



STMicroelectronics N.V. Annual Report 2019



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1. Message from the President and CEO on the financial year 2019

Dear Shareholder,

Our 2019 financial performance, with net revenues of \$9.56 billion and operating profit of \$1.04 billion were solid in regards of the global soft market conditions we were operating in compared to 2018. During 2019, we also maintained a stable net cash position while continuing to invest for future growth.

2019: operating in soft market conditions

During the year, we experienced different dynamics in each end markets we serve.

In Automotive, on the one hand, we saw very healthy demand for smart mobility applications, driven by the electrification and digitalization of car systems and platforms. On the other hand, the legacy automotive business – closely linked to the number of car registration worldwide – faced a challenging situation, with global registrations down 5% for the year.

The Industrial market and Distribution have been operating under soft conditions since the third quarter of 2018. From March 2019, Point-of-Sales at our distributors in Asia restarted sequential growth and there was an acceleration in the fourth quarter, with a return to year-over-year growth. In General Purpose Microcontrollers, the inventory correction at our distributors was completed in the third quarter of 2019, while some excess inventories remained in General Purpose Analog and Non-Power Discrete.

In Personal Electronics, demand across key markets (smartphones, wearables, accessories) for our key products was solid, getting stronger during the year and exceeding expectations in the second half, with some early contribution from 5G smartphones.

Finally, in Communications Equipment and Computer Peripherals, the hard-disk drive market decreased as expected. We saw 5G infrastructure growth, compensating for the wind-down of our legacy ASICs and set-top-box business.

In this environment, we delivered net revenues of \$9.56 billion, with a gross margin of 34.1% and an operating margin of 10.8%. Our net profit was \$388 million, impacted by a loss of \$519 million related to the IFRS accounting for convertible bond due to the strong company share price increase compared to 2018. During 2019, our net cash increased by \$341 million, including net capex of \$1.17 billion and \$127 million for the acquisition of Norstel.

These results enabled us to keep returning value to you, our shareholders. During 2019, you received cash dividends of \$214 million. As part of the share buyback program launched in November 2018, we executed a \$250 million share buy-back in 2019. This program is still ongoing.

Keeping focus on our strategy and mid-term prospects

2019 was the first full year of execution of our strategy, based on broad, long-term trends in electronic systems that are driving demand for our products: Smart Mobility, Power & Energy applications, and IoT & 5G. Our strategic goal is to strengthen our position and accelerate our leadership objectives in the four end markets we serve: Automotive and Industrial, where we want to remain a broad supplier, and Personal Electronics and Communications Infrastructure, where we are more selective.

In 2019 we continued to consistently invest for growth, with significant initiatives in both R&D and manufacturing operations. These investments aimed to support the ramp of major new programs, and diversify the technology capabilities of our plants to increase overall flexibility and resilience, while targeting improved operating efficiency.

In particular, we invested in three strategic initiatives. First, a new 300mm fab in Agrate, Italy to support our leadership and growth ambitions in BCD, IGBT and Power technologies. Second, the expansion of our 150mm capacity for Silicon Carbide (SiC) and preparation for the start of production for Gallium Nitride for RF devices. We also acquired SiC wafer specialist Norstel to enable us to master the full SiC supply chain, continuing to leverage our early investments in wide-bandgap materials. And third, our investments in the next generation of specialized imaging sensor technologies to enable us to continue to lead in this field.

Our first quarter 2020 outlook reflects revenues of approximately \$2.36 billion at the mid-point, increasing year-over-year about 13.7%. Sequentially, this represents a decrease of approximately 14.3% plus or minus 350 basis points. As we entered the first quarter, we planned to invest \$1.5 billion to support our strategic initiatives and revenue growth in order to progress toward our mid-term revenue ambition of \$12 billion. This plan will be modulated during the year following the evolution of the market, particularly regarding the effects of the novel coronavirus COVID-19 pandemic.

These strategic initiatives will be integral to our objective of sustainable and profitable leadership in our end markets. This is the value proposition we commit to all of you. They will also be key to ensuring we deliver our value proposition to customers, providing them with the differentiating enablers they need to succeed in their markets: technology, IP, products, application know-how, the associated support ecosystem, as well as a reliable and secure supply chain to support their growth. We believe these efforts will be synergetic with our strong focus on sustainability, the third pillar of our value proposition: our commitment to help solve the global challenges presented by dense urban environments, complex mobility systems and industrial supply chains, increased personal safety and data security concerns, and the increasing energy demands behind it all.

ST's fundamentals are solid. We believe that our strategy, executed with the strong engagement of our 45,500 outstanding employees, will continue to make ST a stronger company, while preparing us for further sustainable and profitable growth and creating more value for all of our stakeholders.

Finally, although this is our 2019 Annual Report, we would be remiss without noting that at the time of its issuance the novel coronavirus COVID-19 pandemic is adding uncertainty to the world economy, and our market evolution, and thus we are carefully monitoring the situation in this uncertain environment.

2. Corporate overview

2.1. History and development of STMicroelectronics

STMicroelectronics N.V. was formed and incorporated in 1987 as a result of the combination of the semiconductor business of SGS Microelettronica (then owned by Società Finanziaria Telefonica (S.T.E.T.), an Italian corporation) and the non-military business of Thomson Semiconducteurs (then owned by the former Thomson-CSF, now Thales, a French corporation). We completed our initial public offering in December 1994 with simultaneous listings on the Bourse de Paris (now known as “Euronext Paris”) and the New York Stock Exchange (“NYSE”). In 1998, we also listed our shares on the Borsa Italiana S.p.A. (“Borsa Italiana”).

We operated as SGS-Thomson Microelectronics N.V. until May 1998, when we changed our name to STMicroelectronics N.V. We are organized under the laws of The Netherlands, with our corporate legal seat in Amsterdam, The Netherlands, and our head offices at WTC Schiphol Airport, Schiphol Boulevard 265, 1118 BH Schiphol, The Netherlands. Our telephone number there is +31-20-654-3210. Our headquarters and operational offices are managed through our wholly owned subsidiary, STMicroelectronics International N.V., and are located at 39 Chemin du Champ des Filles, 1228 Plan-les-Ouates, Geneva, Switzerland. Our main telephone number there is +41-22-929-2929. Our agent for service of process in the United States related to our registration under the U.S. Securities Exchange Act of 1934, as amended, is Corporation Service Company (CSC), 80 State Street, Albany, New York, 12207. Our operations are also conducted through our various subsidiaries, which are organized and operated according to the laws of their country of incorporation, and consolidated by STMicroelectronics N.V.

2.2. Strategy & objectives

We are a global semiconductor leader, serving over 100,000 customers across a broad range of markets: automotive, industrial, personal electronics, and communications equipment, computers and peripherals. We develop industry-leading technologies that allow us to provide products and solutions that meet and exceed the needs and expectations of our customers now and into the future.

Our strategy focuses on long-term value creation for the Company and its affiliated enterprises and takes into account the short-, medium- and longer-term evolution of the markets we serve and the environment and opportunities we see.

We are focused on application areas which are expected to experience solid growth rates driven by broad, long-term trends in electronic systems. Key for us among these trends are Smart Mobility, power and energy applications, Internet of Things (“IoT”) and 5G. These trends require enablers such as autonomous systems, robotics, securely connected machines and personal devices, electrification of automobiles and infrastructure, advanced communications equipment and networks and more power efficient systems. These enablers drive in turn the demand for the electronic components we develop and manufacture.

Our products are used in a wide variety of applications for the four end-markets we address: automotive, industrial, personal electronics and communications equipment, computers and peripherals. For the automotive and industrial markets we address a wide customer base, particularly in industrial, with a broad and deep product portfolio. In personal electronics and communications equipment, computers and peripherals, we have a selective approach both in terms of the customers we serve, as well as in the technologies and products we offer.

Together with our customers we enable smarter driving by making vehicles safer, more environmentally friendly and more connected. We enable smart industry helping to make factories and workplaces more efficient, more flexible and safer. We enable smarter homes and cities making houses, buildings and city infrastructure more efficient, more convenient and more secure. We help make everything more intelligent, more connected and more secure. In doing this we ensure that ST is found everywhere microelectronics make a positive and innovative contribution to people’s lives. By getting more from technology to get more from life, ST stands for life.augmented.

2.3. Organizational structure

We are organized in a matrix structure with geographic regions interacting with product lines, both supported by shared technology and manufacturing operations and by central functions, designed to enable us to be closer to our customers and to facilitate communication among the R&D, production, marketing and sales organizations.

While STMicroelectronics N.V. is our parent company, we conduct our global business through STMicroelectronics International N.V. and also conduct our operations through service activities from our subsidiaries. We provide certain administrative, human resources, legal, treasury, strategy, manufacturing, marketing and other overhead services to our consolidated subsidiaries pursuant to service agreements for which we recover the cost.

2.4. Products and activities

We are a global independent semiconductor company that designs, develops, manufactures and markets a broad range of products, including discrete and general purpose components, application-specific integrated circuits (“ASICs”), full-custom devices and semi-custom devices and application-specific standard products (“ASSPs”) for analog, digital and mixed-signal applications.

Our diverse product portfolio benefits from a unique, strong foundation of proprietary and differentiated leading-edge technologies. We use all of the prevalent function-oriented process technologies, including complementary metal-on silicon oxide semiconductors (“CMOS”), bipolar and non-volatile memory technologies. In addition, by combining basic processes, we have developed advanced systems-oriented technologies that enable us to produce differentiated and application-specific products, including our pioneering fully depleted silicon-on-insulator (“FD-SOI”) technology offering superior performance and power efficiency compared to bulk CMOS, bipolar CMOS technologies (“Bi-CMOS”) and radio frequency silicon-on-insulator (“RF-SOI”) for mixed-signal and high-frequency applications, as well as a combination of Bipolar, CMOS and DMOS (“BCD”) and vertically integrated power (“VIPower”) technologies for smart power applications, silicon carbide (“SiC”) and gallium-nitride (“GaN”) for high-efficiency systems, Micro-Electro-Mechanical Systems (“MEMS”) technologies for sensors and Actuators, embedded memory technologies for our microcontrollers and differentiated Imaging Technologies for our imaging solutions.

Our reportable segments are as follows:

- Automotive and Discrete Group (ADG), comprised of dedicated automotive ICs (both digital and analog), and discrete and power transistor products for all market segments.
- Analog, MEMS and Sensors Group (AMS), comprised of low-power high-end analog ICs (both custom and general purpose) for all markets, smart power products for Industrial, Computer and personal electronics markets, Touch Screen Controllers, Low Power Connectivity solutions (both wireline and wireless) for IoT, power conversion products, metering solutions for Smart Grid, specialized imaging sensors and modules, and all MEMS products for sensors or Actuators.
- Microcontrollers and Digital ICs Group (MDG), comprised of general purpose and secure microcontrollers, EEPROM memories, Digital ASICs, Aerospace and Defense products including components for microwave and millimeter wave.

“Others” includes items such as unused capacity charges, impairment and restructuring charges and other related closure costs, phase out and start-up costs, and other unallocated expenses such as: management reorganization expenses, strategic or special research and development programs, certain corporate-level operating expenses, patent claims and litigations, and other costs that are not allocated to product groups, as well as operating earnings of Subsystems, assembly services and other revenue.

2.5. Sales, Marketing and Distribution

Our sales and marketing is organized by a combination of country/area coverage and key accounts coverage with the primary objective of accelerating sales growth and gaining market share, particularly with regards to: strengthening the effectiveness of the development of our global and major local accounts; boosting demand creation through an enhanced focus on geographical coverage with strong technical expertise, supported in the mass market by our distribution channel and local initiatives; and establishing regional sales and marketing teams that are fully aligned with our strategic end-markets: automotive, industrial, personal electronics and communications equipment, computers and peripherals.

We have three regional sales organizations reporting to a global head of Sales & Marketing: Americas; Asia Pacific; and EMEA. Our regional sales organizations have a similar structure to enhance coordination in global strategy alignment and go-to-market activities. The sales and marketing teams are strongly focused on profitable revenue growth and business performance as well as on fostering demand, expanding the customer base, maximizing market share, developing new product-roadmaps and providing the best technical support in the field for our customers. The sales and marketing activities are supported by system marketing, product marketing, application labs, field application engineers and quality engineers.

2.6. Research & Development

Since our formation, we have maintained a solid commitment to innovation. About one-sixth of our employees work in R&D on product design/development and technology and, in 2019, we spent approximately 12.6% of our net revenues on R&D. Our innovations in semiconductor technology as well as in hardware and software contribute to the creation of successful products that generate value for us and our customers. Our complete design platforms, including a large selection of IP and silicon-proven models and design rules, enable the fast development of products designed to meet customer expectations in terms of reliability, quality, competitiveness in price and time-to-market. Through our R&D efforts, we contribute to making our customers' products more efficient, more appealing, more reliable and safer. Our technology R&D strategy is based on the development of differentiated technologies, allowing for a unique offer in terms of new products and enabling new applications opportunities.

