any, to, but excluding, the date of repurchase.

If changes in certain tax laws or treaties, or any change in the official application, administration, or interpretation thereof, of any relevant taxing jurisdiction become effective that would impose withholding taxes or other deductions on the payments of any of the Senior Notes or the guarantees thereof, we may, at our option, redeem the relevant Senior Notes in whole but not in part, at a redemption price equal to 100% of the principal amount thereof, plus accrued and unpaid interest, if any, to, but excluding, the redemption date, premium, if any, and all additional amounts (as described in the relevant Senior Notes Indenture), if any, then due and which will become due on the date of redemption.

Guarantees

The obligations of the issuers of the Senior Notes are guaranteed by STBV and all of its subsidiaries (excluding the company that is the issuer of the relevant Senior Notes) that guarantee the obligations of STI under Credit Agreement (after giving effect to the Guarantees Release pursuant to the Tenth Amendment). The Released Guarantors are not guarantors of the 4.375% Senior Notes, and upon consummation of the Tenth Amendment, the guarantees of the Released Guarantors with respect to the other Senior Notes were released.

Events of Default

The Senior Notes Indentures provide for events of default that include, among others, nonpayment of principal or interest when due, breach of covenants or other provisions in the relevant Senior Notes Indenture, defaults in payment of certain other indebtedness, certain events of bankruptcy or insolvency, failure to pay certain judgments, and the cessation of the full force and effect of the guarantees of significant subsidiaries. Generally, if an event of default occurs, the trustee or the holders of at least 25% in principal amount of the then outstanding Senior Notes issued under the relevant Senior Notes Indenture may declare the principal of, and accrued but unpaid interest on, all of the relevant Senior Notes to be due and payable immediately. All provisions regarding remedies in an event of default are subject to the relevant Senior Notes Indenture.

Restrictions and Covenants

As of December 31, 2019, STBV and all of its subsidiaries were subject to certain restrictive covenants under the Credit Agreement and the Senior Notes Indentures. Under certain circumstances, STBV is permitted to designate a subsidiary as "unrestricted" for purposes of the Credit Agreement, in which case the restrictive covenants thereunder will not apply to that subsidiary; the Senior Notes Indentures do not contain such a permission. STBV has not designated any subsidiaries as unrestricted. The net assets of STBV subject to these restrictions totaled \$2,555.0 million at December 31, 2019.

Credit Agreement

The Credit Agreement contains non-financial restrictive covenants (subject to important exceptions and qualifications set forth in the Credit Agreement) that limit our ability to, among other things:

- incur indebtedness or liens, prepay subordinated debt, or amend the terms of our subordinated debt;
- make loans and investments (including acquisitions) or sell assets;
- change our business or accounting policies, merge, consolidate, dissolve or liquidate, or amend the terms of our organizational documents;
- enter into affiliate transactions;
- pay dividends and make other restricted payments; or
- enter into certain burdensome contractual obligations.

In addition, under the Credit Agreement, STBV and its subsidiaries are required to maintain a senior secured net leverage ratio not to exceed 5.0:1.0 at the conclusion of certain periods when outstanding loans and letters of credit that are not cash collateralized for the full face amount thereof exceed 20% of the commitments under the Revolving Credit Facility.

Senior Notes Indentures

The Senior Notes Indentures contain restrictive covenants (subject to important exceptions and qualifications set forth in the Senior Notes Indentures) that limit the ability of STBV and its subsidiaries to, among other things:

- incur liens;
- incur or guarantee indebtedness without guaranteeing the Senior Notes;
- engage in sale and leaseback transactions; or
- effect mergers or consolidations, or sell, assign, convey, transfer, lease or otherwise dispose of all or substantially all of the assets of STBV and its subsidiaries.

Certain of these covenants will be suspended if the Senior Notes are assigned an investment grade rating by Standard & Poor's Rating Services or Moody's Investors Service, Inc. and provided no default has occurred and is continuing at such time. The suspended covenants will be reinstated if the Senior Notes are no longer assigned an investment grade rating by either rating agency or an event of default has occurred and is continuing at such time. As of December 31, 2019, none of the Senior Notes were assigned an investment grade rating by either rating agency.

Restrictions on Payment of Dividends

STBV's subsidiaries are generally not restricted in their ability to pay dividends or otherwise distribute funds to STBV, except for restrictions imposed under applicable corporate law.

STBV, however, is limited in its ability to pay dividends or otherwise make distributions to its immediate parent company and, ultimately, to Sensata plc, under the Credit Agreement. Specifically, the Credit Agreement prohibits STBV from paying dividends or making distributions to its parent companies except for purposes that include, but are not limited to, the following:

- customary and reasonable operating expenses, legal and accounting fees and expenses, and overhead of such parent companies incurred in the ordinary course of business, provided that such amounts, in the aggregate, do not exceed \$20.0 million in any fiscal year;
- dividends and other distributions in an aggregate amount not to exceed \$200.0 million plus certain amounts, including the retained portion of excess cash flow, but only insofar as no default or event of default exists and the senior secured net leverage ratio is less than 2.0:1.0 calculated on a pro forma basis;
- so long as no default or an event of default exists, dividends and other distributions in an aggregate amount not to exceed \$50.0 million in any calendar year (with the unused portion in any year being carried over to succeeding years) plus unlimited additional amounts but only insofar as the senior secured net leverage ratio is less than 2.5:1.0 calculated on a pro forma basis; and
- other dividends and other distributions in an aggregate amount not to exceed \$150.0 million, so long as no default or event of default exists.

The Senior Notes Indentures generally allow STBV to pay dividends and make other distributions to its parent companies.

Compliance with Financial and Non-Financial Covenants

We were in compliance with all of the financial and non-financial covenants and default provisions associated with our indebtedness as of December 31, 2019 and for the fiscal year then ended.

Accounting for Debt Financing Transactions

During the year ended December 31, 2019, in connection with the entry into the Ninth Amendment, we incurred \$2.4 million of creditor fees and related third-party costs, which were recorded as an adjustment to the carrying amount of long-term debt.

During the year ended December 31, 2019, in connection with the issuance of the 4.375% Senior Notes, the entry into the Tenth Amendment, and the subsequent partial repayment of the Term Loan, we recognized a loss of \$4.4 million, presented in the other, net line of our consolidated statement of operations, as well as \$5.0 million of deferred financing costs, which are presented as a reduction of long-term debt on our consolidated balance sheets.

During the year ended December 31, 2018, in connection with the Merger, we paid \$5.8 million of creditor fees and related third-party costs in order to obtain consents to the transaction from our existing lenders. As a result, and based on application of the provisions in FASB ASC Subtopic 470-50, we recognized a \$3.5 million adjustment to the carrying value of long-term debt, net and a \$2.4 million loss in other, net.

During the year ended December 31, 2017, we recognized a \$0.2 million adjustment to the carrying value of long-term debt, net and a \$2.7 million loss in other, net, based on application of the provisions in FASB ASC Subtopic 470-50.

Refer to Note 2, "Significant Accounting Policies," for additional information related to our accounting policies regarding debt financing transactions.

Finance Lease and Other Financing Obligations

Refer to Note 21, "Leases," for additional information related to our finance leases.

Debt Maturities

The aggregate principal amount of each tranche of our Senior Notes is due in full at its maturity date. The Term Loan must be repaid in full on or prior to its final maturity date. Loans made pursuant to the Revolving Credit Facility must be repaid in full at its maturity date and can be repaid prior to then at par. All letters of credit issued thereunder will terminate at the final maturity of the Revolving Credit Facility unless cash collateralized prior to such time.

The following table presents the remaining mandatory principal repayments of long-term debt, excluding finance lease payments, other financing obligations, and discretionary repurchases of debt, in each of the years ended December 31, 2020 through 2024 and thereafter.

For the year ended December 31,	Aggregate Maturities
2020	\$ 4,630
2021	4,630
2022	4,630
2023	504,630
2024	404,630
Thereafter	2,337,575
Total long-term debt principal payments	<u>\$ 3,260,725</u>

15. Commitments and Contingencies

Non-cancelable purchase agreements exist with various suppliers, primarily for services such as information technology support. The terms of these agreements are fixed and determinable. As of December 31, 2019, we had the following purchase commitments:

For the year ending December 31,	
2020	\$ 26,588
2021	19,726
2022	9,721
2023	5,060
2024	132
2025 and thereafter	272
Total purchase commitments	<u>\$ 61,499</u>

Off-Balance Sheet Arrangements

From time to time, we execute contracts that require us to indemnify the other parties to the contracts. These indemnification obligations generally arise in two contexts. First, in connection with certain transactions, such as the divestiture of a business or the issuance of debt or equity securities, the agreement typically contains standard provisions requiring us to indemnify the purchaser against breaches by us of representations and warranties contained in the agreement. These indemnities are generally subject to time and liability limitations. Second, we enter into agreements in the ordinary course of business, such as customer contracts, that might contain indemnification provisions relating to product quality, intellectual property infringement, governmental regulations and employment related matters, and other typical indemnities. In certain cases, indemnification obligations arise by law.

We believe that our indemnification obligations are consistent with other companies in the markets in which we compete. Performance under any of these indemnification obligations would generally be triggered by a breach of the terms of the contract or by a third-party claim. Historically, we have experienced only immaterial and irregular losses associated with these indemnifications. Consequently, any future liabilities brought about by these indemnifications cannot reasonably be estimated or accrued.

Indemnifications Provided As Part of Contracts and Agreements

We are party to the following types of agreements pursuant to which we may be obligated to indemnify a third party with respect to certain matters.

Officers and Directors: Our articles of association provide for indemnification of directors and officers by us to the fullest extent permitted by applicable law, as it now exists or may hereinafter be amended (but, in the case of an amendment, only to the extent such amendment permits broader indemnification rights than permitted prior thereto), against any and all liabilities, including all expenses (including attorneys' fees), judgments, fines, and amounts paid in settlement actually and reasonably incurred by him or her in connection with such action, suit, or proceeding, provided he or she acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, our best interests, and, with respect to any criminal action or

proceeding, had no reasonable cause to believe his or her conduct was unlawful or outside of his or her mandate. The articles do not provide a limit to the maximum future payments, if any, under the indemnification. No indemnification is provided for in respect of any claim, issue, or matter as to which such person has been adjudged to be liable for gross negligence or willful misconduct in the performance of his or her duty on our behalf.

In addition, we have a liability insurance policy that insures directors and officers against the cost of defense, settlement, or payment of claims and judgments under some circumstances. Certain indemnification payments may not be covered under our directors' and officers' insurance coverage.

Initial Purchasers of Senior Notes: Pursuant to the terms of the purchase agreements entered into in connection with our private placement senior note offerings, we are obligated to indemnify the initial purchasers of the Senior Notes against certain liabilities caused by any untrue statement or alleged untrue statement of a material fact in various documents relied upon by such initial purchasers, or to contribute to payments the initial purchasers may be required to make in respect thereof. The purchase agreements do not provide a limit to the maximum future payments, if any, under these indemnifications.