We draw on a rich pool of chip fabrication technologies, including advanced CMOS, FD-SOI, RF-SOI, specialized imaging, embedded non-volatile memories, mixed-signal, analog, MEMS, Smart power, SiC and GaN processes. This is well embedded in our strong packaging technologies portfolio such as high pin count BGA, Wafer level packaging, highly integrated sensor packages and leadframe package power products. We combine both front-end and back-end manufacturing and technology R&D under the same organization to ensure a smooth flow of information between our R&D and manufacturing organizations. We leverage significant synergies and shared activities between our product groups to cross-fertilize them. We also use silicon foundries, especially for advanced CMOS beyond the 28 nm node that we do not plan to manufacture nor develop internally.

We have advanced R&D centers which offer us a significant advantage in quickly and cost effectively introducing products. Furthermore, we have established a strong culture of partnerships and through the years have created a network of strategic collaborations with key customers, suppliers, competitors, and leading universities and research institutes around the world. We also play leadership roles in numerous projects running under the European Union's IST (Information Society Technologies) programs. We also participate in certain R&D programs established by the EU, individual countries and local authorities in Europe (primarily in France and Italy).

We currently own approximately 18,000 patents and pending patent applications, corresponding to approximately 9,600 patent families (each patent family containing all patents originating from the same invention), including over 588 original new patent applications filed in 2019.

2.7. Sustainability

Sustainability has been a guiding principle for ST for more than 25 years. In line with our vision to be everywhere microelectronics make a positive contribution to people's lives, sustainability is deeply embedded in all of our activities. We believe that sustainability is fundamental to our business, brings new opportunities, improves efficiency, reduces risks and secures long-term profitability. It also brings benefits to our employees and our external stakeholders. Our approach to sustainability is expressed in our Code of Conduct, our policies and in our sustainability strategy.

At the heart of our sustainability strategy is an unceasing focus on what really matters for us and our stakeholders. We identify the most material topics for our stakeholders and their impacts on our business by carrying out an extensive materiality exercise every three to four years. For each material topic identified, we define a specific ambition and long-term goal. The related programs and performance indicators are presented throughout our sustainability report we publish each year and which is available at: www.st.com/company-reports.

We are included in many of the main sustainability indices, such as Dow Jones World and Europe Sustainability Indices, FTSE4Good and Ethibel, and recognized by CDP for our environmental management. In addition, as a member of the Responsible Business Alliance (RBA), we participate in the collective efforts of the industry to find solutions to our global sustainability challenges. We have been a signatory of the UN Global Compact since 2000. Our sustainability programs are aligned with its ten principles and contribute to ten of the 17 UN Sustainable Development Goals.

Further information on ST's Sustainability approach can be found at: www.st.com/st-approach-to-sustainability.

3. Report of the Managing Board

In accordance with Dutch law, our management is entrusted to our Managing Board under the supervision of our Supervisory Board. Mr. Jean-Marc Chery was appointed on May 31, 2018 as sole member of our Managing Board with the function of President and Chief Executive Officer. Under our Articles of Association, the sole member of our Managing Board is appointed for a three-year term at our Annual General Meeting of Shareholders (by a simple majority of the votes cast), upon a non-binding proposal by our Supervisory Board, which term may be renewed one or more times.

3.1. Statement of the sole member of the Managing Board

The sole member of the Managing Board hereby declares that, to the best of his knowledge, the statutory financial statements as at December 31, 2019 and for the year then ended, prepared under Title 9 of Part 2 of The Netherlands Civil Code in accordance with IFRS as adopted by the European Union, provide a true and fair view of the assets, liabilities, financial position and profit or loss of STMicroelectronics N.V. and the undertakings included in the consolidation taken as a whole and the report of the Managing Board includes a true and fair view concerning the position as per the statement of financial position date, the development and performance of STMicroelectronics N.V. and the undertakings included in the consolidation taken as a whole, together with the principal risk and uncertainties they face.

Jean-Marc Chery,

Sole member of the Managing Board,
President and Chief Executive Officer

3.2. Business overview & performance

3.2.1. Results highlights for the year 2019

The total available market is defined as the “TAM”, while the serviceable available market, the “SAM”, is defined as the market for products sold by us (which consists of the TAM and excludes major devices such as Microprocessors (“MPUs”), Dynamic random-access memories (“DRAMs”), optoelectronics devices, Flash Memories and the Wireless Application Specific market products such as Baseband and Application Processor).

Based on industry data published by WSTS, semiconductor industry revenues in 2019 decreased on a year-over-year basis by approximately 12% for the TAM, while it remained substantially flat for the SAM, to reach approximately \$412 billion and \$194 billion, respectively.

We closed 2019 with net revenues of \$9.56 billion, gross margin of 34.1% and operating margin of 10.8%.

Our effective average exchange rate was \$1.14 for €1.00 for the full year 2019, as compared to \$1.18 for €1.00 for the full year 2018.

Our 2019 gross margin decreased 280 basis points to 34.1% from 36.9% in 2018, mainly due to normal price pressure, increased unsaturation charges and higher level of capitalized development costs write-offs, partially offset by improved manufacturing efficiencies, better product mix and favorable currency effects, net of hedging.

Our operating expenses, comprised of SG&A and R&D expenses, amounted to \$2,307 million in 2019, increasing from \$2,236 million in the prior year, mainly due to salary dynamic, increased spending in certain R&D programs and higher share based compensation costs, partially offset by favorable currency effects.

Other income and expenses, net, was \$86 million in 2019 compared to \$23 million in 2018, mainly due to a higher level of R&D grants, mainly benefitting from the grants associated with the programs part of the European Commission IPCEI in Italy and in France.

Operating profit in 2019 decreased to \$1,035 million compared to \$1,355 million in 2018 mainly driven by normal price pressure, increased unsaturation charges, higher R&D spending and higher level of capitalized development costs write-offs, partially offset higher grants and favorable currency effects, net of hedging.

Combined finance income and costs resulted in a net loss of \$526 million, compared to a net gain of \$397 million in 2018, and reflect in both years the IFRS accounting of convertible bonds. The 2019 amount includes a loss of \$544 million for the fair value adjustment of the embedded bondholders' conversion option (compared to a net gain of \$405 million in 2018).

Full year 2019 net profit was \$388 million or \$0.43 diluted earnings per share, compared to net profit of \$1,635 million, or \$1.80 diluted earnings per share for the full year 2018.

Capital expenditure payments, net of proceeds from sales were \$1.17 billion during the full year 2019. Full year 2018 capital expenditures, net of proceeds from sales, were \$1.26 billion.

During 2019, our net cash increased by \$341 million, with net cash from operating activities reaching \$2.20 billion. During 2019, we paid \$127 million for the acquisition of Norstel, \$214 million of cash dividends to shareholders, \$144 million for long-term debt repayment and \$250 million for the repurchase of common stock.

Our free cash flow, a non-GAAP measure, amounted to \$497 million in 2019 compared to \$533 million in 2018.

3.2.2. Business overview

We are a global independent semiconductor company that designs, develops, manufactures and markets a broad range of products, including discrete and general purpose components, application-specific integrated circuits ("ASICs"), full custom devices and semi-custom devices and application-specific standard products ("ASSPs") for analog, digital and mixed-signal applications.

We design, develop, manufacture and market thousands of products that we sell to over 100,000 customers. We emphasize balance in our product portfolio, in the applications we serve and in the regional markets we address. Our major customers include Apple, Robert Bosch, Ciena, Continental, Hewlett-Packard, Huawei, Mobileye, Samsung, Seagate and Tesla. In addition, our broad portfolio helps foster close relationships with customers, which provides opportunities to enable application solutions and to supply such customers' requirements for multiple products, including analog, digital, and power products applications. We also sell our products through distributors and retailers.

Further information on our business model is included in chapter 2 above and paragraphs 3.2.2.1. *et seq.* below.

3.2.2.1. Strategy

We are a global semiconductor leader, serving over 100,000 customers across a broad range of markets: automotive, industrial, personal electronics, and communications equipment, computers and peripherals. We develop industry-leading technologies that allow us to provide products and solutions that meet and exceed the needs and expectations of our customers now and into the future.

Our strategy focuses on long-term value creation for the Company and its affiliated enterprises and takes into account the short-, medium- and longer-term evolution of the markets we serve and the environment and opportunities we see.

We are focused on application areas which are expected to experience solid growth rates driven by broad, long-term trends in electronic systems. Key for us among these trends are Smart Mobility, power and energy applications, Internet of Things ("IoT") and 5G. These trends require enablers such as autonomous systems, robotics, securely connected machines and personal devices, electrification of automobiles and infrastructure, advanced communications equipment and networks and more power efficient systems. These enablers drive in turn the demand for the electronic components we develop and manufacture.

Our products are used in a wide variety of applications for the four end-markets we address: automotive, industrial, personal electronics and communications equipment, computers and peripherals. For the automotive and industrial markets we address a wide customer base, particularly in industrial, with a broad and deep product portfolio. In personal electronics and communications equipment, computers and peripherals we have a selective approach both in terms of the customers we serve, as well as in the technologies and products we offer.

Together with our customers we enable smarter driving by making vehicles safer, more environmentally friendly and more connected. We enable smart industry helping to make factories and workplaces more efficient, more flexible and safer. We enable smarter homes and cities making houses, buildings and city infrastructure more efficient, more convenient and more secure. We help make everything more intelligent, more connected and more secure. In doing this we ensure that we are found everywhere microelectronics make a positive and innovative contribution to people's lives. By getting more from technology to get more from life, ST stands for life.augmented.

3.2.2.2. *Employees*

The tables below set forth the breakdown of employees by geographic area and category of main activity for the past two years.

	2019	2018
France	10,131	10,314
Italy	10,551	10,266
Rest of Europe	970	904
United States	761	744
Mediterranean (Malta, Morocco, Tunisia)	4,743	4,897
Asia	18,398	18,828
Total	45,554	45,953

	2019	2018
Research and Development	7,796	7,387
Marketing and Sales	2,261	2,211
Manufacturing	30,351	31,317
Administration and General Services	2,290	2,190
Divisional Functions	2,856	2,848
Total	45,554	45,953

Our future success will partly depend on our ability to continue to attract, retain and motivate highly qualified technical, marketing, engineering and management personnel, as well as on our ability to timely adapt the size and/or profile of our personnel to changing industry needs. Unions are represented at almost all of our manufacturing facilities and at several of our R&D sites. We use temporarily employees if required during production spikes and, in Europe, during summer vacation. We have not experienced any significant strikes or work stoppages in recent years.

3.2.2.3. *Alliances with Customers and Industry Partnerships*

We believe that alliances with customers and industry partnerships are critical to our success in the semiconductor industry. Customer alliances provide us with valuable systems and application know-how and access to markets for key products, while allowing our customers to gain access to our process technologies and manufacturing infrastructure. We are actively working to expand the number of our customer alliances, targeting key global OEMs.

From time to time we collaborate with other semiconductor industry companies, research organizations, universities and suppliers to further our R&D efforts. Such collaboration provides us with a number of important benefits, including the sharing of costs, reductions in our own capital requirements, acquisitions of technical know-how and access to additional production capacities.

3.2.2.4. *Customers and Applications*

We design, develop, manufacture and market thousands of products that we sell to over 100,000 customers. We emphasize balance in our product portfolio, in the applications we serve and in the regional markets we address. Our major customers include Apple, Robert Bosch, Ciena, Continental, Hewlett-Packard, Huawei, Mobileye,

Samsung, Seagate and Tesla. In addition, our broad portfolio helps foster close relationships with customers, which provides opportunities to enable application solutions and to supply such customers' requirements for multiple products, including analog, digital, and power products applications. We also sell our products through distributors and retailers.

3.2.2.5. Sales, Marketing and Distribution

Our sales and marketing is organized by a combination of country/area coverage and key accounts coverage with the primary objective of accelerating sales growth and gaining market share, particularly with regards to: strengthening the effectiveness of the development of our global and major local accounts; boosting demand creation through an enhanced focus on geographical coverage with strong technical expertise, supported in the mass market by our distribution channel and local initiatives; and establishing regional sales and marketing teams that are fully aligned with our strategic end-markets: automotive, industrial, personal electronics and communications equipment, computers and peripherals.

We have three regional sales organizations reporting to a global head of Sales & Marketing: Americas; Asia Pacific; and EMEA. Our regional sales organizations have a similar structure to enhance coordination in global strategy alignment and go-to-market activities. The sales and marketing teams are strongly focused on profitable revenue growth and business performance as well as on fostering demand, expanding the customer base, maximizing market share, developing new product-roadmaps and providing the best technical support in the field for our customers. The sales and marketing activities are supported by system marketing, product marketing, application labs, field application engineers and quality engineers.

We engage distributors and sales representatives to distribute and promote our products around the world. Typically, distributors handle a wide variety of products, including those that compete with ours, and fulfill orders and service many of our customers. Most of our sales to distributors are made under agreements allowing for price protection and some with the right of return on unsold merchandise. Sales representatives, on the other hand, generally do not offer products that compete directly with our products, but may carry complementary items manufactured by others. Sales representatives do not maintain a product inventory and their customers place large quantity orders directly with us and are referred to distributors for smaller orders.

At the request of certain customers, we also sell and deliver our products to electronics manufacturing services companies, which, on a contractual basis with our customers, incorporate our products into the application specific products they manufacture for our customers.

3.2.2.6. Research and Development in the area of new products

Since our formation, we have maintained a solid commitment to innovation. About one-sixth of our employees work in R&D on product design/development and technology and, in 2019, we spent approximately 12.6% of our net revenues on R&D. Our innovations in semiconductor technology as well as in hardware and software contribute to the creation of successful products that generate value for us and our customers. Our complete design platforms, including a large selection of IP and silicon-proven models and design rules, enable the fast development of products designed to meet customer expectations in terms of reliability, quality, competitiveness in price and time-to-market. Through our R&D efforts, we contribute to making our customers' products more efficient, more appealing, more reliable and safer. Our technology R&D strategy is based on the development of differentiated technologies, allowing for a unique offer in terms of new products and enabling new applications opportunities.

We draw on a rich pool of chip fabrication technologies, including advanced CMOS, FD-SOI, RF-SOI, specialized imaging, embedded non-volatile memories, mixed-signal, analog, MEMS, Smart power SiC and GaN processes. This is well embedded in our strong packaging technologies portfolio such as high pin count BGA, Wafer level packaging, highly integrated sensor packages and leadframe package power products. We combine both front-end and back-end manufacturing and technology R&D under the same organization to ensure a smooth flow of information between our R&D and manufacturing organizations. We leverage significant synergies and shared activities between our product groups to cross-fertilize them. We also use silicon foundries, especially for advanced CMOS beyond the 28-nm node that we do not plan to manufacture nor develop internally.

We have advanced R&D centers which offer us a significant advantage in quickly and cost effectively introducing products. Furthermore, we have established a strong culture of partnerships and through the years have created a network of strategic collaborations with key customers, suppliers, competitors, and leading universities and research institutes around the world. We also play leadership roles in numerous projects running under the European Union's IST (Information Society Technologies) programs. We also participate in certain R&D programs established by the EU, individual countries and local authorities in Europe (primarily in France and Italy).

We believe that market driven R&D based on leading-edge products and technologies is critical to our success. We devote significant effort to R&D because we believe such investment can be leveraged into competitive advantages. New developments in semiconductor technology can make end products significantly cheaper, smaller, faster, more reliable and embedded than their predecessors, with differentiated functionalities. They can enable significant value creation opportunities with their timely appearance on the market. The total amount of our R&D expenses in the past two fiscal years was \$1,208 million and \$1,127 million in 2019 and 2018, respectively, while the total amount of R&D expenses capitalized amounted to \$285 million and \$286 million in 2019 and 2018, respectively.

3.2.2.7. Property, Plants and Equipment

We currently operate 13 main manufacturing sites around the world.

At December 31, 2019, our front-end facilities had a total maximum capacity of approximately 130,380 200 mm equivalent wafer starts per week. The number of wafer starts per week varies from facility to facility and from period to period as a result of changes in product mix.

We own all of our manufacturing facilities, but certain facilities (Muar, Malaysia; Shenzhen, China; and Toa Payoh and Ang Mo Kio, Singapore) are built on land subject of long-term leases.

We have historically subcontracted a portion of total manufacturing volumes to external suppliers. In 2019, we subcontracted approximately 18% of the value of our total silicon production to external foundries. Our plan is to continue sourcing silicon from external foundries to give us flexibility in supporting our growth.

At December 31, 2019, we had approximately \$514 million in outstanding commitments for purchases of equipment and other assets for delivery in 2020. In 2019, our capital spending, net of proceeds, was \$1,174 million compared to \$1,262 million in 2018. In the 2017-2019 period the ratio of capital investment spending to net revenues was about 13.6%.

3.2.2.8. Intellectual property

Our success depends in part on our ability to obtain patents, licenses and other IP rights to protect our proprietary technologies and processes. IP rights that apply to our various products include patents, copyrights, trade secrets, trademarks and mask work rights. We currently own approximately 18,000 patents and pending patent applications, corresponding to approximately 9,600 patent families (each patent family containing all patents originating from the same invention), including over 588 original new patent applications filed in 2019.

We believe that our IP represents valuable assets. We rely on various intellectual property laws, confidentiality procedures and contractual provisions to protect our IP assets and enforce our IP rights. To optimize the value of our IP assets, we have engaged in licensing our design technology and other IP, including patents, when consistent with our competitive position and our customers' interests. We have also entered into broad-scope cross-licenses and other agreements which enable us to design, manufacture and sell semiconductor products using the IP rights of third parties and/or operating within the scope of IP rights owned by third parties.

From time to time, we are involved in IP litigation and infringement claims. Regardless of the validity or the successful assertion of such claims, we may incur significant costs with respect to the defense thereof, which could have a material adverse effect on our results of operations, cash flow or financial condition.

3.2.2.9. Backlog

Our sales are made primarily pursuant to standard purchase orders that are generally booked from one to twelve months in advance of delivery. Quantities actually purchased by customers, as well as prices, are subject to variations between booking and delivery and, in some cases, to cancellation due to changes in customer needs or industry conditions. During periods of economic slowdown and/or industry overcapacity and/or declining selling prices, customer orders are not generally made far in advance of the scheduled shipment date. Such reduced lead time can diminish management's ability to forecast production levels and revenues. When the economy rebounds, our customers may strongly increase their demands, which can result in capacity constraints due to a time lag when matching manufacturing capacity with such demand.

In addition, our sales are affected by seasonality, with the first quarter generally showing lowest revenue levels in the year, and the third or fourth quarter historically generating higher amounts of revenues partly as a result of the seasonal dynamics for smartphone applications.

We also sell certain products to key customers pursuant to frame contracts. Frame contracts are annual contracts with customers setting forth quantities and prices on specific products that may be ordered in the future. These contracts allow us to schedule production capacity in advance and allow customers to manage their inventory levels consistent with just-in-time principles while shortening the cycle times required to produce ordered products. Orders under frame contracts are also subject to a high degree of volatility, because they reflect expected market conditions which may or may not materialize. Thus, they are subject to risks of price reduction, order cancellation and modifications as to quantities actually ordered resulting in inventory build-ups.

Furthermore, developing industry trends, including customers' use of outsourcing and their deployment of new and revised supply chain models, may reduce our ability to forecast changes in customer demand and may increase our financial requirements in terms of capital expenditures and inventory levels.

3.2.2.10. Competition

Markets for our products are intensely competitive. We compete with major international semiconductor companies and while only a few companies compete with us in all of our product lines, we face significant competition from each of them. Smaller niche companies are also increasing their participation in the semiconductor market, and semiconductor foundry companies have expanded significantly, particularly in Asia. Competitors include manufacturers of standard semiconductors, ASICs and fully customized ICs, including both chip and board-level products, as well as customers who develop their own IC products and foundry operations. Some of our competitors are also our customers. We compete in different product lines to various degrees on the basis of price, technical performance, product features, product system compatibility, customized design, availability, quality and sales and technical support. In particular, standard products may involve greater risk of competitive pricing, inventory imbalances and severe market fluctuations than differentiated products. Our ability to compete successfully depends on factors both within and outside our control, including successful and timely development of new products and manufacturing processes, product performance and quality, manufacturing yields and product availability, customer service, pricing, industry trends and general economic trends.

The semiconductor industry is characterized by the high costs associated with developing marketable products and manufacturing technologies as well as high levels of investment in production capabilities. As a result, the semiconductor industry has experienced, and is expected to continue to experience, significant vertical and horizontal consolidation among our suppliers, competitors and customers, which could lead to erosion of our market share, impact our capacity to compete and require us to restructure our operations.

3.2.2.11. Public Funding

We receive public funding mainly from French, Italian and EU governmental entities. Such funding is generally provided to encourage R&D activities, industrialization and local economic development. Public funding in France, Italy and Europe generally is open to all companies, regardless of their ownership structure or country of incorporation. The conditions for the receipt of government funding may include eligibility restrictions, approval by EU authorities, annual budget appropriations, compliance with EU regulations, royalties or contingent return provisions as well as specifications regarding objectives and results. The approval process for such funding may be

quite long, up to several years. Certain specific contracts require compliance with extensive regulatory requirements and set forth certain conditions relating to the funded programs. There could be penalties if these objectives are not fulfilled. Other contracts contain penalties for late deliveries or for breach of contract, which may result in repayment obligations. Our funding programs are classified under three general categories: funding for research and development activities, capital investment for pilot lines and loans. We also benefit from tax credits for R&D activities in several countries which are generally available to all companies.

The main programs for R&D in which we are involved include: (i) Pan-European program on Nanoelectronics Technology and Applications (PENTA); (ii) EU R&D projects within Horizon 2020 (the European Union's research and innovation framework); (iii) Electronic Components and Systems for European Leadership (ECSEL) initiative, which combines all electronics related R&D activities and is operated by joint undertakings formed by the European Union, certain member states and industry; and (iv) national or regional programs for R&D and for industrialization in the electronics industries involving many companies and laboratories. The Pan-European programs cover a period of several years, while national or regional programs in France and Italy are subject mostly to annual budget appropriation.

In our role as Coordinator and Project Leader of Nano2017, we had been allocated an overall funding budget of about €400 million for the period 2013-2018, which was subject to the conclusion of agreements every year with the public authorities and linked to the achievement of technical parameters and objectives. A portion of the Nano2017 program was subject to a payback clause ("financial return"), depending on the future accumulated sales for certain products within the scope of the funded program in the period from 2018 to 2023. The financial return corresponded to the payment in 2024 of the original funded amount (€37 million) multiplied by a rate from 0% to 250%, depending on the cumulative amount of future sales. As such, the criteria for granting income recognition were not met and an accrual amounting to \$47 million was posted as of December 31, 2019. We believe the Nano2017 R&D program, which expired in April 2018, has strengthened our leadership in key technologies such as FD-SOI (low-power, high-performance processing), imagers, RF-SOI and photonic sensors and embedded non-volatile memories. These technologies are at the core of our digital portfolio which includes, among others, microcontrollers, imaging, analog and mixed signal, digital automotive and ASICs.

In December 2018, the European Commission announced the approval of Important Projects of Common European Interest ("IPCEI"), a Pan-European project initiated to foster research and innovation in microelectronics to be funded by Germany, France, Italy and the U.K. We are participating in IPCEI for the period 2018 until 2022 in France and until 2024 in Italy. In 2019 we also started recognizing €49 million (including catch up attributable to 2018) of grants related to our participation in IPCEI in Italy and €80.7 million (including catch up attributable to 2018) related to our participation in IPCEI in France.

3.2.2.12. Suppliers

We use three primary critical types of suppliers in our business: (i) equipment suppliers, (ii) material suppliers and (iii) external silicon foundries and back-end subcontractors. We also purchase third party licensed technology from a limited number of providers.

In the front-end process, we use steppers, scanners, tracking equipment, strippers, chemo-mechanical polishing equipment, cleaners, inspection equipment, etchers, physical and chemical vapor-deposition equipment, implanters, furnaces, testers, probers and other specialized equipment. The manufacturing tools that we use in the back-end process include bonders, burn-in ovens, testers and other specialized equipment. The quality and technology of equipment used in the IC manufacturing process defines the limits of our technology. Demand for increasingly smaller chip structures means that semiconductor producers must quickly incorporate the latest advances in process technology to remain competitive. Advances in process technology cannot occur without commensurate advances in equipment technology, and equipment costs tend to increase as the equipment becomes more sophisticated.

Our manufacturing processes use many materials, including silicon and SiC wafers, lead frames, mold compound, ceramic packages and chemicals and gases. The prices of many of these materials are volatile due to the specificity of the market. We have therefore adopted a "multiple sourcing strategy" designed to protect us from the risk of price increases. The same strategy applies to supplies for the materials used by us to avoid potential material disruption of essential materials. Our "multiple sourcing strategy", our Financial Risk Monitoring as well as the robustness of our supply chain and strong partnership with suppliers are intended to mitigate these risks.

Finally, we also use external subcontractors to outsource wafer manufacturing and assembly and testing of finished products.

3.2.2.13. Environmental Matters

We adopt a rigorous approach to managing our business operations in an environmentally responsible way. Consistent with our sustainability strategy, we have established proactive environmental policies with respect to the handling of chemicals, emissions, waste disposals and other substances of concern from our manufacturing operations. We are certified to be in compliance with quality standard ISO 9001 on a Company-wide basis. We also implement high standards across our manufacturing activities and supply chain. The majority of our sites are ISO 14001 certified and EMAS validated. Furthermore, all of our front-end manufacturing sites and one of our back-end manufacturing sites are ISO 50001 certified.