Intellectual Property and Product Liability Indemnification: We routinely sell products with a limited intellectual property and product liability indemnification included in the terms of sale. Historically, we have had only immaterial and irregular losses associated with these indemnifications. Consequently, any future liabilities resulting from these indemnifications cannot reasonably be estimated or accrued.

Product Warranty Liabilities

Refer to *Revenue Recognition* in Note 2, "Significant Accounting Policies," for additional information related to the warranties we provide to customers.

In the event a warranty claim based on defective materials exists, we may be able to recover some of the cost of the claim from the vendor from whom the materials were purchased. Our ability to recover some of the costs will depend on the terms and conditions to which we agreed when the materials were purchased. When a warranty claim is made, the only collateral available to us is the return of the inventory from the customer making the warranty claim. Historically, when customers make a warranty claim, we either replace the product or provide the customer with a credit. We generally do not rework the returned product.

Our policy is to accrue for warranty claims when a loss is both probable and estimable. This is accomplished by accruing for estimated returns and estimated costs to replace the product at the time the related revenue is recognized. Liabilities for warranty claims have historically not been material. In some instances, customers may make claims for costs they incurred or other damages related to a claim.

Environmental Remediation Liabilities

Our operations and facilities are subject to U.S. and non-U.S. laws and regulations governing the protection of the environment and our employees, including those governing air emissions, water discharges, the management and disposal of hazardous substances and wastes, and the cleanup of contaminated sites. We could incur substantial costs, including cleanup costs, fines, civil or criminal sanctions, or third-party property damage or personal injury claims, in the event of violations or liabilities under these laws and regulations, or non-compliance with the environmental permits required at our facilities. Potentially significant expenditures could be required in order to comply with environmental laws that may be adopted or imposed in the future. We are, however, not aware of any threatened or pending material environmental investigations, lawsuits, or claims involving us or our operations.

Legal Proceedings and Claims

We are regularly involved in a number of claims and litigation matters in the ordinary course of business. Most of our litigation matters are third-party claims related to patent infringement allegations or for property damage allegedly caused by our products, but some involve allegations of personal injury or wrongful death. Although it is not feasible to predict the outcome of these matters, based upon our experience and current information known to us, we do not expect the outcome of these matters, either individually or in the aggregate, to have a material adverse effect on our results of operations, financial position, and/or cash flows.

We account for litigation and claims losses in accordance with FASB ASC Topic 450, *Contingencies*. Under FASB ASC Topic 450, loss contingency provisions are recognized for probable and estimable losses at our best estimate of a loss or, when a best estimate cannot be made, at our estimate of the minimum loss. These estimates are often developed prior to knowing the amount of the ultimate loss, require the application of considerable judgment, and are refined each accounting period as

additional information becomes known. Accordingly, we are often initially unable to develop a best estimate of loss and therefore the minimum amount, which could be an immaterial amount, is recognized. As information becomes known, either the minimum loss amount is increased, or a best estimate can be made, generally resulting in additional loss provisions. A best estimate amount may be changed to a lower amount when events result in an expectation of a more favorable outcome than previously expected.

Pending Litigation and Claims:

We are a defendant in a lawsuit, *Wasica Finance GmbH et al v. Schrader International Inc. et al*, Case No. 13-1353-CPS, U.S.D.C., Delaware, in which the claimant alleges infringement of their patent (US 5,602,524) in connection with our tire pressure monitoring system ("TPMS") products. The patent in question has expired, and as a result, the claimant is seeking damages for past alleged infringement with interest and costs. Should the claimant prevail, these amounts could be material. We have denied liability and have been defending the litigation. Trial is currently expected in February 2020. We believe that a loss related to this matter is probable, but do not believe such loss will be material.

We were a defendant in a lawsuit, *Metal Seal Precision, Ltd. v. Sensata Technologies Inc.*, Case No. 2017-0518-BCSI, MA Superior Court (Suffolk County), in which the claimant, a supplier of certain metal parts used in the manufacture of our products, alleged breach of contract, breach of covenant of good faith and fair dealing, and anticipatory repudiation. The dispute arose out of an agreement under which Metal Seal alleged that we did not meet certain purchase requirements, resulting in damages and lost profits. On November 26, 2019, the parties agreed to settle this lawsuit and terminate the underlying supply agreement through an asset purchase agreement (the "MS Purchase Agreement"), whereby Sensata would purchase certain equipment and assets from Metal Seal for \$28.0 million (the "Purchase Price"). The parties executed and closed the MS Purchase Agreement on December 13, 2019, and the lawsuit was formally dismissed by the Superior Court on December 24, 2019. We intend to use the assets and equipment purchased in this transaction to expand our internal production of certain parts previously supplied by Metal Seal. As a result of the termination of the underlying supply agreement and execution of the MS Purchase Agreement, we recorded \$10.2 million of the Purchase Price as a capital expense for the acquired assets, with the remaining \$17.8 million, representing the amount by which the Purchase Price exceeded the fair value of the purchased equipment and assets, recorded in restructuring and other charges, net.

16. Shareholders' Equity

Treasury Shares

Ordinary shares repurchased by us are recognized, measured at cost, and presented as treasury shares on our consolidated balance sheets, resulting in a reduction of shareholders' equity.

In connection with the Merger, all then outstanding treasury shares were canceled in accordance with U.K. law. Accordingly, we (1) derecognized the total purchase price of these treasury shares, (2) recognized a reduction to ordinary shares at an amount equal to the total par value of such shares, and (3) recognized a reduction to retained earnings at an amount equal to the excess of the total repurchase price over the total par value of the then outstanding treasury shares, or \$286.1 million.

From time to time, our Board of Directors has authorized various share repurchase programs. Under these programs, we may repurchase ordinary shares at such times and in amounts to be determined by our management, based on market conditions, legal requirements, and other corporate considerations, on the open market or in privately negotiated transactions, provided that such transactions were completed pursuant to an agreement and with a third party approved by our shareholders at the annual general meeting. The authorized amount of our various share repurchase programs may be modified or terminated by our Board of Directors at any time.

During the year ended December 31, 2018, we repurchased ordinary shares under a \$400.0 million share repurchase program authorized by our Board of Directors in May 2018. During the year ended December 31, 2019, we repurchased ordinary shares under a \$250.0 million share repurchase program authorized by our Board of Directors in October 2018 (the "October 2018 Program") and a \$500.0 million share repurchase program authorized by our Board of Directors in July 2019 (the "July 2019 Program"). The October 2018 Program was terminated upon commencement of the July 2019 Program.

As a result of certain aspects of U.K. law, we discontinued the practice of reissuing treasury shares as part of our share-based compensation programs upon completion of the Merger. The number of treasury shares reissued prior to completion of the Merger was not material.

Accumulated Other Comprehensive Loss

The components of accumulated other comprehensive loss were as follows:

	Cash Flow Hedges	Defined Benefit and Retiree Healthcare Plans	Accumulated Other Comprehensive Loss
Balance as of December 31, 2016	\$ 23	\$ (34,090)	\$ (34,067)
Pre-tax current period change	(37,603)	(1,445)	(39,048)
Tax effect	9,401	550	9,951
Balance as of December 31, 2017	(28,179)	(34,985)	(63,164)
Pre-tax current period change	49,817	(1,183)	48,634
Tax effect	(12,454)	806	(11,648)
Balance as of December 31, 2018	9,184	(35,362)	(26,178)
Pre-tax current period change	9,816	(2,198)	7,618
Tax effect	(2,454)	530	(1,924)
Balance as of December 31, 2019	16,546	(37,030)	(20,484)

The details of the components of other comprehensive income/(loss), net of tax, for the years ended December 31, 2019, 2018, and 2017 are as follows:

	For the year ended December 31,								
	2019			2018			2017		
	Cash Flow Hedges	Defined Benefit and Retiree Healthcare Plans	Total	Cash Flow Hedges	Defined Benefit and Retiree Healthcare Plans	Total	Cash Flow Hedges	Defined Benefit and Retiree Healthcare Plans	Total
Other comprehensive income/(loss) before reclassifications	\$ 28,795	\$ (3,470)	\$ 25,325	\$ 26,859	\$ (2,120)	\$ 24,739	\$ (39,387)	\$ (4,184)	\$ (43,571)
Amounts reclassified from accumulated other comprehensive loss	(21,433)	1,802	(19,631)	10,504	1,743	12,247	11,185	3,289	14,474
Other comprehensive income/(loss)	\$ 7,362	\$ (1,668)	\$ 5,694	\$ 37,363	\$ (377)	\$ 36,986	\$ (28,202)	\$ (895)	\$ (29,097)

The details of the (gain)/loss reclassified from accumulated other comprehensive loss for the years ended December 31, 2019, 2018, and 2017 are as follows:

	Amount of (Gain)/Loss Reclassified from Accumulated Other Comprehensive Loss			Affected Line in Consolidated Statements of Operations
	For the year ended December 31,			
	2019	2018	2017	
Derivative instruments designated and qualifying as cash flow hedges:				
Foreign currency forward contracts	\$ (26,180)	\$ 18,072	\$ 916	Net revenue ⁽¹⁾
Foreign currency forward contracts	(2,397)	(5,442)	13,997	Cost of revenue ⁽¹⁾
Foreign currency forward contracts	—	1,376	—	Other, net ⁽¹⁾
Total, before taxes	(28,577)	14,006	14,913	Income before taxes
Income tax effect	7,144	(3,502)	(3,728)	Provision for/(benefit from) income taxes
Total, net of taxes	<u>\$ (21,433)</u>	<u>\$ 10,504</u>	<u>\$ 11,185</u>	Net income
Defined benefit and retiree healthcare plans	\$ 2,552	\$ 1,993	\$ 3,476	Other, net ⁽²⁾
Defined benefit and retiree healthcare plans	—	228	—	Restructuring and other charges, net ⁽³⁾
Total, before taxes	2,552	2,221	3,476	Income before taxes
Income tax effect	(750)	(478)	(187)	Provision for/(benefit from) income taxes
Total, net of taxes	<u>\$ 1,802</u>	<u>\$ 1,743</u>	<u>\$ 3,289</u>	Net income

⁽¹⁾ Refer to Note 19, "Derivative Instruments and Hedging Activities," for additional information related to amounts to be reclassified from accumulated other comprehensive loss in future periods.

⁽²⁾ Refer to Note 13, "Pension and Other Post-Retirement Benefits," for additional information related to net periodic benefit cost.

⁽³⁾ Amount represents an equity component of the Valves Business, which was sold in fiscal year 2018. Refer to Note 5, "Restructuring and Other Charges, Net," and Note 17, "Acquisitions and Divestitures," for additional information related to the divestiture of the Valves Business.

17. Acquisitions and Divestitures

Other acquisition

On September 13, 2019 we completed one acquisition for approximately \$30.8 million, net of cash acquired and subject to customary post-closing adjustments. This business is being integrated into our Sensing Solutions segment. The majority of the purchase price allocation, which is preliminary as of December 31, 2019, was to completed technologies, customer relationships, and goodwill. We are in the process of completing our assessment of the fair values of assets acquired and liabilities assumed.

GIGAVAC merger

On September 24, 2018, we entered into an agreement and plan of merger with GIGAVAC, whereby GIGAVAC would merge with one of our wholly-owned subsidiaries, thereby becoming a wholly-owned subsidiary of Sensata. On October 31, 2018, we completed the acquisition of GIGAVAC for cash consideration of approximately \$231.1 million, net of cash received. In connection with the acquisition, an additional \$12.0 million related to compensation arrangements entered into with certain GIGAVAC employees and shareholders will be paid on or before the second anniversary of the transaction.

Based in Carpinteria, California, GIGAVAC has more than 270 employees and is a leading producer of high voltage contactors and fuses that are mission-critical components for electric vehicles and equipment. It provides solutions that enable electrification in demanding environments within the automotive, battery storage, industrial, and HVOR end markets. We acquired GIGAVAC to increase our content and capabilities for electrification, including products such as cars, delivery trucks, buses, material handling equipment, and charging stations. Portions of GIGAVAC are being integrated into each of our operating segments.

The following table summarizes the allocation of the purchase price to the estimated fair values of the assets acquired and liabilities assumed:

Net working capital, excluding cash	\$ 17,132
Property, plant and equipment	4,384
Goodwill	114,461
Other intangible assets	122,742
Other assets	63
Deferred income tax liabilities	(27,072)
Other long-term liabilities	(602)
Fair value of net assets acquired, excluding cash and cash equivalents	231,108
Cash and cash equivalents	359
Fair value of net assets acquired	<u>\$ 231,467</u>

The allocation of purchase price related to this merger was finalized in the fourth quarter of 2019 and was based on management's judgments after evaluating several factors, including valuation assessments of tangible and intangible assets. The goodwill of \$114.5 million represents future economic benefits expected to arise from synergies from combining operations and the extension of existing customer relationships. The amount of goodwill recognized that is expected to be deductible for tax purposes is not material.

In connection with the allocation of purchase price to the assets acquired and liabilities assumed, we identified certain definite-lived intangible assets. The following table presents the acquired definite-lived intangible assets, their estimated fair values, and weighted average lives:

	Acquisition Date Fair Value	Weighted-Average Lives (years)
Acquired definite-lived intangible assets:		
Customer relationships	\$ 74,500	10
Completed technologies	31,040	13
Tradenames	15,400	15
Other	1,802	6
Total definite-lived intangible assets acquired	<u>\$ 122,742</u>	12

The definite-lived intangible assets were valued using the income approach. We used the relief-from-royalty method to value completed technologies and tradenames, and we used the multi-period excess earnings method to value customer relationships. These valuation methods incorporate assumptions including expected discounted future cash flows resulting from either the future estimated after-tax royalty payments avoided as a result of owning the completed technologies or the future earnings related to existing customer relationships.

Valves Business Divestiture

In August 2018 we completed the divestiture of the Valves Business to Pacific Industrial Co. Ltd. (together with its affiliates, "Pacific"). Contemporaneous with the closing of the sale, Sensata and Pacific entered into a long-term supply agreement, which imposes an obligation on us to purchase minimum quantities of product from Pacific over a period of nearly five years.

In exchange for selling the Valves Business and entering into the long-term supply agreement, we received cash consideration from Pacific of approximately \$165.5 million, net of \$11.8 million of cash and cash equivalents sold. We recognized a (pre-tax) gain on sale of \$64.4 million, which is presented in restructuring and other charges, net. In addition, we recognized \$5.9 million of costs to sell the Valves Business, which are also presented in restructuring and other charges, net. Refer to Note 5, "Restructuring and Other Charges, Net," for additional information.

We determined that the terms of the long-term supply agreement entered into concurrent with the divestiture of the Valves Business were not at market. Accordingly, we recognized a liability of \$16.4 million, measured at fair value, which represented the fair value of the off-market component of the supply agreement.

The Valves Business, which we acquired in fiscal year 2014 as part of our acquisition of Schrader, manufactured mechanical valves for pressure applications in tires and fluid controls and assembled tire hardware aftermarket products with

manufacturing locations in the U.S. and Europe. The sale did not include our TPMS business and the Global TPMS Aftermarket business.

The Valves Business was included in our Performance Sensing segment (and reporting unit). We allocated goodwill to the Valves Business based on its fair value relative to the fair value of the retained Performance Sensing reporting unit.

18. Fair Value Measures

Our assets and liabilities recorded at fair value have been categorized based upon a fair value hierarchy in accordance with FASB ASC Topic 820. The levels of the fair value hierarchy are described below:

- Level 1 inputs utilize quoted prices (unadjusted) in active markets for identical assets and liabilities that we have the ability to access at the measurement date.
- Level 2 inputs utilize inputs, other than quoted prices included in Level 1, that are observable for the asset or liability, either directly or indirectly. Level 2 inputs include quoted prices for similar assets and liabilities in active markets, quoted prices in markets that are not active, and inputs other than quoted prices that are observable for the asset or liability, such as interest rates and yield curves that are observable at commonly quoted intervals.
- Level 3 inputs are unobservable inputs for the asset or liability, allowing for situations where there is little, if any, market activity for the asset or liability.

Measured on a Recurring Basis

The fair values of our assets and liabilities measured at fair value on a recurring basis as of as of December 31, 2019 and 2018 are as shown in the below table. All fair value measures presented are categorized in Level 2 of the fair value hierarchy.

	As of December 31,	
	2019	2018
Assets measured at fair value:		
Foreign currency forward contracts	\$ 23,561	17,871
Commodity forward contracts	3,623	831
Total assets measured at fair value	<u>\$ 27,184</u>	<u>18,702</u>
Liabilities measured at fair value:		
Foreign currency forward contracts	\$ 1,959	5,165
Commodity forward contracts	462	4,137
Total liabilities measured at fair value	<u>\$ 2,421</u>	<u>9,302</u>

Refer to Note 2, "Significant Accounting Policies," for additional information related to the methods used to estimate the fair value of our financial instruments, and refer Note 19, "Derivative Instruments and Hedging Activities," for additional information related to the inputs used to determine these fair value measurements and the nature of the risks that these derivative instruments are intended to mitigate.

Although we have determined that the majority of the inputs used to value our derivative instruments fall within Level 2 of the fair value hierarchy, the credit valuation adjustments associated with our derivatives utilize Level 3 inputs, such as estimates of current credit spreads, to appropriately reflect both our own non-performance risk and the respective counterparties' non-performance risk in the fair value measurement. As of December 31, 2019 and 2018, we have assessed the significance of the impact of the credit valuation adjustments on the overall valuation of our derivative positions and have determined that the credit valuation adjustments are not significant to the overall valuation of our derivatives. As a result, we have determined that our derivatives in their entirety are classified in Level 2 in the fair value hierarchy.

Measured on a Nonrecurring Basis

We evaluated our goodwill and other indefinite-lived intangible assets for impairment as of October 1, 2019. Refer to Note 11, "Goodwill and Other Intangible Assets, Net" for additional information. Based on these analyses, we determined that no impairments were required. As of December 31, 2019, no events or changes in circumstances occurred that would have triggered the need for an additional impairment review of goodwill or other indefinite-lived intangible assets.

Financial Instruments Not Recorded at Fair Value

The following table presents the carrying values and fair values of financial instruments not recorded at fair value in the consolidated balance sheets as of December 31, 2019 and 2018. All fair value measures presented are categorized within Level 2 of the fair value hierarchy.

	As of December 31,			
	2019		2018	
	Carrying Value ⁽¹⁾	Fair Value	Carrying Value ⁽¹⁾	Fair Value
Term Loan	\$ 460,725	\$ 464,181	\$ 917,794	\$ 904,027
4.875% Senior Notes	\$ 500,000	\$ 532,500	\$ 500,000	\$ 491,875
5.625% Senior Notes	\$ 400,000	\$ 444,000	\$ 400,000	\$ 400,500
5.0% Senior Notes	\$ 700,000	\$ 759,500	\$ 700,000	\$ 660,625
6.25% Senior Notes	\$ 750,000	\$ 808,125	\$ 750,000	\$ 751,875
4.375% Senior Notes	\$ 450,000	\$ 457,875	\$ —	\$ —

⁽¹⁾ Excluding any related debt discounts and deferred financing costs.

In addition to the above, we hold certain equity investments that do not have readily determinable fair values for which we use the measurement alternative prescribed in FASB ASC Topic 321. Such investments are measured at cost, less any impairment, plus or minus changes resulting from observable price changes in orderly transactions for an identical or similar investment of the same issuer. There were no impairments or changes resulting from observable transactions for any of these investments, and no adjustments have been made to their carrying values.

Refer to the table below for a detail of the carrying values of these investments, each of which are included in other assets.

	As of December 31,	
	2019	2018
Quanergy Systems, Inc	\$ 50,000	\$ 50,000
Lithium Balance ⁽¹⁾	3,700	—
Total	\$ 53,700	\$ 50,000

⁽¹⁾ Our investment in Lithium Balance A/S ("Lithium Balance") was purchased in July 2019.

19. Derivative Instruments and Hedging Activities

We utilize derivative instruments that are designated and qualify as hedges of the exposure to variability in expected future cash flows. Hedge accounting generally provides for the matching of the timing of gain or loss recognition on these hedging instruments with the earnings effect of the hedged forecasted transactions. We may enter into other derivative contracts that are intended to economically hedge certain risks, even though we elect not to apply hedge accounting under FASB ASC Topic 815. Derivative financial instruments not designated as hedges are used to manage our exposure to certain risks, not for trading or speculative purposes. Refer to Note 2, "Significant Accounting Policies," for additional information related to the valuation techniques and accounting policies regarding derivative instruments and hedging activities.

Hedges of Foreign Currency Risk

We are exposed to fluctuations in various foreign currencies against our functional currency, the USD. We enter into forward contracts for certain of these foreign currencies to manage this exposure. We currently have outstanding foreign currency forward contracts that qualify as cash flow hedges intended to offset the effect of exchange rate fluctuations on forecasted sales and certain manufacturing costs. We also have outstanding foreign currency forward contracts that are intended to preserve the economic value of foreign currency denominated monetary assets and liabilities, which are not designated for hedge accounting treatment in accordance with FASB ASC Topic 815.

For each of the years ended December 31, 2019, 2018, and 2017, amounts excluded from the assessment of effectiveness of our foreign currency forward agreements that are designated as cash flow hedges were not material. As of December 31, 2019, we estimate that \$20.1 million of net gains will be reclassified from accumulated other comprehensive loss to earnings during the twelve month period ending December 31, 2020.