We aim to maintain our leadership in water efficiency by reducing consumption, recycling more and reinforcing our efforts in water scarcity areas and have a target to reduce our water consumption by 20% in 2025, in normalized values versus 2016 baseline. Furthermore, we continuously reduce our carbon footprint and our impact on climate change by decreasing our GHG emissions and improving energy efficiency and our target is to decrease our energy consumption by 20% in 2025 in normalized values versus 2016 baseline. In 2019, we accelerated our efforts to address climate change challenges and introduced specific initiatives to significantly reduce our air emissions. As a result, we reduced by more than 21% our greenhouse gas (GHG) emissions per unit of production compared to our 2016 baseline, achieving our target six years early.

We are subject to a variety of environmental, health and safety laws and regulations in the jurisdictions where we operate. Such laws and regulations govern, among other things, the use, storage, discharge and disposal of chemicals and other hazardous substances, emissions and wastes, as well as the investigation and remediation of soil and ground water contamination. We are also required to obtain environmental permits, licenses and other forms of authorization, or give prior notification, in order to operate. Moreover, to limit any risks related to our license to operate, we have a three-year program to conduct third-party EHS legal compliance audits. This program covers all our manufacturing sites, all our warehouses and all our sites with more than 150 employees.

We believe that in 2019 our activities complied with then-applicable environmental regulations in all material respects. We have engaged outside consultants to audit all of our environmental activities and have created environmental management teams, information systems and training. We have also instituted environmental control procedures for processes used by us as well as our suppliers. In 2019, there were no material environmental claims made against us.

3.2.2.14. Labor and Human rights

Human rights are deeply rooted in our history and culture. Our programs are established to ensure that all of our employees are treated with respect and dignity. We follow the most advanced standards and make regular progress on nine core principles: freely-chosen employment, prevention of underage labor and protection of young workers, fair organization of working time, fair wages and benefits, fair treatment and anti-harassment, non-discrimination, freedom of association, fair working conditions and employee well-being, and privacy of personal information.

We are committed to identifying and mitigating any potential and actual human rights risks in our activities. We continually monitor both our own operations and supply chain using assessments and audits. Our programs take into account two main risk criteria: location and type of activity. A taskforce and a community of qualified local coordinators support our program objectives and ensure continuous monitoring. We compel all employees and organizations to respect our standards and any applicable law.

Since 2005, we are leveraging on the RBA code of conduct to develop the whole supply chain on Labor and Human rights effective risk management. All major production and design sites are required to answer the RBA self-assessment on a yearly basis, covering 90% of our employees. All our manufacturing sites have a rolling third-party audit program in place, covering 82% of our employees. This includes initial audit, corrective action plan and closure audit on a two-year basis. To improve our overall performance, we regularly train our community and we encourage best practice sharing between the sites.

We aim to improve workers' awareness of their labor rights and to amplify workers' voices to improve working conditions and mitigate issues that contribute to forced labor. Our Code of Conduct and related 'speak up' culture ensures employees are aware of how to raise grievances.

3.2.2.15. Anti-corruption and bribery matters

We have a zero-tolerance approach to bribery and corruption, regardless of the identity or position of the originator or recipient of any bribe. It is also strictly forbidden for anybody to use Company funds or assets to make a political contribution. Our Code of Conduct and Anti-Bribery and Corruption policy, which are available in the corporate governance section of our website at <http://investors.st.com>, provide clear definitions regarding instances of bribery and corruption, and include detailed descriptions of the Company's rules for engaging with third-parties. They also explain how to report actual or suspected violations and outline the potential disciplinary actions and legal consequences of non-compliance.

3.2.2.16. Social and employee matters

Development and engagement

In 2019 we introduced more attractive employer branding and defined a new staffing strategy to reinforce our external image. We also implemented new digital solutions to speed-up our recruitment process. We revamped our compensation and benefits policy and we continue to promote a differentiated and transparent approach to remuneration and rewards. To deliver a great on-boarding experience to newcomers, we improved our induction process by sharing and institutionalizing our current best practices. We also continued the initiatives we launched in 2018 to modernize our processes and transform our workplace from an employee experience perspective. One example is the 'Paris.Augmented' program at our Paris site (France), in which employees worked together to create a better workplace that encourages greater well-being, creativity, collaboration and fulfilment. A key element of this project was building a better workspace with new interior and a more collaborative layout to meet employees' requests.

Employee engagement is a critical driver of company performance. We regularly carry out an employee survey to monitor 'individual engagement', 'goal alignment' and 'organization agility'. The 90% participation rate of the survey conducted in 2019 was the highest in our history and all results showed an increase of at least two points over the 2018 survey. The overall engagement index stood at 79%, two points higher than 2018 and seven points above the global industry norm.

In 2019 we continued our program, which initially started in 2008, to introduce Lean practices to streamline process flows, break silos and improve agility throughout the Company. Already in place in our Greater Noida (India) and Rousset (France) sites, we extended our site-based Lean communities to other sites including Tours (France), Catania (Italy), Singapore and Muar (Malaysia). The aim is to create Lean communities at all our main sites by the end of 2020. Composed of Lean Champions (the experts) and Lean Ambassadors (the supporters and influencers) from different on-site organizations, these Lean communities help us to tackle common issues efficiently, as well as making it easier to share experiences, ideas and practices.

Feedback is a fundamental pillar of our culture. It helps us strengthen and continuously develop our talent pool to address future business challenges. We have strengthened our people management process with collective and individual assessments. Our objective is to improve self-awareness and better prepare employees to fulfil their potential with us, through structured career paths and customized development plans. These assessments are now an integral part of the promotion process for senior managers and up-and-coming talent identified through our people review as key position successors.

Diversity and Inclusion

We are present in more than 35 countries and employ 105 different nationalities. We believe that diversity and inclusion bring value to our business through effective innovation, attractiveness, engagement and agility.

At the end of 2019 more than a third of our global workforce consisted of women. Strengthening the role of women in building our future is one of our ongoing objectives.

In 2019 we reviewed our diversity and inclusion governance to give a new impetus to our programs. Our global strategy was reshaped, focusing on three pillars that will drive numerous programs at both company and local level. Our ambition is to recruit and retain a diverse workforce, particularly in terms of gender, age and people with a disability.

Our 'Women in Leadership' (WIL) program, targeted at junior and middle management, aims to prepare the next generation of female leaders. It has been running for five years. We have extended the WIL program into a full career path, including coaching, mentoring and co-development sessions for women, with quotas for women candidates in all promotion committees. We have also put in place a network for women on the WIL career path, with local events, webcasts and a Teamspace blog to share experiences.

To address the shortage of women in technical functions, we continued in 2019 to promote diversity in STEM (Science, Technology, Engineering and Mathematics) functions through local initiatives that encourage girls to choose technical studies at an early stage in their education.

We revised our Diversity and Inclusion awareness training in 2019. Our objective is to widely promote the added value of a diverse and inclusive workforce. The program includes mandatory Diversity and Inclusion e-learning and unconscious bias workshops to sensitize mindsets.

We are also working on policies to foster a work-life balance that supports a diverse workforce. These include our 'Teleworking' program, which was extended to our French sites in 2019.

Health and safety

Protecting people from harm and safeguarding their health is key for our success. We believe that in 2019 our policies and practices maintained the health, safety and welfare of our employees in all material respects.

We aim to expand and promote employees' health and well-being through employee health plans and local initiatives. All our employees have access to health insurance, either from local government insurance schemes or from the Company.

We believe in helping our employees to adopt healthy lifestyles because we know good health is the foundation of a fulfilling and productive life. Our health plan provides our employees with a very high level of medical care, including regular medical check-ups, vaccinations and prevention screening.

We also promote employees' health and well-being through local initiatives. This helps us to anticipate risks and take preventive action. Thanks to this approach, each site can design a health program that is tailored to local needs.

We constantly strive to strengthen our safety culture by re-enforcing safe behaviors and working conditions through visits, training, audits, best practice sharing and communication. We prioritize the prevention of potential employee exposure to chemicals, fire and radiation and work to minimize the risks around ergonomics, machinery, handling and nanomaterials.

Our recordable case rate for employees (work-related injuries per 100 employees per year) was 0.16. We are on track towards our 2025 goals of 0.15 for employees and subcontractors. Our severity rate (days lost per 100 employees per year) was 2.50. We therefore remain focused on driving further improvements in employee behavior and working conditions.

3.2.3. Key announcements

On March 5, 2020, we announced the signing of an agreement to acquire a majority stake in French Gallium Nitride (GaN) innovator Exagan. Exagan's expertise in epitaxy, product development and application know-how will broaden and accelerate our power GaN roadmap and business for automotive, industrial and consumer applications. Terms of the transaction were not disclosed and closing of the acquisition remains subject to customary regulatory approvals from French authorities. The signed agreement also provides for the acquisition by us of the remaining minority stake in Exagan 24 months after the closing of the acquisition of the majority stake. The transaction is funded with available cash.

On February 26, 2020, we announced the filing of our Annual Report on Form 20-F for the year ended December 31, 2019 with the United States Securities and Exchange Commission.

On February 20, 2020, we announced our collaboration with TSMC to accelerate the development of Gallium Nitride (GaN) process technology and the supply of both discrete and integrated GaN devices to market. Through this collaboration, our innovative and strategic GaN products will be manufactured using TSMC's leading GaN process technology.

On January 15, 2020, we announced the signing of a multi-year silicon carbide (SiC) wafers supply agreement with SiCrystal, a ROHM group company. The agreement governs the supply of over \$120 million of advanced 150 mm silicon carbide wafers by SiCrystal to us during this period of demand ramp-up for silicon carbide power devices.

In December 2019, our President, Human Resources and Corporate Social Responsibility, Mr. Philippe Brun left the Company.

On December 2, 2019, we announced the closing of the full acquisition of Swedish SiC wafer manufacturer Norstel AB ("Norstel"). We exercised our option to acquire the remaining 45% share capital, following the initial transaction with respect to the acquisition of 55% of Norstel's share capital as previously announced on February 7, 2019. The total consideration for the acquisition of Norstel was \$137.5 million, funded with available cash.

On November 19, 2019 we announced the expansion and extension of an existing multi-year, long-term SiC wafer supply agreement with Cree, Inc ("Cree") to more than \$500 million. The extended agreement is a doubling in value of the original January 7, 2019 agreement for the supply of Cree's advanced 150 mm silicon carbide bare and epitaxial wafers over the next several years. The increased wafer supply enables the semiconductor leaders to address the rapidly growing demand for silicon carbide power devices globally, particularly in automotive and industrial applications.

On August 21, 2019 we published our IFRS 2019 Semi Annual Accounts for the six-month period ended June 29, 2019 on our website and filed them with the Netherlands Authority for the Financial Markets (Autoriteit Financiële Markten).

On May 23, 2019 we announced that all of the proposed resolutions were adopted at the Company's Annual General Meeting of Shareholders ("AGM"), which was held in Amsterdam, the Netherlands. The main resolutions were:

- The adoption of the Company's Statutory Annual Accounts for the year ended December 31, 2018, prepared in accordance with IFRS and filed with the AFM on March 27, 2019 and posted on the Company's website (www.st.com) and the AFM's website (www.afm.nl);
- The distribution of a cash dividend of \$0.24 per outstanding share of the Company's common stock, to be distributed in quarterly installments of \$0.06 in each of the second, third and fourth quarters of 2019 and first quarter of 2020 to shareholders of record in the month of each quarterly payment;
- The reappointment of Ms. Martine Verluyten, as member of the Supervisory Board, for a one-year term expiring at the 2020 AGM;
- The reappointment of Ms. Janet Davidson, as member of the Supervisory Board, for a three-year term expiring at the 2022 AGM; and
- The appointment of Ms. Lucia Morselli, in replacement of Mr. Salvatore Manzi, as member of the Supervisory Board, for a three-year term expiring at the 2022 AGM.

On May 22, 2019 we announced the publication of our 2018 Sustainability Report.

On March 27, 2019 we announced the main resolutions to be submitted for adoption at our AGM held in Amsterdam, the Netherlands, on May 23, 2019.

On January 7, 2019, Cree, Inc and ST announced signing of a multi-year agreement, in which Cree will produce and supply SiC wafers to STMicroelectronics. The agreement governs the supply of Cree's 150 mm SiC bare and epitaxial wafers to ST.

3.2.4. Financial outlook: Capital investment

Based on market visibility at the beginning of 2020, and the combination of new products, customer demand in 2020 and ongoing strategic initiatives, we planned our capital investment in 2020 at approximately \$1.5 billion. This plan will be modulated during the year following the evolution of the market, particularly regarding the effects of the novel coronavirus COVID-19 pandemic.

A portion of this capital expenditure will be devoted to support strategic initiatives: (i) in Agrate, Italy the construction of a new 300 mm fab to support next generation mixed signal, IGBT and power technologies; (ii) R&D for GaN power technologies in Tours 200 mm and production ramp-up for GaN RF devices in Catania 150 mm and (iii) investments for Silicon Carbide. These include the substrates activities, following the Norstel acquisition. In addition to our strategic initiatives, our main capital investment in front-end is in (i) our 300 mm fab in Crolles, optimizing existing infrastructure to support production ramp up on our main runner technologies; (ii) mix evolution, and a few selected programs of capacity growth and infrastructure preparation. The most important 2020 capital investments for our back-end facilities are expected to be: (i) capacity growth on certain package families, including the SiC technology, next generation Imaging sensor technologies and new products for Automotive and Industrial, to sustain market demand; (ii) modernization and rationalization of package lines targeting cost savings benefits; and (iii) specific investments in the areas of factory automation, quality, environment and energy savings. In addition, we will invest in overall capacity adjustment in final testing and wafers probing (EWS) to meet increased demand and a changed product mix as well as invest in quality, safety, maintenance, productivity and cost savings in both 150 mm, 200 mm front-end fabs and back-end plants.

We will continue to invest to support revenues growth and new products introduction, taking into consideration factors such as trends in the semiconductor industry and capacity utilization. We expect to need significant financial resources in the coming years for capital expenditures and for our investments in manufacturing and R&D. We plan to fund our capital requirements from cash provided by operating activities, available funds and support from third parties, and may have recourse to borrowings under available credit lines and, to the extent necessary or attractive based on market conditions prevailing at the time, the issuance of debt, convertible bonds or additional equity securities. A substantial deterioration of our economic results, and consequently of our profitability, could generate a deterioration of the cash generated by our operating activities. Therefore, there can be no assurance that, in future periods, we will generate the same level of cash as in prior years to fund our capital expenditure plans for expanding/upgrading our production facilities, our working capital requirements, our R&D and manufacturing costs.

We believe that we have the financial resources needed to meet our currently projected business requirements for the next twelve months, including capital expenditures for our manufacturing activities, working capital requirements, approved dividend payments and the repayment of our debts in line with their maturity dates.

3.2.5. Liquidity and financial position

We maintain a significant cash position and a low debt-to-equity ratio, which provide us with adequate financial flexibility. As in the past, our cash management policy is to finance our investment needs mainly with net cash generated from operating activities.

During 2019, our net cash increased by \$341 million, due to the net cash from operating activities exceeding the net cash used in investing and financing activities.

The components of our cash flow for the last two years are set forth below:

In millions of USD	2019	2018
Net cash from operating activities	2,197	2,113
Net cash used in investing activities	(1,457)	(1,498)
Net cash used in financing activities	(386)	(104)
Effect of change in exchange rates	(13)	(4)
Net cash increase (decrease)	341	507

Net cash from operating activities

Net cash from operating activities is the sum of (i) net income (loss) adjusted for non-cash items and (ii) changes in net working capital. The net cash from operating activities in 2019 was \$2,197 million, increasing compared to \$2,113 million in the prior year, on lower net income more than offset by the non-cash impact of the conversion option fair value adjustment and more favorable changes in net working capital.

Net cash used in investing activities

Investing activities used \$1,457 million of cash in 2019, decreasing from \$1,498 million in the prior year. Payments for purchase of tangible assets, net of proceeds, totaled \$1,174 million, compared to \$1,262 million in 2018. The 2019 numbers also included \$354 million of payments for purchase of intangible assets, net cash outflows of \$127 million for the acquisition of Norstel and \$200 million of proceeds from matured marketable securities.

Net cash from (used in) financing activities

Net cash used in financing activities was \$386 million for 2019, compared to the \$104 million used in 2018. The 2019 amount included \$281 million proceeds from long-term debt, \$144 million of long-term debt repayment, \$250 million of repurchase of common stock, \$214 million of dividends paid to stockholders and \$60 million of payment of lease liabilities.

Free cash flow (non GAAP measure)

Free Cash Flow, which is a non GAAP measure, defined as (i) net cash from operating activities plus (ii) net cash used in investing activities, excluding payment for purchases (and proceeds from the sale) of marketable securities, and net cash variation for joint ventures deconsolidation, which are considered as temporary financial investments. The result of this definition is ultimately net cash from operating activities plus payment for purchase and proceeds from sale of tangible, intangible and financial assets, proceeds received in the sale of businesses and cash paid for business acquisitions. We believe Free Cash Flow, a non GAAP measure, provides useful information for investors and management because it measures our capacity to generate cash from our operating and investing activities to sustain our operations. Free Cash Flow is not a GAAP measure and does not represent total cash flow since it does not include the cash flows generated by or used in financing activities. In addition, our definition of Free Cash Flow may differ from definitions used by other companies. Our Free Cash Flow is derived from the US GAAP Consolidated Statement of Cash Flows, which differs from the Consolidated Statement of Cash Flows under IFRS. A reconciliation with the Consolidated Statement of Cash Flows under IFRS is provided in the table below:

In millions of USD	December 31, 2019	December 31, 2018
Net cash from operating activities as reported	2,197	2,113
Excluding US GAAP/IFRS differences:		
Payment of withholding tax on vested shares	17	18
Payment for leases	(60)	—
Net cash from operating activities adjusted	2,154	2,131
Net cash used in investing activities as reported	(1,457)	(1,498)
Excluding:		
Payment for purchase and proceeds from sale of marketable securities, and net cash variation for joint ventures deconsolidation	(200)	(100)
Payment for purchase and proceeds from sale of tangible, intangible assets, payment for business acquisitions⁽¹⁾	(1,657)	(1,598)
Free Cash Flow (non GAAP measure)	497	533

- (1) Reflects the total of the following line items reconciled with our Consolidated Statement of Cash Flows relating to the investing activities: Payment for purchase of tangible assets, Proceeds from sale of tangible assets, Payment for purchase of intangible assets, Payment for purchase of financial assets, Proceeds from sale of financial assets, Payment for disposal of joint ventures, Proceeds received in sale of businesses, Payment for business acquisitions, net of cash and cash equivalents acquired.

Our Free Cash Flow was positive \$497 million in 2019, compared to positive \$533 million in 2018.

Financial position (non GAAP measure)

Our Net Financial Position represents the difference between our total financial resources and our total financial debt. Our total financial resources include cash and cash equivalents, restricted cash, marketable securities and short-term deposits, and our total financial debt includes short-term debt, including bank overdrafts, and long-term debt, as represented in our consolidated statements of financial position. Net Financial Position is not a GAAP measure but we believe it provides useful information for investors and management because it gives evidence of our global position either in terms of net indebtedness or net cash by measuring our capital resources based on cash and cash equivalents, marketable securities, short-term deposits and the total level of our financial indebtedness. In addition, our definition of Net Financial Position may differ from definitions used by other companies and therefore comparability may be limited. Our Net Financial Position is derived from our US GAAP Consolidated Balance Sheet which differs from the Consolidated Statement of Financial Position under IFRS. A reconciliation with the Consolidated Statement of Financial Position under IFRS is provided in the table below:

In millions of USD	December 31, 2019	December 31, 2018
Cash and cash equivalents	2,597	2,266
Restricted cash	10	—
Short-term deposits	4	—
Government bonds issued by the U.S. Treasury	133	330
Total financial resources	2,744	2,596
Funding program loans from European Investment Bank	(706)	(577)
Dual tranche senior unsecured convertible bonds	(1,351)	(1,310)
Other funding programs and other long-term loans	(12)	(17)
Total financial debt as reported	(2,069)	(1,904)
US GAAP/IFRS differences on dual tranche senior unsecured convertible bonds valuation	(3)	(6)
Total financial debt adjusted	(2,072)	(1,910)
Net financial position (non GAAP measure)	672	686

Our Net Financial Position as of December 31, 2019 was a net cash position of \$672 million, decreasing compared to the net cash position of \$686 million at December 31, 2018.

At December 31, 2019, our financial debt was \$2,069 million, composed of (i) \$173 million of current portion of long-term debt and (ii) \$1,896 million of long-term debt. The breakdown of our total financial debt included: (i) \$1,351 million in the senior unsecured convertible bonds issued in 2017, (ii) \$706 million in European Investment Bank loans (the “EIB Loans”), and (iii) \$12 million in loans from other funding programs and other long-term loans. The EIB Loans are comprised of three long-term amortizing credit facilities as part of our R&D funding programs.

The first, signed in 2010, is a €350 million multi-currency loan to support our industrial and R&D programs. It was drawn mainly in U.S. dollars for an amount of \$321 million and only partially in Euros for an amount of €100 million, of which \$55 million remained outstanding as of December 31, 2019. The second, signed in 2013, is a €350 million multi-currency loan which also supports our R&D programs. It was drawn in U.S. dollars for an amount of \$471 million, of which \$118 million is outstanding as of December 31, 2019. The third, signed in August 2017 is a €500 million loan in relation to R&D and capital expenditure investments in the European Union. It was fully drawn in Euros corresponding to \$533 million outstanding as of December 31, 2019.

On July 3, 2017, we issued \$1,500 million in principal amount of dual tranche senior unsecured convertible bonds (Tranche A for \$750 million and Tranche B for \$750 million), due 2022 and 2024, respectively. Tranche A bonds were issued at 101.265% as zero-coupon bonds while Tranche B bonds were issued at par and bear a 0.25% per annum nominal interest, payable semi-annually. The conversion price at issuance was \$20.54, equivalent to a 37.5% premium on both tranches, which corresponds to 9,737 equivalent shares per each \$200,000 bond par value. The bonds are convertible by the bondholders or are callable by the issuer upon certain conditions, on a net-share settlement basis, except if the issuer elects a full-cash or full-share conversion as an alternative settlement. The net proceeds from the bond offering were \$1,502 million, after deducting issuance costs.

On November 5, 2018 we announced the launch of a share buy-back program of up to \$750 million to be executed within a three-year period. Shares repurchased under the buy-back program are disclosed on a weekly basis and are held as treasury shares and will be used to meet our obligations in relation to our employee stock award plans. As of December 31, 2019, we held 19.8 million treasury shares.

Additionally, we had unutilized committed medium-term credit facilities with core relationship banks of \$568 million.

Our long-term debt contains standard conditions, but does not impose minimum financial ratios.

Our current ratings with the three major rating agencies that report on us on a solicited basis, are as follows: S&P: “BBB” with stable outlook; Moody’s: “Baa3” with stable outlook; Fitch: “BBB” with stable outlook.

3.2.6. Financial risk management

We are exposed to changes in financial market conditions in the normal course of business due to our operations in different foreign currencies and our ongoing investing and financing activities. Market risk is the uncertainty to which future earnings or asset/liability values are exposed due to operating cash flows denominated in foreign currencies and various financial instruments used in the normal course of operations. The major financial risks to which we are exposed are the foreign exchange risks related to the fluctuations of the U.S. dollar exchange rate compared to the Euro and the other major currencies in which costs are incurred, the variation of the interest rates and the risks associated to the investments of our available cash. We have established policies, procedures and internal processes governing our management of market risks and the use of financial instruments to manage our exposure to such risks.

Our financial risk management is carried out by a central treasury department (Corporate Treasury). Additionally, a Treasury Committee, chaired by our CFO, steers treasury activities and ensures compliance with our corporate policies. Treasury activities are thus regulated by our policies, which define procedures, objectives and controls. The policies focus on the management of financial risk in terms of exposure to market risk, credit risk and liquidity risk. Treasury controls are subject to internal audits. Most treasury activities are centralized, with any local treasury activities subject to oversight from Corporate Treasury. Corporate Treasury identifies, evaluates and hedges financial risks in close cooperation with our operating units. It provides written principles for overall risk management, as well as written policies covering specific areas, such as foreign exchange risk, interest rate risk, price risk, credit risk, use of derivative financial instruments, and investments of excess liquidity. The majority of cash and cash equivalents is held in U.S. dollars and Euros and is placed with financial institutions rated at least a single “A” long-term rating from two of the major rating agencies, meaning at least A3 from Moody’s Investor Service and A- from Standard & Poor’s and Fitch Ratings, or better. These ratings are closely and continuously monitored in order to manage exposure to the counterparty’s risk. Hedging transactions are performed only to hedge exposures deriving from operating, investing and financing activities conducted in the normal course of business.

Foreign exchange risk

We conduct our business on a global basis in various major international currencies. As a result, we are exposed to adverse movements in foreign currency exchange rates, primarily with respect to the Euro. Foreign exchange risk mainly arises from recognized assets and liabilities at our subsidiaries and future commercial transactions.

Cash flow and fair value interest rate risk

Our interest rate risk arises from long-term borrowings. Borrowings issued at variable rates expose us to cash flow interest rate risk. Borrowings issued at fixed rates expose us to fair value interest rate risk.

Credit risk

We select banks and/or financial institutions that operate with the group based on the criteria of long-term rating from at least two major Rating Agencies and keeping a maximum outstanding amount per instrument with each bank not to exceed 20% of the total.