As of December 31, 2019, we had the following outstanding foreign currency forward contracts:

Notional (in millions)	Effective Date(s)	Maturity Date(s)	Index (Exchange Rates)	Weighted- Average Strike Rate	Hedge Designation ⁽¹⁾
22.0 EUR	December 27, 2019	January 31, 2020	Euro ("EUR") to USD	1.12 USD	Not designated
340.3 EUR	Various from March 2018 to December 2019	Various from January 2020 to November 2021	EUR to USD	1.17 USD	Cash flow hedge
425.0 CNY	December 23, 2019	January 31, 2020	USD to Chinese Renminbi ("CNY")	7.04 CNY	Not designated
326.0 CNY	December 13, 2019	Various from January to December 2020	USD to CNY	7.07 CNY	Cash flow hedge
594.0 JPY	December 23, 2019	January 31, 2020	USD to Japanese Yen ("JPY")	109.07 JPY	Not designated
24,046.6 KRW	Various from February 2018 to December 2019	Various from January 2020 to November 2021	USD to Korean Won ("KRW")	1,135.19 KRW	Cash flow hedge
22.0 MYR	December 23, 2019	January 31, 2020	USD to Malaysian Ringgit ("MYR")	4.12 MYR	Not designated
150.0 MXN	December 27, 2019	January 31, 2020	USD to Mexican Peso ("MXN")	19.00 MXN	Not designated
2,871.0 MXN	Various from February 2018 to December 2019	Various from January 2020 to November 2021	USD to MXN	20.81 MXN	Cash flow hedge
50.8 GBP	Various from March 2018 to December 2019	Various from January 2020 to November 2021	British Pound Sterling ("GBP") to USD	1.31 USD	Cash flow hedge

⁽¹⁾ Derivative financial instruments not designated as hedges are used to manage our exposure to currency exchange rate risk. They are intended to preserve the economic value, and they are not used for trading or speculative purposes.

Hedges of Commodity Risk

We enter into commodity forward contracts in order to limit our exposure to variability in raw material costs that is caused by movements in the price of underlying metals. The terms of these forward contracts fix the price at a future date for various notional amounts associated with these commodities. These instruments are not designated for hedge accounting treatment in accordance with FASB ASC Topic 815.

As of December 31, 2019, we had the following outstanding commodity forward contracts:

Commodity	Notional	Remaining Contracted Periods	Weighted-Average Strike Price Per Unit
Silver	855,297 troy oz.	January 2020-November 2021	\$ 16.68
Gold	7,851 troy oz.	January 2020-November 2021	\$ 1,402.78
Nickel	225,599 pounds	January 2020-November 2021	\$ 6.25
Aluminum	3,054,791 pounds	January 2020-November 2021	\$ 0.89
Copper	2,336,790 pounds	January 2020-November 2021	\$ 2.81
Platinum	7,340 troy oz.	January 2020-November 2021	\$ 905.29
Palladium	892 troy oz.	January 2020-November 2021	\$ 1,441.81

Financial Instrument Presentation

The following table presents the fair values of our derivative financial instruments and their classification in the consolidated balance sheets as of December 31, 2019 and 2018:

	Asset Derivatives			Liability Derivatives		
	Balance Sheet Location	As of December 31,		Balance Sheet Location	As of December 31,	
		2019	2018		2019	2018
Derivatives designated as hedging instruments:						
Foreign currency forward contracts	Prepaid expenses and other current assets	\$ 20,957	\$ 14,608	Accrued expenses and other current liabilities	\$ 1,055	\$ 3,615
Foreign currency forward contracts	Other assets	2,530	3,168	Other long-term liabilities	428	1,134
Total		<u>\$ 23,487</u>	<u>\$ 17,776</u>		<u>\$ 1,483</u>	<u>\$ 4,749</u>
Derivatives not designated as hedging instruments:						
Commodity forward contracts	Prepaid expenses and other current assets	\$ 3,069	\$ 524	Accrued expenses and other current liabilities	\$ 394	\$ 3,679
Commodity forward contracts	Other assets	554	307	Other long-term liabilities	68	458
Foreign currency forward contracts	Prepaid expenses and other current assets	74	95	Accrued expenses and other current liabilities	476	416
Total		<u>\$ 3,697</u>	<u>\$ 926</u>		<u>\$ 938</u>	<u>\$ 4,553</u>

These fair value measurements are all categorized within Level 2 of the fair value hierarchy. Refer to Note 18, "Fair Value Measures," for additional information related to the categorization of these fair value measurements within the fair value hierarchy.

The following tables present the effect of our derivative financial instruments on the consolidated statements of operations and the consolidated statements of comprehensive income for the years ended December 31, 2019 and 2018:

Derivatives designated as hedging instruments	Amount of Deferred Gain Recognized in Other Comprehensive Income		Location of Net Gain/(Loss) Reclassified from Accumulated Other Comprehensive Loss into Net Income	Amount of Net Gain/(Loss) Reclassified from Accumulated Other Comprehensive Loss into Net Income	
	For the year ended December 31,			For the year ended December 31,	
	2019	2018		2019	2018
Foreign currency forward contracts	\$ 23,881	\$ 30,752	Net revenue	\$ 26,180	\$ (18,072)
Foreign currency forward contracts	\$ 14,512	\$ 5,059	Cost of revenue	\$ 2,397	\$ 5,442
Foreign currency forward contracts	\$ —	\$ —	Other, net	\$ —	\$ (1,376)

Derivatives not designated as hedging instruments	Amount of Gain/(Loss) Recognized in Net Income		Location of Gain/(Loss)
	For the year ended December 31,		
	2019	2018	
Commodity forward contracts	\$ 4,888	\$ (8,481)	Other, net
Foreign currency forward contracts	\$ 2,225	\$ 3,446	Other, net

Credit risk related contingent features

We have agreements with certain of our derivative counterparties that contain a provision whereby if we default on our indebtedness and repayment of the indebtedness has been accelerated by the lender, then we could also be declared in default on our derivative obligations.

As of December 31, 2019, the termination value of outstanding derivatives in a liability position, excluding any adjustment for non-performance risk, was \$2.4 million. As of December 31, 2019, we have not posted any cash collateral related to these agreements. If we breach any of the default provisions on any of our indebtedness as described above, we could be required to settle our obligations under the derivative agreements at their termination values.

20. Segment Reporting

We operate in, and report financial information for, the following two reportable segments: Performance Sensing and Sensing Solutions, each of which is also an operating segment. Our operating segments are businesses that we manage as components of an enterprise, for which separate financial information is evaluated regularly by our chief operating decision maker in deciding how to allocate resources and assess performance.

An operating segment's performance is primarily evaluated based on segment operating income, which excludes amortization of intangible assets, restructuring and other charges, net, and certain corporate costs/credits not associated with the operations of the segment, including share-based compensation expense and a portion of depreciation expense associated with assets recorded in connection with acquisitions. Corporate and other costs excluded from an operating segment's performance are separately stated below and also include costs that are related to functional areas such as finance, information technology, legal, and human resources. We believe that segment operating income, as defined above, is an appropriate measure for evaluating the operating performance of our segments. However, this measure should be considered in addition to, and not as a substitute for, or superior to, operating income or other measures of financial performance prepared in accordance with U.S. GAAP. The accounting policies of each of our reportable segments are materially consistent with those described in Note 2, "Significant Accounting Policies."

Performance Sensing primarily serves the automotive and HVOR industries through development and manufacture of sensors, high-voltage contactors, and other products used in mission-critical systems and applications such as those in subsystems of automobiles, on-road trucks, and off-road equipment (e.g., tire pressure monitoring, thermal management, air conditioning, and regenerative braking). Our products are used in subsystems that, among other things, improve operating performance and efficiency as well as address environmental or safety concerns.

Sensing Solutions primarily serves the industrial and aerospace industries through development and manufacture of a broad portfolio of application-specific sensor and control products used in the aerospace market and a diverse range of industrial markets, including the small appliance, HVAC, semiconductor, material handling, factory automation, and water management markets. Some of the products the segment sells include pressure, temperature, and position sensors, motor and compressor protectors, solid state relays, bimetal electromechanical controls, thermal and magnetic-hydraulic circuit breakers, power inverters, and charge controllers.

The following table presents net revenue and segment operating income for the reported segments and other operating results not allocated to the reported segments for the years ended December 31, 2019, 2018, and 2017:

	For the year ended December 31,		
	2019	2018	2017
Net revenue:			
Performance Sensing	\$ 2,546,016	\$ 2,627,651	\$ 2,460,600
Sensing Solutions	904,615	893,976	846,133
Total net revenue	<u>\$ 3,450,631</u>	<u>\$ 3,521,627</u>	<u>\$ 3,306,733</u>
Segment operating income (as defined above):			
Performance Sensing	\$ 648,744	\$ 712,682	\$ 664,186
Sensing Solutions	291,261	293,009	277,450
Total segment operating income	940,005	1,005,691	941,636
Corporate and other	(186,674)	(203,764)	(205,824)
Amortization of intangible assets	(142,886)	(139,326)	(161,050)
Restructuring and other charges, net	(53,560)	47,818	(18,975)
Operating income	556,885	710,419	555,787
Interest expense, net	(158,554)	(153,679)	(159,761)
Other, net	(7,908)	(30,365)	6,415
Income before taxes	<u>\$ 390,423</u>	<u>\$ 526,375</u>	<u>\$ 402,441</u>

No customer exceeded 10% of our net revenue in any of the periods presented.

The following table presents net revenue by product category for the years ended December 31, 2019, 2018, and 2017:

	Performance Sensing	Sensing Solutions	For the year ended December 31,		
			2019	2018	2017
Net revenue:					
Sensors	X	X	\$ 2,712,926	\$ 2,755,280	\$ 2,542,863
Controls		X	481,720	508,745	497,853
Other	X	X	255,985	257,602	266,017
Net revenue			<u>\$ 3,450,631</u>	<u>\$ 3,521,627</u>	<u>\$ 3,306,733</u>

The following table presents depreciation and amortization expense for our reportable segments for the years ended December 31, 2019, 2018, and 2017:

	For the year ended December 31,		
	2019	2018	2017
Depreciation and amortization:			
Performance Sensing	\$ 85,511	\$ 72,067	\$ 68,910
Sensing Solutions	16,678	16,798	17,179
Corporate and other ⁽¹⁾	156,559	156,475	184,282
Total depreciation and amortization	<u>\$ 258,748</u>	<u>\$ 245,340</u>	<u>\$ 270,371</u>

⁽¹⁾ Included within Corporate and other is depreciation and amortization expense associated with the fair value step-up recognized in prior acquisitions and accelerated depreciation recognized in connection with restructuring actions. We do not allocate the additional depreciation and amortization expense associated with the step-up in the fair value of the PP&E and intangible assets associated with these acquisitions or accelerated depreciation related to restructuring actions to our segments. This treatment is consistent with the financial information reviewed by our chief operating decision maker.

The following table presents total assets for our reportable segments as of December 31, 2019 and 2018:

	As of December 31,	
	2019	2018
Assets:		
Performance Sensing	\$ 1,515,396	\$ 1,490,310
Sensing Solutions	479,455	468,131
Corporate and other ⁽¹⁾	4,839,668	4,839,246
Total assets	<u>\$ 6,834,519</u>	<u>\$ 6,797,687</u>

⁽¹⁾ The following is included within corporate and other as of December 31, 2019 and 2018: goodwill of \$3,093.6 million and \$3,081.3 million, respectively; other intangible assets, net of \$770.9 million and \$897.2 million, respectively; cash and cash equivalents of \$774.1 million and \$729.8 million, respectively; and PP&E, net of \$41.2 million and \$36.5 million, respectively. This treatment is consistent with the financial information reviewed by our chief operating decision maker.