We monitor the creditworthiness of our customers to which we grant credit terms in the normal course of business. If certain customers are independently rated, these ratings are used. Otherwise, if there is no independent rating, risk control assesses the credit quality of the customer, taking into account its financial position, past experience and other factors. Individual risk limits are set based on internal and external ratings in accordance with limits set by management. The utilization of credit limits is regularly monitored. Sales to customers are primarily settled in cash. At December 31, 2019 and 2018, no customer represented more than 10% of trade accounts receivable, net. Any remaining concentrations of credit risk with respect to trade receivables are limited due to the large number of customers and their dispersion across many geographic areas.

Liquidity risk

Prudent liquidity risk management includes maintaining sufficient cash equivalents and marketable securities, the availability of funding from committed credit facilities and the ability to close out market positions. Our objective is to maintain a significant cash position and a low debt-to-equity ratio, which ensure adequate financial flexibility. Our liquidity management policy is to finance our investments with net cash provided from operating activities.

3.3. Risk management and Internal control

3.3.1. Risk Management

3.3.1.1. Our Risk Management approach

As a multi-national listed industrial semiconductor company we are exposed to risks, particularly in the current environment of increased uncertainty.

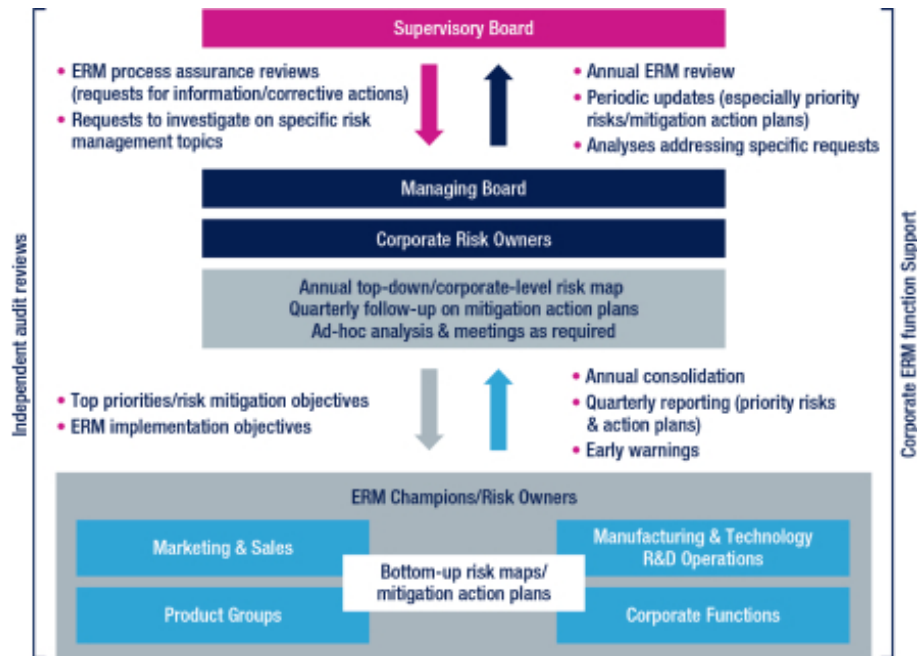
We take appropriate steps to identify, manage and monitor these risks, in pursuit of our objectives. We have implemented an Enterprise Risk Management (ERM) approach aligned with the guidelines of the ISO 31000 standard.

Our ERM process has two key purposes:

- to maintain a holistic management system for systematically identifying, evaluating, and treating risks; and
- to seize opportunities to achieve the Company's objectives and enable continuous sustainable growth.

Our ERM governance is described in the following chart:

ERM governance



Our ERM approach is managed by our Chief Audit & Risk Executive under the direct responsibility of our Managing Board and the oversight of our Supervisory Board. The content of this oversight role is detailed in our Supervisory Board Charter.

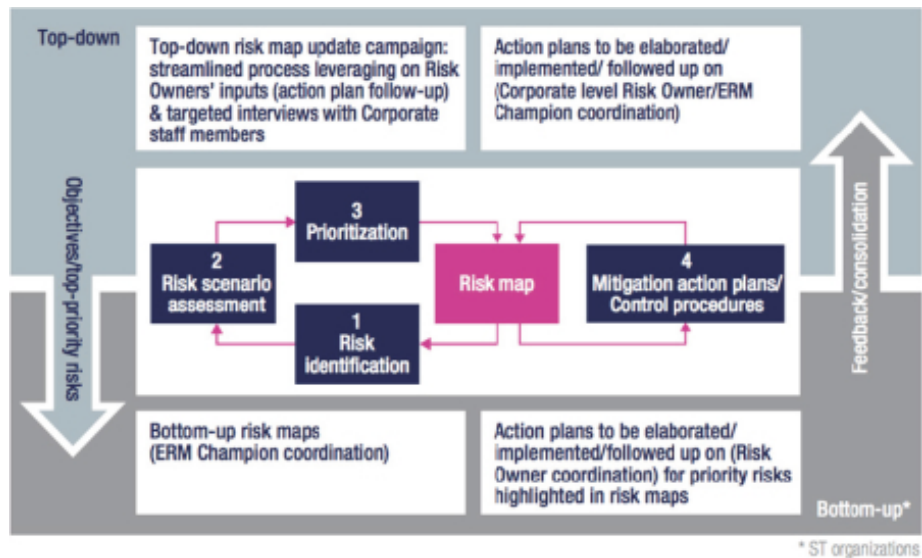
Following an independent audit of our ERM approach in late 2017, we increased our investment in risk management. In particular, a three-year improvement roadmap was defined mid-2018 and is being rolled-out. As part of that roadmap, we defined, set-up and deployed an ERM framework described in the following chart:

ERM FRAMEWORK



Our ERM process applies a holistic approach, addressing top-down (Company-level) and bottom-up (organization-level) perspectives. It is built on a comprehensive risk universe, comprising generic risk areas that allow consolidated and comparative analysis across ST. The process is implemented as described in the following chart:

ERM PROCESS



Each risk scenario, whether identified and managed at Corporate (top-down) or ST Organizations (bottom-up) level, is assessed against potential impact, likelihood of occurrence and room for improvement criteria, allowing us to select “Priority risk scenarios” to be treated through specific action plans monitored by our management and our Supervisory Board in the case of risks addressed at Corporate level.

3.3.1.2. Risk Factors

Below is a list of the main risks factors we believe are related to the semiconductor industry and specifically related to our operations, which may affect our results and performance and the ability of our management to predict the future:

Risks Related to the Semiconductor Industry which Impact Us

We, and the semiconductor industry as a whole, may be impacted by changes in, or uncertainty about, global, regional and local economic, political, legal, regulatory and social environments as well as climate change.

Changes in, and uncertainty about, economic, political, legal, regulatory and social conditions pose a risk as consumers and businesses may postpone spending in response to factors such as curtailment of trade and other business restrictions, financial market volatility, interest rate fluctuations, shifts in inflationary and deflationary expectations, lower capital and productivity growth, unemployment, negative news, declines in income or asset values and/or other factors. Such global, regional and local conditions could have a material adverse effect on customer and end-market demand for our products, thus materially adversely affecting our business and financial condition.

The institution of trade tariffs globally could negatively impact economic conditions, which could have negative repercussions for our business. In 2019, both the U.S. Administration as well as several foreign governments have been undertaking significant trade policy changes, in some cases followed by legislative or executive action. For instance, the more recent phase one deal signed by U.S. and China in January 2020 still leaves in place a significant number of tariffs until the second phase of the deal is agreed and there is no assurance that further tariffs would not be applied in the future. Trade policy changes could trigger retaliatory actions by affected countries, which could have a negative impact on our ability to do business in affected countries or lead to reduced purchases of our products by foreign customers, leading to increased costs of components contained in our products, increased manufacturing costs of our products, and higher prices for our products in foreign markets. Further, protectionist measures, laws or governmental policies may encourage our customers to relocate their manufacturing capacity or supply chain to their own respective countries or require their respective contractors, subcontractors and relevant agents to do so, which could impair our ability to sustain our current level of productivity and manufacturing efficiency.

We, and the semiconductor industry as a whole, face greater risks due to the international nature of the semiconductor business, including in the countries where we, our customers or our suppliers operate, such as:

- instability of foreign governments, including the threat of war, military conflict, civil unrest, regime changes, mass migration and terrorist attacks;
- natural events such as severe weather, earthquakes and tsunamis, or the effects of climate change;
- epidemics and pandemics such as disease outbreaks or more recently the novel coronavirus COVID-19 and other health related issues;
- changes in, or uncertainty about, laws, regulations (including executive orders) and policies affecting trade and investment, including following Brexit and including through the imposition of trade and travel restrictions, government sanctions, local practices which favor local companies and constraints on investment;
- complex and varying government regulations and legal standards, particularly with respect to export control regulations and restrictions, customs and tax requirements, data privacy, intellectual property and anti-corruption; and
- differing practices of regulatory, tax, judicial and administrative bodies, including with regards to the interpretation of laws, governmental approvals, permits and licenses.

The semiconductor industry is cyclical and downturns in the semiconductor industry can negatively affect our results of operations and financial condition.

The semiconductor industry is cyclical and has been subject to significant downturns from time to time, as a result of global economic conditions as well as industry-specific factors, such as built-in excess capacity, fluctuations in product supply, product obsolescence and changes in end-customer preferences. Downturns are typically characterized by reduction in overall demand, accelerated erosion of selling prices, reduced revenues and high inventory levels, any of which could result in a significant deterioration of our results of operations. Such macroeconomic trends typically relate to the semiconductor industry as a whole rather than to the individual semiconductor markets to which we sell our products. To the extent that industry downturns are concurrent with the timing of new increases in production capacity or introduction of new advanced technologies in our industry, the negative effects on our business from such industry downturns may also be more severe. We have experienced revenue volatility and market downturns in the past and expect to experience them in the future, which could have a material adverse impact on our results of operations and financial condition.

We may not be able to match our production capacity to demand.

As a result of the cyclical and volatility of the semiconductor industry, it is difficult to predict future developments in the markets we serve, and, in turn, to estimate requirements for production capacity. If our markets, major customers or certain product designs or technologies do not perform as well as we have anticipated, we risk unused capacity charges, write-offs of inventories and losses on products, and we could be required to undertake restructuring and transformation measures that may involve significant charges to our earnings. Furthermore, during certain periods, we have also experienced increased demand in certain market segments and product technologies, which has led to a shortage of capacity, an increase in the lead times of our delivery to customers and, in certain instances, being required to enter into agreements with our suppliers with onerous terms, such as take-or-pay arrangements.

Competition in the semiconductor industry is intense, and we may not be able to compete successfully if our product design technologies, process technologies and products do not meet market requirements. Furthermore, the competitive environment of the industry has resulted, and is expected to continue to result, in vertical and horizontal consolidation among our suppliers, competitors and customers, which may lead to erosion of our market share, impact our ability to compete and require us to restructure our operations.

We compete in different product lines to various degrees on certain characteristics, for example, price, technical performance, product features, product design, product availability, process technology, manufacturing capabilities and sales and technical support. Given the intense competition in the semiconductor industry, if our products do not meet market requirements based on any of these characteristics, our business, financial condition and results of operations could be materially adversely affected. Our competitors may have a stronger presence in key markets and geographic regions, greater name recognition, larger customer bases, greater government support and greater financial, research and development, sales and marketing, manufacturing, distribution, technical and other resources than we do. These competitors may be able to adapt more quickly to changes in the business environment, to new or emerging technologies and to changes in customer requirements.

The semiconductor industry is intensely competitive and characterized by the high costs associated with developing marketable products and manufacturing technologies as well as high levels of investment in production capabilities. As a result, the semiconductor industry has experienced, and is expected to continue to experience, significant vertical and horizontal consolidation among our suppliers, competitors and customers. Consolidation in the semiconductor industry could erode our market share, negatively impact our ability to compete and require us to increase our R&D effort, engage in mergers and acquisitions and/or restructure our operations.

Risks Related to Our Operations

Our high fixed costs could adversely impact our results.

Our operations are characterized by high fixed or other costs which are difficult to reduce, including costs related to manufacturing, particularly as we operate our own manufacturing facilities, and the employment of our highly skilled workforce. When demand for our products decreases, competition increases or we fail to forecast demand accurately, we are driven to reduce prices and we are not always able to decrease our total costs in line with resulting revenue declines. As a result, the costs associated with our operations may not be fully absorbed, leading to unused capacity charges, higher average unit costs and lower gross margins, adversely impacting our results.

Our capital needs are high compared to those competitors who do not manufacture their own products and we may need additional funding in the coming years to finance our investments, to purchase other companies or technologies developed by third parties or to refinance our maturing indebtedness.

As a result of our choice to maintain control of a large portion of our manufacturing technologies and capabilities, we may require significant capital expenditure to maintain or upgrade our facilities in the event that our facilities become inadequate in terms of capacity, flexibility and location. We monitor our capital expenditures taking into consideration factors such as trends in the semiconductor market, customer requirements and capacity utilization. These capital expenditures may increase in the future if we decide to upgrade or expand the capacity of our manufacturing facilities, purchase or build new facilities or increase investments supporting key strategic initiatives. For instance, we may be unable to successfully maintain and operate large infrastructure projects. Such increased capital expenditures associated with large infrastructure projects and strategic initiatives might not achieve profitability or we may be unable to utilize infrastructure projects to full capacity. There can also be no assurance that future market demand and products required by our customers will meet our expectations. We also may need to invest in other companies, in IP and/or in technology developed either by us or by third parties to maintain or improve our position in the market or to reinforce our existing business. Failure to invest appropriately and in a timely manner or to successfully integrate any recent or future business acquisitions may prevent us from achieving the anticipated benefits and could have a material adverse effect on our business and results of operations.

The foregoing may require us to secure additional financing, including through the issuance of debt, equity or both. The timing and the size of any new share or bond offering would depend upon market conditions as well as a variety of other factors. In addition, the capital markets may from time to time offer terms of financing that are particularly favorable. We cannot exclude that we may access the capital markets opportunistically to take advantage of market conditions. Any such transaction or any announcement concerning such a transaction could materially impact the market price of our common shares. If we are unable to access capital on acceptable terms, this may adversely affect our business and results of operations.

Our operating results depend on our ability to obtain quality supplies on commercially reasonable terms. As we depend on a limited number of suppliers for materials, equipment and technology, we may experience supply disruptions if suppliers interrupt supply, increase prices or experience material adverse changes in their financial condition.

Our ability to meet our customers' demand to manufacture our products depends upon obtaining adequate supplies of quality materials on a timely basis and on commercially reasonable terms. Certain materials are available from a limited number of suppliers or only from a limited number of suppliers in a particular region. We purchase certain materials whose prices on the world markets have fluctuated significantly in the past and may fluctuate significantly in the future. Although supplies for most of the materials we currently use are adequate, shortages could occur in various essential materials due to interruption of supply or increased demand in the industry. For instance, the novel coronavirus COVID-19 outbreak could cause disruptions from the temporary closure of suppliers' facilities or delays and reduced export or shipment of various materials. In addition, the costs of certain materials may increase due to market pressures and we may not be able to pass on such cost increases to our customers.

We also purchase semiconductor manufacturing equipment and third party licensed technology from a limited number of suppliers and providers and, because such equipment and technology are complex, it is difficult to replace one supplier or provider with another or to substitute one piece of equipment or type of technology for another. In addition, suppliers and providers may extend lead times, limit our supply, increase prices or change contractual terms related to certain manufacturing equipment and third party licensed technology, any of which could adversely affect our results. Furthermore, suppliers and technology providers tend to focus their investments on providing the most technologically advanced equipment, materials and technology and may not be in a position to address our requirements for equipment, materials or technology of older generations. Although we work closely with our suppliers and providers to avoid such shortages, there can be no assurance that we will not encounter these problems in the future.

Consolidation among our suppliers or vertical integration among our competitors may limit our ability to obtain sufficient quantities of materials, equipment and/or technology on commercially reasonable terms and engage in mergers and acquisitions. In certain instances, we may be required to enter into agreements with our suppliers with onerous terms, such as take-or-pay arrangements. If we are unable to obtain supplies of materials, equipment or technology in a timely manner or at all, or if such materials, equipment or technology prove inadequate or too costly, our results of operations could be adversely affected.

Our financial results can be affected by fluctuations in exchange rates, principally in the value of the U.S. dollar.

Currency exchange rate fluctuations affect our results of operations because our reporting currency is the U.S. dollar, in which we receive the major portion of our revenues, while, more importantly, we incur a limited portion of our revenue and a significantly higher portion of our costs in currencies other than the U.S. dollar. A significant variation of the value of the U.S. dollar against the principal currencies that have a material impact on us (primarily the Euro, but also certain other currencies of countries where we have operations, such as the Singapore dollar) could result in a favorable impact, net of hedging, on our net income in the case of an appreciation of the U.S. dollar, or a negative impact, net of hedging, on our net income if the U.S. dollar depreciates relative to these currencies, in particular with respect to the Euro.

In order to reduce the exposure of our financial results to the fluctuations in exchange rates, our principal strategy has been to balance as much as possible the proportion of sales to our customers denominated in U.S. dollars with the amount of purchases from our suppliers denominated in U.S. dollars and to reduce the weight of the other costs, including depreciation, denominated in Euros and in other currencies. In order to further reduce our exposure to U.S. dollar exchange rate fluctuations, we have hedged certain line items on our Consolidated Statements of Income, in particular with respect to a portion of the cost of sales, the majority of the R&D expenses and certain SG&A expenses located in the Euro zone. We also hedge certain manufacturing costs, included within the cost of sales, denominated in Singapore dollars. There can be no assurance that our hedging transactions will prevent us from incurring higher Euro-denominated manufacturing costs and/or operating expenses when translated into our U.S. dollar-based accounts.

Our operating results may vary significantly from quarter to quarter and annually and may also differ significantly from our expectations or guidance.

Our operating results are affected by a wide variety of factors that could materially and adversely affect revenues and profitability or lead to significant variability of our operating results from one period to the next. These factors include changes in demand from our key customers, capital requirements, inventory management, availability of funding, competition, new product developments, start of adoption of our new products by customers, technological changes, manufacturing or supplier issues and effective tax rates. In addition, in periods of industry overcapacity or when our key customers encounter difficulties in their end-markets or product ramps, orders are more exposed to cancellations, reductions, price renegotiation or postponements, which in turn reduce our ability to forecast the next quarter or full year production levels, revenues and margins. For these reasons and others that we may not yet have identified, our revenues and operating results may differ materially from our expectations or guidance as visibility is reduced.

If our external silicon foundries or back-end subcontractors fail to perform, this could adversely affect our business prospects.

We currently use external silicon foundries and back-end subcontractors for a portion of our manufacturing activities. If our external silicon foundries or back-end subcontractors are unable to satisfy our demand, or experience manufacturing difficulties, delays or reduced yields, our results of operations and ability to satisfy customer demand could suffer. Likewise, if we are unable to meet our commitments to silicon foundries and back-end subcontractors, our results of operations could suffer. Prices for these services also vary depending on capacity utilization rates at our external silicon foundries and back-end subcontractors, quantities demanded and product and process technology. Such outsourcing costs can vary materially and, in cases of industry shortages, they can increase significantly, negatively impacting our business prospects.

Our manufacturing processes are highly complex, costly and potentially vulnerable to impurities, disruptions or inefficient implementation of production changes or interruptions that can significantly increase our costs and delay product shipments to our customers.

Our manufacturing processes are highly complex, require advanced and increasingly costly equipment and are continuously modified or maintained in an effort to improve yields and product performance and lower the cost of production.

Furthermore, impurities or other difficulties in the manufacturing process can lower yields, interrupt production or result in scrap. As system complexity and production changes have increased and sub-micron technology has become more advanced, manufacturing tolerances have been reduced and requirements for precision have become even more demanding. We have from time to time experienced bottlenecks and production difficulties that have caused delivery delays and quality control problems. There can be no assurance that we will not experience bottlenecks or production, transition or other difficulties in the future.

In addition, we are exposed to risks related to interruptions of our manufacturing processes. If any of our property or equipment is damaged or otherwise rendered unusable or inoperable due to accident, cyberattack or otherwise this could result in interruptions which could have a material adverse effect on our business, financial condition and results of operations.

We may experience quality problems from time to time that can result in decreased sales and operating margin and product liability or warranty claims.

We sell complex products that may not in each case comply with specifications or customer requirements, or may contain design or manufacturing defects, that could cause personal injury, property damage or security risks that could be exploited by unauthorized third parties hacking, corrupting or otherwise obtaining access to our products, including the software loaded thereon by us, our suppliers or our customers. Although our general practice is to contractually limit our liability to the repair, replacement or refund of defective products, we occasionally agree to contractual terms with key customers in which we provide extended warranties and accordingly we may face product liability, warranty, delivery failure, and/or other claims relating to our products that could result in significant expenses relating to compensation payments, product recalls or other actions related to such extended warranties and/or to maintain good customer relationships, which could result in decreased sales and operating margin and other material adverse effects on our business. Costs or payments we may make in connection with warranty and other claims or product recalls may adversely affect our results of operations. There can be no assurance that we will be successful in maintaining our relationships with customers with whom we incur quality problems. Furthermore, if litigation occurs we could incur significant costs and liabilities to defend ourselves against such claims and, if damages are awarded against us, there can be no assurance that our insurance policies will be available or adequate to protect us against such claims.

Disruptions in our relationships with any one of our key customers or distributors, and/or material changes in their strategy or financial condition or business prospects, could adversely affect our results of operations.

A substantial portion of our sales is derived from a limited number of customers and distributors. There can be no assurance that our customers or distributors will continue to book the same level of sales with us that they have in the past, will continue to succeed in the markets they serve and will not purchase competing products over our products. Many of our key customers and distributors operate in cyclical businesses that are also highly competitive, and their own market positions may vary considerably. In recent years, some of our customers have vertically integrated their businesses. Such vertical integrations may impact our business. Our relationships with the newly formed entities could be either reinforced or jeopardized by the integration. If we are unable to maintain or increase our market share with our key customers or distributors, or if they were to increase product returns or fail to meet payment obligations, our results of operations could be materially adversely affected. Certain of our products are customized to our customers' specifications. If customers do not purchase products made specifically for them, we may not be able to recover a cancellation fee from our customers or resell such products to other customers. In addition, the occurrence of epidemic and pandemic outbreaks such as the novel coronavirus COVID-19 could affect our customers. While the speed of the geographic spread of the novel coronavirus COVID-19 cannot be predicted and its future developments are uncertain, if its severity continues to increase and the actions to contain it prove to be ineffective, the growing adverse public health impact on our customers could negatively affect our results.

We may experience delays in delivering our product and technology roadmaps as well as transformation initiatives.

Our industry adapts to technological advancements and it is likely that new products, equipment, processes and service methods, including transformation initiatives related to digitalization, are in the process of being implemented. Any failure by us to react to changes or advances in existing technologies and processes as we develop and invest in our product, technology and transformation roadmaps could materially delay the introduction of new solutions. If we are not able to execute on these roadmaps on a timely basis or at an acceptable cost this could result in loss of competitiveness of our solutions, decreased revenue and a loss of market share.

Our computer systems, including hardware, software, information and cloud-based initiatives, are subject to attempted security breaches and other cybersecurity threats, which, if successful, could adversely impact our business.

We have, from time to time, experienced attempts by others to gain unauthorized access to our computer systems and networks. The reliability and security of our information technology infrastructure and software, and our ability to expand and continually update technologies, including to transition to cloud-based technologies, in response to our changing needs is critical to our business. In the current environment, there are numerous and evolving risks to cybersecurity, including criminal hackers, state-sponsored intrusions, terrorism, industrial espionage, employee malfeasance, vandalism and human or technological error. Computer hackers and others routinely attempt to breach the security of technology products, services, and systems, and those of our customers, suppliers and providers of third party licensed technology, and some of those attempts may be successful. Such breaches could result in, for example, unauthorized access to, disclosure, modification, misuse, loss, or destruction of our, our customer, or other third party data or systems, theft of our trade secrets and other sensitive or confidential data, including personal information and intellectual property, system disruptions, and denial of service. The attempts to breach our systems, including cloud-based systems, and gain unauthorized access to our information technology systems are becoming increasingly more sophisticated. These attempts may include covertly introducing malware to our computers, including those in our manufacturing operations, and impersonating unauthorized users, among others. For instance, employees and former employees, in particular former employees who become employees of our competitors or customers, may misappropriate, use, publish or provide to our competitors or customers our intellectual property and/or proprietary or confidential business information. Also, third parties may attempt to register domain names similar to our brands or website, which could cause confusion and divert online customers away from our products. In the event of such breaches, we, our customers or other third parties could be exposed to potential liability, litigation, and regulatory action, as well as the loss of existing or potential customers, damage to our reputation, and other financial loss and such breaches could also result in losing existing or potential customers in connection with any actual or perceived security vulnerabilities in our systems. In addition, the cost and operational consequences of responding to breaches and implementing remediation measures could be significant. As these threats continue to develop and grow, we have been adapting and strengthening our security measures. We continue to increase the resources we allocate to implementing, maintaining and/or updating security systems to protect data and infrastructure and to raising security awareness among those having access to our systems. However, these security measures cannot provide absolute security and there can be no assurance that our employee training, operational, and other technical security measures or other controls will detect, prevent or remediate security or data breaches in a timely manner or otherwise prevent unauthorized access to, damage to, or interruption of our systems and operations. We regularly evaluate our IT systems to make enhancements and periodically implement new or upgraded systems, as for instance the transition and migration of our data systems to cloud-based platforms. Any delay in the implementation of, or disruption in the transition to different systems could adversely affect our ability to record and report financial and management information on a timely and accurate basis. In addition, a miscalculation of the level of investment needed to ensure our technology solutions are current and up-to-date as technology advances and evolves could result in disruptions in our business should the software, hardware or maintenance of such items become out-of-date or obsolete and the costs of upgrading our cybersecurity systems and remediating damages could be substantial. We may also be adversely affected by security breaches related to our equipment providers and providers of third party licensed technology. As a global enterprise, we could also be impacted by existing and proposed laws and regulations, as well as government policies and practices related to cybersecurity, privacy and data protection. Additionally, cyberattacks or other catastrophic events resulting in disruptions to or failures in power, information technology, communication systems or other critical infrastructure could result in interruptions or delays to us, our customers, or other third party operations or services, financial loss, potential liability, and damage our reputation and affect our relationships with our customers and suppliers.