The following table presents additions to PP&E and capitalized software for our reportable segments for the years ended December 31, 2019, 2018, and 2017:

	For the year ended December 31,		
	2019	2018	2017
Additions to property, plant and equipment and capitalized software:			
Performance Sensing	\$ 125,412	\$ 130,234	\$ 106,520
Sensing Solutions	19,520	12,492	13,980
Corporate and other	16,327	17,061	24,084
Total additions to property, plant and equipment and capitalized software	<u>\$ 161,259</u>	<u>\$ 159,787</u>	<u>\$ 144,584</u>

Geographic Area Information

The following tables present net revenue by geographic area and by significant country for the years ended December 31, 2019, 2018, and 2017. In these tables, net revenue is aggregated according to the location of our subsidiaries.

	For the year ended December 31,		
	2019	2018	2017
Net revenue:			
Americas	\$ 1,460,101	\$ 1,480,567	\$ 1,367,113
Europe	969,470	1,028,534	1,036,502
Asia and rest of world	1,021,060	1,012,526	903,118
Net revenue	<u>\$ 3,450,631</u>	<u>\$ 3,521,627</u>	<u>\$ 3,306,733</u>

	For the year ended December 31,		
	2019	2018	2017
Net revenue:			
United States	\$ 1,333,532	\$ 1,360,590	\$ 1,276,304
Netherlands	576,804	585,036	571,735
China	575,211	560,938	478,713
Korea	188,226	188,114	184,101
United Kingdom	151,674	163,963	174,376
All other	625,184	662,986	621,504
Net revenue	<u>\$ 3,450,631</u>	<u>\$ 3,521,627</u>	<u>\$ 3,306,733</u>

The following tables present PP&E, net, by geographic area and by significant country as of December 31, 2019 and 2018. In these tables, PP&E, net is aggregated based on the location of our subsidiaries.

	As of December 31,	
	2019	2018
Property, plant and equipment, net:		
Americas	\$ 289,300	\$ 292,625
Europe	192,772	185,011
Asia and rest of world	348,926	309,542
Property, plant and equipment, net	<u>\$ 830,998</u>	<u>\$ 787,178</u>

	As of December 31,	
	2019	2018
Property, plant and equipment, net:		
United States	\$ 97,226	\$ 83,664
China	266,161	239,315
Mexico	191,861	204,552
Bulgaria	138,644	119,477
United Kingdom	40,003	51,404
Malaysia	78,310	65,688
All other	18,793	23,078
Property, plant and equipment, net	<u>\$ 830,998</u>	<u>\$ 787,178</u>

21. Leases

We occupy leased facilities with initial terms ranging up to 20 years. The lease agreements frequently include options to renew for additional periods or to purchase the leased assets and generally require that we pay taxes, insurance, and maintenance costs. We also lease certain vehicles and equipment. Depending on the specific terms of the leases, our obligations are in two forms: finance leases and operating leases.

As discussed in Note 2, "Significant Accounting Policies," we adopted FASB ASC Topic 842 on January 1, 2019, using the modified retrospective transition method. We have elected to apply the package of practical expedients and the land easement practical expedient. We have not elected to apply the hindsight practical expedient.

As a result of this adoption, we classify most leases as either finance or operating leases and recognize a related lease liability and right-of-use asset on our consolidated balance sheets. Our accounting for finance leases remains unchanged after the adoption of FASB ASC Topic 842. We have elected to account for leases with a term of one year or less (short-term leases) using a method similar to the operating lease model under FASB ASC Topic 840, *Leases* (i.e. they are not recorded on the consolidated balance sheets).

We elected to apply the transition provisions of this guidance, including its disclosure requirements, at its date of adoption instead of at the beginning of the earliest comparative period presented. Accordingly, we have not restated our consolidated balance sheet as of December 31, 2018. There was no cumulative effect of adoption on our retained earnings or any other components of equity. The below adjustments were made to our consolidated balance sheet on January 1, 2019 to reflect the new guidance:

	December 31, 2018	Adjustment	January 1, 2019
Prepaid expenses and other current assets	\$ 113,234	\$ (253)	\$ 112,981
Other intangible assets, net	\$ 897,191	\$ (1,510)	\$ 895,681
Other assets	\$ 86,890	\$ 58,496	\$ 145,386
Accrued expenses and other current liabilities	\$ 218,130	\$ 12,119	\$ 230,249
Other long-term liabilities	\$ 39,277	\$ 44,614	\$ 83,891

The table below presents the amounts recognized and location of recognition in our consolidated balance sheet as of December 31, 2019 related to our operating and finance leases:

	December 31, 2019
Operating lease right-of-use assets:	
Other assets	\$ 55,333
Total operating lease right-of-use assets	<u>\$ 55,333</u>
Operating lease liabilities:	
Accrued expenses and other current liabilities	\$ 11,543
Other long-term liabilities	45,457
Total operating lease liabilities	<u>\$ 57,000</u>
Finance lease right-of-use assets:	
Property, plant and equipment, at cost	\$ 49,714
Accumulated depreciation	(24,316)
Property, plant and equipment, net	<u>\$ 25,398</u>
Finance lease liabilities:	
Current portion of long-term debt, finance lease and other financing obligations	\$ 1,974
Finance lease and other financing obligations, less current portion	28,669
Total finance lease liabilities	<u>\$ 30,643</u>

We have material finance leases for facilities in Baoying, China and Attleboro, Massachusetts. As of December 31, 2019 and 2018, the combined finance lease obligation outstanding for these facilities was \$29.4 million and \$30.4 million, respectively.

The table below presents the lease liabilities arising from obtaining right-of-use assets in the year ended December 31, 2019:

	For the year ended December 31, 2019
Operating leases	\$ 5,423
Finance leases	\$ —

For finance leases, the consolidated statements of operations include separate recognition of interest on the lease liability and amortization of the right-of-use asset. For operating leases, the consolidated statements of operations include a single lease

cost, calculated so that the cost of the lease is allocated over the lease term on a straight-line basis. The table below presents our total lease cost for the year ended December 31, 2019 (short-term lease cost was not material for the year ended December 31, 2019):

	For the year ended	
	December 31, 2019	
Operating lease cost	\$	16,124
Finance lease cost:		
Amortization of right-of-use assets	\$	1,808
Interest on lease liabilities		2,695
Total finance lease cost	\$	4,503

Rent expense for the years ended December 31, 2018 and 2017 (prior to the adoption of FASB ASC Topic 842) was \$21.0 million and \$19.7 million, respectively.

Cash flows from operating activities include (1) interest on finance lease liabilities and (2) payments arising from operating leases. Cash flows from financing activities include repayments of the principal portion of finance lease liabilities. The table below presents the cash paid related to our operating and finance leases for the year ended December 31, 2019:

	For the year ended	
	December 31, 2019	
Operating cash flows from operating leases	\$	15,911
Operating cash flows from finance leases	\$	2,731
Financing cash flows from finance leases	\$	1,933

The table below presents the weighted-average remaining lease term of our operating and finance leases (in years):

	December 31, 2019
Operating leases	8.1
Finance leases	12.6

Our lease liabilities are initially measured at the present value of the lease payments not yet paid, discounted using our incremental borrowing rate for a period that is comparable to the remaining lease term. Upon adoption of FASB ASC Topic 842, we initially measured our operating lease liabilities using this methodology, while our accounting for finance leases remained unchanged. We use our incremental borrowing rate, adjusted for collateralization, because the discount rate implicit in our leases are generally not readily determinable. The table below presents our weighted-average discount rate as of December 31, 2019:

	December 31, 2019
Operating leases	5.6%
Finance leases	8.6%

The table below presents a maturity analysis of the obligations related to our operating lease liabilities and finance lease liabilities in effect as of December 31, 2019:

Year ending December 31,	Operating Leases	Finance Leases
2020	\$ 14,818	\$ 4,528
2021	11,199	4,050
2022	8,946	3,700
2023	7,470	3,759
2024	7,055	3,819
Thereafter	24,467	32,464
Total undiscounted cash flows related to lease liabilities	73,955	52,320
Less imputed interest	(16,955)	(21,677)
Total lease liabilities	\$ 57,000	\$ 30,643

22. Unaudited Quarterly Data

A summary of the unaudited quarterly results of operations for the years ended December 31, 2019 and 2018 is as follows:

	For the three months ended			
	December 31, 2019	September 30, 2019	June 30, 2019	March 31, 2019
Net revenue	\$ 846,691	\$ 849,715	\$ 883,726	\$ 870,499
Gross profit	\$ 290,209	\$ 294,805	\$ 308,491	\$ 289,693
Net income	\$ 53,538	\$ 70,675	\$ 73,436	\$ 85,065
Basic net income per share ⁽¹⁾	\$ 0.34	\$ 0.44	\$ 0.45	\$ 0.52
Diluted net income per share	\$ 0.34	\$ 0.44	\$ 0.45	\$ 0.52

	For the three months ended			
	December 31, 2018	September 30, 2018	June 30, 2018	March 31, 2018
Net revenue	\$ 847,922	\$ 873,552	\$ 913,860	\$ 886,293
Gross profit	\$ 304,359	\$ 315,218	\$ 331,351	\$ 303,836
Net income	\$ 254,099	\$ 149,118	\$ 105,288	\$ 90,490
Basic net income per share ⁽¹⁾	\$ 1.55	\$ 0.89	\$ 0.61	\$ 0.53
Diluted net income per share ⁽¹⁾	\$ 1.54	\$ 0.88	\$ 0.61	\$ 0.52

⁽¹⁾ The sum of net income per share for the four quarters does not equal the full year net income per share due to rounding.

Acquisitions and Divestitures

In August 2018 we completed the divestiture of the Valves Business. As a result, in the third quarter of 2018, we recognized a (pre-tax) gain of \$64.4 million and costs of \$5.9 million in restructuring and other charges, net in our consolidated statement of operations. Refer to Note 17, "Acquisitions and Divestitures," for additional information related to the divestiture of the Valves Business. Our consolidated results presented above only include the results of this business before August 31, 2018.

In October 2018 we completed the acquisition of GIGAVAC. Refer to Note 17, "Acquisitions and Divestitures," for additional information related to this merger. Net revenue of GIGAVAC included in our consolidated statement of operations in the fourth quarter of 2018 was \$12.6 million. In the fourth quarter of 2018, we recorded related transaction costs of \$2.5 million, which are included in SG&A expense in the consolidated statements of operations.

Income taxes

In the fourth quarter of 2018, we recorded an income tax benefit of \$122.1 million related to the realization of U.S. deferred tax assets previously offset by a valuation allowance. Refer to Note 7, "Income Taxes," for additional information related to our accounting for income taxes.

Commodity forward contracts

Gains and losses related to our commodity forward contracts, which are not designated for hedge accounting treatment in accordance with FASB ASC Topic 815, are recorded in other, net in the consolidated statements of operations. Refer to Note 19, "Derivative Instruments and Hedging Activities," for additional information related to our commodity forward contracts, and Note 6, "Other, Net," for a detail of other, net for the years ended December 31, 2019 and 2018. The below table presents gains/(losses) recognized related to these contracts in the periods presented:

	For the three months ended			
	December 31,	September 30,	June 30,	March 31,
2019	\$ 2,081	\$ 1,786	\$ (102)	\$ 1,123
2018	\$ 373	\$ (4,233)	\$ (1,426)	\$ (3,195)

Restructuring and other charges

The below table presents charges/(gains) recorded to restructuring and other charges, net in the periods presented:

	For the three months ended			
	December 31,	September 30,	June 30,	March 31,
2019	\$ 25,520	\$ 6,421	\$ 16,310	\$ 5,309
2018	\$ 870	\$ (52,698)	\$ 244	\$ 3,766

In fiscal year 2019, restructuring and other charges net includes a loss related to the termination of a supply agreement in connection with the Metal Seal litigation in the fourth quarter, termination benefits provided under a one-time benefit arrangement related to the shutdown and relocation of an operating site in Germany in the third quarter, and a charge provided under a voluntary retirement incentive program in the second quarter.

In fiscal year 2018, restructuring and other charges, net includes the gain on sale of the Valves Business, net of transaction costs, in the third quarter.

Refer to Note 5, "Restructuring and Other Charges, Net," for additional information related to our restructuring charges.

SCHEDULE I—CONDENSED FINANCIAL INFORMATION OF THE REGISTRANT

SENSATA TECHNOLOGIES HOLDING PLC
(Parent Company Only)
Balance Sheets
(In thousands)

	<u>As of December 31,</u>	
	<u>2019</u>	<u>2018</u>
Assets		
Current assets:		
Cash and cash equivalents	\$ 238	\$ 1,089
Intercompany notes receivable from subsidiaries	43,673	—
Prepaid expenses and other current assets	1,246	528
Total current assets	<u>45,157</u>	<u>1,617</u>
Deferred income tax assets	570	—
Investment in subsidiaries	2,554,954	2,932,218
Total assets	<u>\$ 2,600,681</u>	<u>\$ 2,933,835</u>
Liabilities and shareholders' equity		
Current liabilities:		
Accounts payable	\$ 572	\$ 58
Intercompany accounts payable to subsidiaries	1,909	12,552
Intercompany notes payable to subsidiaries	23,216	311,009
Accrued expenses and other current liabilities	1,229	1,782
Total current liabilities	<u>26,926</u>	<u>325,401</u>
Total liabilities	<u>26,926</u>	<u>325,401</u>
Total shareholders' equity	<u>2,573,755</u>	<u>2,608,434</u>
Total liabilities and shareholders' equity	<u>\$ 2,600,681</u>	<u>\$ 2,933,835</u>

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

SENSATA TECHNOLOGIES HOLDING PLC
(Parent Company Only)
Statements of Operations
(In thousands)

	For the year ended December 31,		
	2019	2018	2017
Net revenue	\$ —	\$ —	\$ —
Operating costs and expenses:			
Selling, general and administrative	8,860	10,153	6,894
Total operating costs and expenses	8,860	10,153	6,894
Loss from operations	(8,860)	(10,153)	(6,894)
Intercompany dividend income	700,000	—	—
Intercompany interest (expense)/income, net	(23,294)	(4,709)	8
Other, net	(21)	474	(169)
Income/(loss) before income taxes and equity in net income of subsidiaries	667,825	(14,388)	(7,055)
Equity in net (loss)/income of subsidiaries	(401,715)	613,383	415,412
Benefit from income taxes	16,604	—	—
Net income	\$ 282,714	\$ 598,995	\$ 408,357

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

SENSATA TECHNOLOGIES HOLDING PLC
(Parent Company Only)
Statements of Comprehensive Income
(In thousands)

	For the year ended December 31,		
	2019	2018	2017
Net income	\$ 282,714	\$ 598,995	\$ 408,357
Other comprehensive income/(loss), net of tax:			
Defined benefit plan	—	535	77
Subsidiaries' other comprehensive income/(loss)	5,694	36,451	(29,174)
Other comprehensive income/(loss)	5,694	36,986	(29,097)
Comprehensive income	\$ 288,408	\$ 635,981	\$ 379,260

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

SENSATA TECHNOLOGIES HOLDING PLC
(Parent Company Only)
Statements of Cash Flows
(In thousands)

	For the year ended December 31,		
	2019	2018	2017
Net cash used in operating activities	\$ (14,989)	\$ (14,253)	\$ (9,109)
Cash flows from investing activities:			
Return of capital from subsidiaries	—	—	5,000
Dividends received from subsidiary	700,000	—	—
Net cash provided by investing activities	700,000	—	5,000
Cash flows from financing activities:			
Proceeds from exercise of stock options and issuance of ordinary shares	15,150	6,093	7,450
(Payments on)/proceeds from intercompany borrowings	(344,018)	410,190	—
Payments to repurchase ordinary shares	(350,004)	(399,417)	—
Payments of employee restricted stock tax withholdings	(6,990)	(3,674)	(2,910)
Net cash (used in)/provided by financing activities	(685,862)	13,192	4,540
Net change in cash and cash equivalents	(851)	(1,061)	431
Cash and cash equivalents, beginning of year	1,089	2,150	1,719
Cash and cash equivalents, end of year	<u>\$ 238</u>	<u>\$ 1,089</u>	<u>\$ 2,150</u>

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

1. Basis of Presentation and Description of Business

Sensata Technologies Holding plc (Parent Company)—Schedule I—Condensed Financial Information of Sensata Technologies Holding plc ("Sensata plc"), included in this Annual Report on Form 10-K (this "Report"), provides all parent company information that is required to be presented in accordance with the United States (the "U.S.") Securities and Exchange Commission ("SEC") rules and regulations for financial statement schedules. The accompanying condensed financial statements have been prepared in accordance with the reduced disclosure requirements permitted by the SEC. Sensata plc and subsidiaries' audited consolidated financial statements are included elsewhere in this Report.

On September 28, 2017, the Board of Directors of Sensata Technologies Holding N.V. ("Sensata N.V.") unanimously approved a plan to change our location of incorporation from the Netherlands to the United Kingdom (the "U.K."). To effect this change, on February 16, 2018 the shareholders of Sensata N.V. approved a cross-border merger between Sensata N.V. and Sensata plc, a newly formed, public limited company incorporated under the laws of England and Wales, with Sensata plc being the surviving entity (the "Merger").

We received approval of the Merger by the U.K. High Court of Justice, and the Merger was completed, on March 28, 2018. As a result thereof, Sensata plc became the publicly-traded parent of the subsidiary companies that were previously controlled by Sensata N.V., with no changes made to the business being conducted by us prior to the Merger. Due to the fact that the Merger was a business combination between entities under common control, the assets and liabilities exchanged were accounted for at their carrying values.

Sensata plc conducts limited separate operations and acts primarily as a holding company. Sensata plc has no direct outstanding debt obligations. However, Sensata Technologies B.V., an indirect, wholly-owned subsidiary of Sensata plc, is limited in its ability to pay dividends or otherwise make distributions to its immediate parent company and, ultimately, to Sensata plc, under its senior secured credit facilities and the indentures governing its senior notes. For a discussion of the debt obligations of the subsidiaries of Sensata plc, refer to Note 14, "Debt," of Sensata plc and subsidiaries' audited consolidated financial statements included elsewhere in this Report (the "Consolidated Financial Statements").

All U.S. dollar amounts presented except per share amounts are stated in thousands, unless otherwise indicated.

2. Commitments and Contingencies

For a discussion of the commitments and contingencies of the subsidiaries of Sensata plc, refer to Note 15, "Commitments and Contingencies," of the Consolidated Financial Statements.

SCHEDULE II—VALUATION AND QUALIFYING ACCOUNTS
(In thousands)

	Balance at the Beginning of the Period	Additions Charged, Net of Reversals, to Expenses/ Against Revenue	Deductions	Balance at the End of the Period
For the year ended December 31, 2019				
Accounts receivable allowances	\$ 13,762	\$ 3,005	\$ (1,638)	\$ 15,129
For the year ended December 31, 2018				
Accounts receivable allowances	\$ 12,947	\$ 2,194	\$ (1,379)	\$ 13,762
For the year ended December 31, 2017				
Accounts receivable allowances	\$ 11,811	\$ 2,205	\$ (1,069)	\$ 12,947

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

The required certifications of our Chief Executive Officer and Chief Financial Officer are included as Exhibits 31.1 and 31.2 to this Annual Report on Form 10-K. The disclosures set forth in this Item 9A contain information concerning the evaluation of our disclosure controls and procedures, management's report on internal control over financial reporting, and changes in internal control over financial reporting referred to in these certifications. These certifications should be read in conjunction with this Item 9A for a more complete understanding of the matters covered by the certifications.

Evaluation of Disclosure Controls and Procedures

With the participation of our Chief Executive Officer and Chief Financial Officer, we have evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2019. The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in the U.S. Securities and Exchange Commission's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company's management, including its principal executive and principal financial officers, as appropriate, to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives, and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of our disclosure controls and procedures as of December 31, 2019, our Chief Executive Officer and Chief Financial Officer concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

Changes in Internal Control over Financial Reporting

No change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) occurred during the fourth quarter of the year ended December 31, 2019 that materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Management's Report on Internal Control over Financial Reporting

Management of Sensata Technologies Holding plc (the "Company") is responsible for establishing and maintaining adequate internal control over financial reporting as is defined in Exchange Act Rules 13a-15(f) and 15d-15(f). The Company's internal control system was designed to provide reasonable assurance to the Company's management, Board of Directors, and shareholders regarding the preparation and fair presentation of the Company's published financial statements in accordance with generally accepted accounting principles. The Company's internal control over financial reporting includes those policies and procedures that:

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

There are inherent limitations to the effectiveness of any system of internal control over financial reporting. Accordingly, even an effective system of internal control over financial reporting can only provide reasonable assurance with respect to financial statement preparation and presentation in accordance with accounting principles generally accepted in the United States of America. Our internal controls over financial reporting are subject to various inherent limitations, including cost limitations, judgments used in decision making, assumptions about the likelihood of future events, the soundness of our systems, the possibility of human error, and the risk of fraud. Moreover, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may be inadequate because of changes in conditions and the risk that the degree of compliance with policies or procedures may deteriorate over time.

Management assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2019. In making its assessment of internal control over financial reporting, management used the criteria issued by the Committee of Sponsoring Organizations ("COSO") of the Treadway Commission in May 2013.

Based on the results of this assessment, management, including our Chief Executive Officer and Chief Financial Officer, has concluded that, as of December 31, 2019, the Company's internal control over financial reporting was effective.

The Company's independent registered public accounting firm, Ernst & Young LLP, has also issued an audit report on the Company's internal control over financial reporting, which is included elsewhere in this Annual Report on Form 10-K.

Swindon, United Kingdom
February 11, 2020

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of Sensata Technologies Holding plc

Opinion on Internal Control over Financial Reporting

We have audited Sensata Technologies Holding plc's internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, Sensata Technologies Holding plc (the Company) maintained, in all material aspects, effective internal control over financial reporting as of December 31, 2019, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2019 and 2018, the related consolidated statements of operations, comprehensive income, cash flows and changes in shareholders' equity for each of the three years in the period ended December 31, 2019, and the related notes and financial statement schedules listed in the Index at Item 15(a) (collectively referred to as the "financial statements"), and our report dated February 11, 2020 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the 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 audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

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 (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) 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 (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

/s/ Ernst & Young LLP

Boston, Massachusetts
February 11, 2020

ITEM 9B. OTHER INFORMATION

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS, AND CORPORATE GOVERNANCE

The information required by this Item 10 is incorporated herein by reference from the Definitive Proxy Statement of Sensata Technologies Holding plc (the "Company"), to be filed with the Securities and Exchange Commission within 120 days of the Company's fiscal year ended December 31, 2019.

ITEM 11. EXECUTIVE COMPENSATION

The information required by this Item 11 is incorporated herein by reference from the Company's Definitive Proxy Statement, to be filed with the Securities and Exchange Commission within 120 days of the Company's fiscal year ended December 31, 2019.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by this Item 12 is incorporated herein by reference from the Company's Definitive Proxy Statement, to be filed with the Securities and Exchange Commission within 120 days of the Company's fiscal year ended December 31, 2019.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by this Item 13 is incorporated herein by reference from the Company's Definitive Proxy Statement, to be filed with the Securities and Exchange Commission within 120 days of the Company's fiscal year ended December 31, 2019.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

The information required by this Item 14 is incorporated herein by reference from the Company's Definitive Proxy Statement, to be filed with the Securities and Exchange Commission within 120 days of the Company's fiscal year ended December 31, 2019.

PART IV

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

(a)

1. **Financial Statements** — See "Financial Statements" under Item 8, "Financial Statements and Supplementary Data," of this Annual Report on Form 10-K.
2. **Financial Statement Schedules** — See "Financial Statement Schedules" under Item 8, "Financial Statements and Supplementary Data," of this Annual Report on Form 10-K.
3. **Exhibits**

EXHIBIT INDEX

- | | |
|------|--|
| 2.1 | Common Draft Terms of the Cross-Border Legal Merger by and among Sensata Technologies Holding N.V. and Sensata Technologies Holding plc dated October 26, 2017 (incorporated by reference to Exhibit 2.1 of the Registrant's Current Report on Form 8-K filed on November 1, 2017). |
| 2.2 | Merger Proposal by the boards of directors of Sensata Technologies Holding N.V. and Sensata Technologies Holding plc (incorporated by reference to Annex A to the registration statement on Form S-4/A (Commission File No. 333-220735) filed by Sensata Technologies Holding plc on December 22, 2017). |
| 3.1 | Articles of Association of Sensata Technologies Holding plc (incorporated by reference to Exhibit 3.1 of the Registrant's Current Report on Form 8-K filed on March 28, 2018.) |
| 4.1 | Indenture, dated as of April 17, 2013, among Sensata Technologies B.V., the Guarantors named therein, and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K (Commission File No. 001-34652) filed on April 18, 2013). |
| 4.2 | Form of 4.875% Senior Note due 2023 (incorporated by reference to Exhibit 4.2 of the Registrant's Current Report on Form 8-K (Commission File No. 001-34652) filed on April 18, 2013) (included as Exhibit A to Exhibit 4.1 thereof). |
| 4.3 | Indenture, dated as of October 14, 2014, among Sensata Technologies B.V., the Guarantors named therein, and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K filed on October 17, 2014). |
| 4.4 | Form of 5.625% Senior Note due 2024 (incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K filed on October 17, 2014) (included as Exhibit A thereto). |
| 4.5 | Indenture, dated as of March 26, 2015, among Sensata Technologies B.V., the Guarantors named therein, and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K filed on April 1, 2015). |
| 4.6 | Form of 5.0% Senior Notes due 2025 (incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K filed on April 1, 2015) (included as Exhibit A thereto). |
| 4.7 | Indenture, dated as of November 27, 2015, among Sensata Technologies UK Financing Co. plc, the Guarantors named therein, and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K filed on December 2, 2015). |
| 4.8 | Form of 6.25% Senior Notes due 2026 (incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K filed on December 2, 2015) (included as Exhibit A thereto). |
| 4.9 | Sixth Supplemental Indenture dated as of October 10, 2017, amending the indenture dated as of April 17, 2013 pursuant to which the 4.875% Senior Notes were issued, among Sensata Technologies B.V., the guarantors party thereto and The Bank of New York Mellon, as trustee (incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K filed on October 13, 2017). |
| 4.10 | Fifth Supplemental Indenture dated as of October 10, 2017, amending the indenture dated as of October 14, 2014 pursuant to which the 5.625% Senior Notes were issued, among Sensata Technologies B.V., the guarantors party thereto and The Bank of New York Mellon, as trustee (incorporated by reference to Exhibit 4.2 of the Registrant's Current Report on Form 8-K filed on October 13, 2017). |

- 4.11 Sixth Supplemental Indenture dated as of October 10, 2017, amending the indenture dated as of March 26, 2015 pursuant to which the 5.000% Senior Notes were issued, among Sensata Technologies B.V., the guarantors party thereto and The Bank of New York Mellon, as trustee (incorporated by reference to Exhibit 4.3 of the Registrant's Current Report on Form 8-K filed on October 13, 2017).
- 4.12 Third Supplemental Indenture dated as of October 10, 2017, amending the indenture dated as of November 27, 2015 pursuant to which the 6.250% Senior Notes were issued, among Sensata Technologies UK Financing Co. plc, the guarantors party thereto and The Bank of New York Mellon, as trustee (incorporated by reference to Exhibit 4.4 of the Registrant's Current Report on Form 8-K filed on October 13, 2017).
- 4.13 Indenture, dated as of September 20, 2019, among Sensata Technologies, Inc., the Guarantors named therein, and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K filed on September 26, 2019).
- 4.14 Form of 4.375% Senior Notes due 2030 (incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K filed on September 26, 2019) (included as Exhibit A thereto).
- 4.15 Description of Sensata Technologies Holding plc Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934*
- 10.1 Cross-License Agreement, dated April 27, 2006, among Texas Instruments Incorporated, Sensata Technologies B.V. and Potazia Holding B.V. (incorporated by reference to Exhibit 10.10 of the Registration Statement on Form S-4 of Sensata Technologies B.V. filed on December 29, 2006).
- 10.2 Form of Indemnification Agreement, entered among Sensata Technologies Holding N.V. (formerly known as Sensata Technologies Holding B.V.) and certain of its executive officers and directors listed on a schedule attached thereto (incorporated by reference to Exhibit 10.51 of Amendment No. 2 of the Registrant's Registration Statement on Form S-1 filed on January 22, 2010).†
- 10.3 Amended and Restated Employment Agreement, dated March 22, 2011, between Sensata Technologies, Inc. and Jeffrey Cote (incorporated by reference to Exhibit 10.2 of the Registrant's Quarterly Report on Form 10-Q filed on April 22, 2011, Commission File Number 001-34652).†‡
- 10.4 Credit Agreement, dated as of May 12, 2011, by and among Sensata Technologies B.V., Sensata Technologies Finance Company, LLC, Sensata Technologies Intermediate Holding B.V., Morgan Stanley Senior Funding, Inc., as administrative agent, the initial l/c issuer and initial swing line lender named therein, and the other lenders party thereto (incorporated by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K filed on May 17, 2011, Commission File Number 001-34652).
- 10.5 Domestic Guaranty, dated as of May 12, 2011, made by each of Sensata Technologies Finance Company, LLC, Sensata Technologies, Inc., Sensata Technologies Massachusetts, Inc. and each of the Additional Guarantors from time to time made a party thereto in favor of the Secured Parties (as defined therein) (incorporated by reference to Exhibit 10.2 of the Registrant's Current Report on Form 8-K filed on May 17, 2011, Commission File Number 001-34652).
- 10.6 Guaranty, dated as of May 12, 2011, made by Sensata Technologies B.V. in favor of the Secured Parties (as defined therein) (incorporated by reference to Exhibit 10.3 of the Registrant's Current Report on Form 8-K filed on May 17, 2011, Commission File Number 001-34652).
- 10.7 Foreign Guaranty, dated as of May 12, 2011, made by each of Sensata Technologies Holding Company US B.V., Sensata Technologies Holland, B.V., Sensata Technologies Holding Company Mexico, B.V., Sensata Technologies de México, S. de R.L. de C.V., Sensata Technologies Japan Limited, Sensata Technologies Malaysia Sdn. Bhd. and each of the Additional Guarantors from time to time made a party thereto in favor of the Secured Parties (as defined therein) (incorporated by reference to Exhibit 10.4 of the Registrant's Current Report on Form 8-K filed on May 17, 2011, Commission File Number 001-34652).
- 10.8 Patent Security Agreement, dated as of May 12, 2011, made by each of Sensata Technologies Finance Company, LLC, Sensata Technologies, Inc. and Sensata Technologies Massachusetts, Inc. to Morgan Stanley Senior Funding, Inc., as collateral agent (incorporated by reference to Exhibit 10.5 of the Registrant's Current Report on Form 8-K filed on May 17, 2011, Commission File Number 001-34652).
- 10.9 Trademark Security Agreement, dated as of May 12, 2011, made by each of Sensata Technologies Finance Company, LLC, Sensata Technologies, Inc. and Sensata Technologies Massachusetts, Inc. to Morgan Stanley Senior Funding, Inc., as collateral agent (incorporated by reference to Exhibit 10.6 of the Registrant's Current Report on Form 8-K filed on May 17, 2011, Commission File Number 001-34652).

- 10.10 Domestic Pledge Agreement, dated as of May 12, 2011, made by each of Sensata Technologies B.V. and Sensata Technologies Holding Company US B.V. to Morgan Stanley Senior Funding, Inc., as collateral agent (incorporated by reference to Exhibit 10.7 of the Registrant's Current Report on Form 8-K filed on May 17, 2011, Commission File Number 001-34652).
- 10.11 Domestic Security Agreement, dated as of May 12, 2011, made by each of Sensata Technologies Finance Company, LLC, Sensata Technologies, Inc. and Sensata Technologies Massachusetts, Inc. to Morgan Stanley Senior Funding, Inc., as collateral agent (incorporated by reference to Exhibit 10.8 of the Registrant's Current Report on Form 8-K filed on May 17, 2011, Commission File Number 001-34652).
- 10.12 Amendment to Award Agreement between Sensata Technologies Holding N.V. and Jeffrey Cote dated January 23, 2012 (incorporated by reference to Exhibit 10.39 of the Registrant's Annual Report on Form 10-K filed on February 10, 2012, Commission File No. 001-34652).†
- 10.13 Form of Director Options Agreement (incorporated by reference to Exhibit 10.1 of the Registrant's Quarterly Report on Form 10-Q filed on July 27, 2012, Commission File No. 001-34652).
- 10.14 Amendment No. 1 to Credit Agreement dated as of December 6, 2012, to the Credit Agreement dated as of May 12, 2011, by and among Sensata Technologies B.V., Sensata Technologies Finance Company LLC, Sensata Technologies Intermediate Holding B.V., the subsidiary guarantors party thereto, Morgan Stanley Senior Funding, Inc., and Barclays Bank PLC (incorporated by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K filed on December 10, 2012, Commission File No. 001-34652).
- 10.15 Second Amended and Restated Employment Agreement, dated January 1, 2013, between Sensata Technologies, Inc. and Martha Sullivan (incorporated by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K filed on January 4, 2013, Commission File No. 001-34652).†‡
- 10.16 Employment Agreement, dated January 1, 2013, between Sensata Technologies, Inc. and Steven Beringhouse (incorporated by reference to Exhibit 10.2 of the Registrant's Current Report on Form 8-K filed on January 4, 2013, Commission File No. 001-34652).†‡
- 10.17 Intellectual Property License Agreement, dated March 14, 2013, between Sensata Technologies, Inc. and Measurement Specialties, Inc. (incorporated by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K filed on March 20, 2013).
- 10.18 Amendment No. 2 to Credit Agreement dated as of December 11, 2013, to the Credit Agreement dated as of May 12, 2011, by and among Sensata Technologies B.V., Sensata Technologies Finance Company LLC, Sensata Technologies Intermediate Holding B.V., the subsidiary guarantors party thereto, and Morgan Stanley Senior Funding, Inc. (incorporated by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K filed on December 11, 2013).
- 10.19 Employment Agreement, entered into on February 4, 2014 between Sensata Technologies, Inc. and Paul S. Vasington (incorporated by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K filed on February 4, 2014).†‡
- 10.20 Amendment No. 3 to Credit Agreement dated as of October 14, 2014, to the Credit Agreement dated as of May 12, 2011, by and among Sensata Technologies B.V., Sensata Technologies Finance Company LLC, Sensata Technologies Intermediate Holding B.V., the subsidiary guarantors party thereto, Barclays Bank PLC and the other lenders party thereto, and Morgan Stanley Senior Funding, Inc. (incorporated by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K filed on October 17, 2014).
- 10.21 Amendment No. 4 to Credit Agreement, dated as of November 4, 2014, to the Credit Agreement, dated as of May 12, 2011, by and among Sensata Technologies B.V., Sensata Technologies Finance Company, LLC, Sensata Technologies Intermediate Holding B.V., the subsidiary guarantors party thereto, Morgan Stanley Senior Funding, Inc. and the other lenders party thereto (incorporated by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K filed on November 10, 2014).
- 10.22 Amendment No. 5 to Credit Agreement, dated as of March 26, 2015, to the Credit Agreement dated as of May 12, 2011, by and among Sensata Technologies B.V., Sensata Technologies Finance Company, LLC, Sensata Technologies Intermediate Holding B.V., the subsidiary guarantors party thereto, Morgan Stanley Senior Funding, Inc. and the other lenders party thereto (incorporated by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K filed on April 1, 2015).

- 10.23 Amendment No. 6 to Credit Agreement dated as of May 11, 2015, to the Credit Agreement dated as of May 12, 2011, by and among Sensata Technologies B.V., Sensata Technologies Finance Company, LLC, Sensata Technologies Intermediate Holding B.V., Morgan Stanley Senior Funding, Inc. and Barclays Bank PLC as joint lead arrangers and bookrunners, Morgan Stanley Senior Funding, Inc. as administrative agent on behalf of the lenders party to the Credit Agreement, and the lenders party thereto (incorporated by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K filed on May 14, 2015).
- 10.24 Amendment No. 7 to Credit Agreement, dated as of September 29, 2015, to the Credit Agreement, dated as of May 12, 2011, by and among Sensata Technologies B.V., Sensata Technologies Finance Company, LLC, Sensata Technologies Intermediate Holding B.V., the subsidiary guarantors party thereto, Morgan Stanley Senior Funding, Inc. and the other lenders party thereto (incorporated by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K filed on October 2, 2015).
- 10.25 Employment Agreement, dated February 26, 2016, between Sensata Technologies, Inc. and Allisha Elliott (incorporated by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K filed on March 3, 2016).†
- 10.26 Form of modified Award Agreement for Performance Restricted Stock Units (incorporated by reference to Exhibit 10.2 of the Registrant's Quarterly Report on Form 10-Q filed on April 26, 2016).†
- 10.27 Form of modified Award Agreement for Restricted Stock Units (incorporated by reference to Exhibit 10.3 of the Registrant's Quarterly Report on Form 10-Q filed on April 26, 2016).†
- 10.28 Amendment No. 8 to Credit Agreement, dated as of November 7, 2017, to the Credit Agreement, dated as of May 12, 2011, by and among Sensata Technologies B.V., Sensata Technologies Finance Company, LLC, Sensata Technologies Intermediate Holding B.V., the subsidiary guarantors party thereto, Morgan Stanley Senior Funding, Inc. and the other lenders party thereto. (incorporated by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K filed on November 14, 2017)
- 10.29 Sensata Technologies Holding plc Second Amended and Restated 2006 Management Option Plan (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed on March 28, 2018.)
- 10.30 Sensata Technologies Holding plc First Amended and Restated 2010 Equity Incentive Plan (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on March 28, 2018.)
- 10.31 Amendment No. 9 to Credit Agreement, dated as of March 27, 2019, to the Credit Agreement, dated as of May 12, 2011, by and among Sensata Technologies B.V., Sensata Technologies Finance Company, LLC, Sensata Technologies Intermediate Holding B.V., the subsidiary guarantors party thereto, Morgan Stanley Senior Funding, Inc. and the other lenders party thereto (incorporated by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K filed on April 2, 2019, Commission File Number 001-34652).
- 10.32 Technical Amendment to Credit Agreement dated as of June 13, 2019, to the Credit Agreement dated as of May 12, 2011, by and among Sensata Technologies B.V., Sensata Technologies Finance Company, LLC and Morgan Stanley Senior Funding, Inc. as administrative agent on behalf of the lenders party to the Credit Agreement (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q filed on July 30, 2019).
- 10.33 Amended and Restated Employment Agreement dated August 1, 2019 between Paul Chawla and Sensata Technologies, Inc. (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q filed on October 30, 2019). †
- 10.34 Letter Agreement dated August 1, 2019 between Steven Beringhouse and Sensata Technologies, Inc. (incorporated by reference to Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q filed on October 30, 2019). †
- 10.35 Amendment No. 10 to Credit Agreement and Amendment No. 1 to Domestic Guaranty and Foreign Guaranty, dated as of September 20, 2019, by and among Sensata Technologies Inc., Sensata Technologies Intermediate Holding B.V., Sensata Technologies B.V., the other guarantors party thereto, Morgan Stanley Senior Funding, Inc., and the other lenders party thereto (incorporated by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K filed on September 26, 2019).
- 21.1 Subsidiaries of Sensata Technologies Holding plc*
- 23.1 Consent of Ernst & Young LLP.*
- 31.1 Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.*

31.2	Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.*
32.1	Certification of Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002. *
101.INS	Inline XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.
101.SCH	Inline XBRL Taxonomy Extension Schema Document. *
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document. *
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document. *
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document. *
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document. *
104	Cover Page Interactive Data File (formatted as inline XBRL and contained in Exhibit 101)

* Filed herewith.

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

‡ There have been non-material modifications to this contract since inception

SIGNATURES

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

SENSATA TECHNOLOGIES HOLDING PLC

/s/ MARTHA SULLIVAN

By: **Martha Sullivan**

Its: **Chief Executive Officer**

Date: February 11, 2020

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

<u>SIGNATURE</u>	<u>TITLE</u>	<u>DATE</u>
/s/ MARTHA SULLIVAN Martha Sullivan	Chief Executive Officer and Director <i>(Principal Executive Officer)</i>	February 11, 2020
/s/ PAUL VASINGTON Paul Vasington	Executive Vice President and Chief Financial Officer <i>(Principal Financial Officer and Principal Accounting Officer)</i>	February 11, 2020
/s/ ANDREW TEICH Andrew Teich	Chairman of the Board of Directors	February 11, 2020
/s/ JOHN ABSMEIER John Absmeier	Director	February 11, 2020
/s/ PAUL EDGERLEY Paul Edgerley	Director	February 11, 2020
/s/ JAMES HEPPELMANN James Heppelmann	Director	February 11, 2020
/s/ CHARLES PEFFER Charles Peffer	Director	February 11, 2020
/s/ CONSTANCE SKIDMORE Constance Skidmore	Director	February 11, 2020
/s/ THOMAS WROE Thomas Wroe	Director	February 11, 2020
/s/ STEPHEN ZIDE Stephen Zide	Director	February 11, 2020
/s/ MARTHA SULLIVAN Martha Sullivan	Authorized Representative in the United States	February 11, 2020

Corporate Information

MANAGEMENT TEAM

Jeffrey Cote

Chief Executive Officer
and President

Steve Beringhause

Executive Vice President and
Chief Technology Officer

Paul Vasington

Executive Vice President and
Chief Financial Officer

Paul Chawla

Executive Vice President,
Performance Sensing, Automotive

Vineet Nargolwala

Executive Vice President,
Sensing Solutions

Yann Etienvre

Executive Vice President and
Chief Supply Chain Officer

Allisha Elliott

Senior Vice President and
Chief Human Resources Officer

Hans Lidforss

Senior Vice President and
Chief Strategy & Corporate
Development Officer

Jing Chang

Senior Vice President, Asia,
Performance Sensing and
Sensing Solutions

George Verras

Senior Vice President,
Sensata Ventures

Holger Jetses

Senior Vice President,
Performance Sensing Automotive

BOARD OF DIRECTORS

Andrew C. Teich^{3,4,5}

Chairman of the Board
Sensata Technologies,
Retired President and CEO
FLIR Systems

Jeffrey Cote

Chief Executive Officer and President
Sensata Technologies

John Absmeier⁵

Chief Technology Officer
Lear Corporation

Lorraine A. Bolsinger^{2,4}

Retired Executive
General Electric Company

Paul Edgerley^{2,3,4}

Senior Advisor
Bain Capital

James E. Heppelmann^{2,3,4,5}

President and Chief Executive Officer
PTC, Inc.

Charles W. Peffer¹

Retired Partner
KPMG LLP

Constance E. Skidmore^{1,2,3}

Retired Partner
PricewaterhouseCoopers

Steven A. Sonnenberg^{3,5}

Retired Executive
Emerson Electric Co.

Martha Sullivan⁵

Executive Advisor, Former CEO
Sensata Technologies

Thomas Wroe

Former CEO
Apex Tool Group, Sensata Technologies

Stephen Zide^{1,4}

Former Senior Advisor
Bain Capital

STOCKHOLDER INFORMATION

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Investor Relations

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Email: jsayer@sensata.com

Independent Auditors

Ernst & Young LLP
Boston, Massachusetts

Stock Listing

Sensata Technologies
Common stock is traded on the NYSE
under symbol "ST"

Transfer Agent

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Louisville, KY 40233-5000
Telephone: 866-644-4127
Web: www.computershare.com

The 2019 Annual Report, Form 10-K
and other investor information can be
viewed at www.sensata.com

¹ Member of the Audit Committee

² Member of the Compensation Committee

³ Member of the Nominating and Governance Committee

⁴ Member of the Finance Committee

⁵ Member of the Growth and Innovation Committee

sensata.com



Driving value in a world increasingly dependent on sensors

CORPORATE HEADQUARTERS

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