We may be subject to theft, loss, or misuse of personal data about our employees, customers, or other third parties, which could increase our expenses, damage our reputation, or result in legal or regulatory proceedings.

The theft, loss, or misuse of personal data collected, used, stored, or transferred by us to run our business could result in significantly increased security costs or costs related to defending legal claims. Global privacy legislation, including various EU regulations and directives regulating data privacy and security, such as the General Data Protection Regulation (“GDPR”) and the transmission of content using the Internet involving residents of the EU, enforcement, and policy activity in this area are rapidly expanding and creating a complex compliance regulatory environment.

In particular, the requirements of the GDPR impose a higher compliance burden on us and materially increase the maximum level of fines for compliance failures from their current levels relating to, among other things, consent to process personal data of individuals, the information provided to individuals regarding the processing of their personal data, the security and confidentiality of personal data, and notifications in the event of data breaches and use of third party processors. Costs to comply with and implement these privacy-related and data protection measures may increase and may necessitate changes to our business. In addition, our failure to comply with local and international privacy or data protection laws and regulations could result in proceedings against us by governmental entities or others. Failure to comply with the GDPR or other data privacy regimes could subject us to significant fines and reputational harm.

Further, privacy-related legislation is rapidly evolving which may have a negative impact on our business if interpreted or implemented in a manner that is inconsistent from country to country and inconsistent with the current policies and practices of our customers or business partners. We may also have to change the manner in which we contract with our business partners, store and transfer information and otherwise conduct our business, which could increase our costs and reduce our revenues. In particular, the requirements of the GDPR will impose a higher compliance burden on us and materially increase the maximum level of fines for compliance failures from their current levels. Costs to comply with and implement these privacy-related and data protection measures could be significant. In addition, our failure to comply with local and international privacy or data protection laws and regulations could result in proceedings against us by governmental entities or others.

Our business is dependent in large part on continued growth in the industries and segments into which our products are sold and on our ability to retain existing customers and attract new ones. A market decline in any of these industries, our inability to retain and attract customers, or customer demand for our products which differs from our projections, could have a material adverse effect on our results of operations.

The demand for our products depends significantly on the demand for our customers’ end products. Growth of demand in the industries and segments into which our products are sold fluctuates significantly and is driven by a variety of factors, including consumer spending, consumer preferences, the development and acceptance of new technologies and prevailing economic conditions. Changes in our customers’ markets and in our customers’ respective shares in such markets could result in slower growth and a decline in demand for our products. In addition, if projected industry growth rates do not materialize as forecasted, our spending on process and product development ahead of market acceptance could have a material adverse effect on our business, financial condition and results of operations.

Our business is dependent upon our ability to retain existing customers. In 2019 our largest customer, Apple, accounted for 17.6% of our revenues. While we do not believe to be dependent on any one customer or group of customers, the loss of key customers or important sockets at key customers could have an adverse effect on our results of operations. Our existing customers’ product strategy may change from time to time and/or product specifications may change on short-time product life cycles and we have no certainty that our business, financial position and results of operations will not be affected. Our business is also dependent upon our ability to attract new customers. There can be no assurance that we will be successful in attracting and retaining new customers, or in adequately projecting customer demand for our products. Our failure to do so could materially adversely affect our business, financial position and results of operations.

Market dynamics have driven, and continue to drive us, to a strategic repositioning.

In recent years, we have undertaken several initiatives to reposition our business. Our strategies to improve our results of operations and financial condition have led us, and may in the future lead us, to acquire businesses that we believe to be complementary to our own, or to divest ourselves of or wind down activities that we believe do not serve our longer term business plans. Our potential acquisition strategies depend in part on our ability to identify suitable acquisition targets, finance their acquisition, obtain approval by our shareholders and obtain required regulatory and other approvals. Our potential divestiture strategies depend in part on our ability to compete and to identify the activities in which we should no longer engage, obtain the relevant approvals pursuant to our governance process and then determine and execute appropriate methods to divest of them.

We are constantly monitoring our product portfolio and cannot exclude that additional steps in this repositioning process may be required. Furthermore, we cannot assure that any strategic repositioning of our business, including executed and possible future acquisitions or dispositions, will be successful and will not result in impairment, restructuring charges and other related closure costs.

Acquisitions and divestitures involve a number of risks that could adversely affect our operating results and financial condition, including: we may be unable to successfully integrate businesses or teams we acquire with our culture and strategies on a timely basis or at all; and we may be required to record charges related to the goodwill or other long-term assets associated with the acquired businesses. There can be no assurance that we will be able to achieve the full scope of the benefits we expect from a particular acquisition, divestiture or investment. Our business, financial condition and results of operations may suffer if we fail to coordinate our resources effectively to manage both our existing businesses and any acquired businesses. In addition, the financing of future acquisitions or divestitures may negatively impact our financial position, including our ability to pay a dividend and/or repurchase our shares, and credit rating and we could be required to raise additional funding.

Other risks associated with acquisitions include: assumption of potential liabilities, disclosed or undisclosed, associated with the business acquired, which liabilities may exceed the amount of indemnification available from the seller; potential inaccuracies in the financials of the business acquired; and our ability to retain customers of an acquired entity, its business or industrialize an acquired process or technology. Identified risks associated with divestitures include: loss of activities and technologies that may have complemented our remaining businesses or operations; and loss of important services provided by key employees that are assigned to divested activities.

We depend on collaboration with other semiconductor industry companies, research organizations, universities, customers and suppliers to further our R&D efforts, and our business and prospects could be materially adversely affected by the failure or termination of such alliances.

Our success depends on our ability to introduce innovative new products and technologies to the marketplace on a timely basis. In light of the high levels of investment required for R&D activities, we depend in certain instances on collaborations with other semiconductor industry companies, research organizations, universities, customers and suppliers to develop or access new technologies.

Such collaboration provides us with a number of important benefits, including the sharing of costs, reductions in our own capital requirements, acquisitions of technical know-how and access to additional production capacities. However, there can be no assurance that our collaboration efforts will be successful and allow us to develop and access new technologies in due time, in a cost-effective manner and/or to meet customer demands. If a particular collaboration terminates before our intended goals are accomplished we may incur additional unforeseen costs, and our business and prospects could be adversely affected. Furthermore, if we are unable to develop or otherwise access new technologies, whether independently or in collaboration with another industry participant, we may fail to keep pace with the rapid technology advances in the semiconductor industry, our participation in the overall semiconductor industry may decrease and we may also lose market share.

We depend on patents to protect our rights to our technology and may face claims of infringing the IP rights of others.

We depend on patents and other IP rights to protect our products and our manufacturing processes against misappropriation by others. The process of seeking patent protection can be long and expensive, and there can be no assurance that that we will receive patents from currently pending or future applications. Even if patents are issued, they may not be of sufficient scope or strength to provide meaningful protection or any commercial advantage. In addition, effective IP protection may be unavailable or limited in some countries. Our ability to enforce one or more of our patents could be adversely affected by changes in patent laws, laws in certain foreign jurisdictions that may not effectively protect our intellectual property rights or by ineffective enforcement of laws in such jurisdictions. Competitors may also develop technologies that are protected by patents and other IP and therefore either be unavailable to us or be made available to us subject to adverse terms and conditions. We have in the past used our patent portfolio to negotiate broad patent cross-licenses with many of our competitors enabling us to design, manufacture and sell semiconductor products, without concern of infringing patents held by such competitors. We may not in the future be able to obtain such licenses or other rights to protect necessary IP on favorable terms for the conduct of our business, and such failure may adversely impact our results of operations. Such cross-license agreements expire from time to time and there is no assurance that we can or we will extend them.

We have from time to time received, and may in the future receive, communications alleging possible infringement of third party patents and other IP rights. Some of those claims are made by so-called non-practicing entities against which we are unable to assert our own patent portfolio to lever licensing terms and conditions. Competitors with whom we do not have patent cross-license agreements may also develop technologies that are protected by patents and other IP rights and which may be unavailable to us or only made available on unfavorable terms and conditions. We may therefore become involved in costly litigation brought against us regarding patents and other IP rights. IP litigation may also involve our customers who in turn may seek indemnification from us should we not prevail and/or who may decide to curtail their orders for those of our products over which claims have been asserted. Such lawsuits may therefore have a material adverse effect on our business. We may be forced to stop producing substantially all or some of our products or to license the underlying technology upon economically unfavorable terms and conditions or we may be required to pay damages for the prior use of third party IP and/or face an injunction.

The outcome of IP litigation is inherently uncertain and may divert the efforts and attention of our management and other specialized technical personnel. Such litigation can result in significant costs and, if not resolved in our favor, could materially and adversely affect our business, financial condition and results of operations.

We operate in many jurisdictions with highly complex and varied tax regimes. Changes in tax rules, new or revised legislation or the outcome of tax assessments and audits could cause a material adverse effect on our results.

We operate in many jurisdictions with highly complex and varied tax regimes. Changes in tax rules, new or revised legislation or the outcome of tax assessments and audits could have a material adverse effect on our results. Our tax rate is variable and depends on changes in the level of operating results within various local jurisdictions and on changes in the applicable taxation rates of these jurisdictions, as well as changes in estimated tax provisions due to new events. We currently receive certain tax benefits or benefit from net operating losses cumulated in prior years in some countries, and these benefits may not be available in the future due to changes in the local jurisdictions or credits on net operating losses being no longer available due to either full utilization or expiration of the statute of limitations in such jurisdictions. As a result, our effective tax rate could increase and/or our benefits from carrying forward net operating losses could affect our deferred tax assets in certain countries in the coming years. In addition, the acquisition or divestiture of businesses in certain jurisdictions could materially affect our effective tax rate.

We evaluate our deferred tax asset position and the need for a valuation allowance on a regular basis. The ultimate realization of deferred tax assets is dependent upon, among other things, our ability to generate future taxable income that is sufficient to utilize in certain jurisdictions loss carry-forwards or tax credits before their expiration or our ability to implement prudent and feasible tax optimization strategies. The recorded amount of total deferred tax assets could be reduced, which could have a material adverse effect on our results of operations and financial position, if our estimates of projected future taxable income and benefits from available tax strategies are reduced as a result of a change in business condition or in management's plans or due to other factors, such as changes in tax laws and regulations.

We are subject to the possibility of loss contingencies arising out of tax claims, assessment of uncertain tax positions and provisions for specifically identified income tax exposures. We are also subject to tax audits in certain jurisdictions. There can be no assurance that we will be successful in resolving potential tax claims that result from these audits, which could result in material adjustments in our tax positions. We record provisions on the basis of the best current understanding; however, we could be required to record additional provisions in future periods for amounts that cannot currently be assessed. Our failure to do so and/or the need to increase our provisions for such claims could have a material adverse effect on our results of operations and our financial position.

Our operating results can also vary significantly due to impairment of goodwill and other intangible assets incurred in the course of acquisitions and equity investments, as well as to impairment of tangible assets due to changes in the business environment.

Our operating results can vary significantly due to impairment of goodwill, other intangible assets and equity investments booked pursuant to acquisitions, joint venture agreements and the purchase of technologies and licenses from third parties, as well as to impairment of tangible assets due to changes in the business environment. Because the market for our products is characterized by rapidly changing technologies, significant changes in the semiconductor industry, and the potential failure of our business initiatives, our future cash flows may not support the value of goodwill, tangible assets and other intangibles registered in our Consolidated Balance Sheets.

We receive public funding, and a reduction in the amount available to us or demands for repayment could increase our costs and impact our results of operations.

To support our proprietary R&D for technology investments and investments in cooperative R&D ventures, we have in the past obtained public funding and expect to obtain public funding in the future, mainly from French, Italian and EU governmental entities. The public funding we receive is subject to periodic review by the relevant authorities and there can be no assurance that we will continue to benefit from such programs at current levels or that sufficient alternative funding will be available if we lose such support. If any of the public funding programs we participate in are curtailed or discontinued and we do not reduce the relevant R&D costs, this could have a material adverse effect on our business. Furthermore, to receive public funding, we enter into agreements which require compliance with extensive regulatory requirements and set forth certain conditions relating to the funded programs. If we fail to meet the regulatory requirements or applicable conditions, we may, under certain circumstances, be required to refund previously received amounts, which could have a material adverse effect on our results of operations. If there are changes in the public funding we receive this could increase the net costs for us to continue investing in R&D at current levels and could result in a material adverse effect on our results of operations.

Some of our production processes and materials are environmentally sensitive, which could expose us to liability and increase our costs due to environmental, health and safety laws and regulations or because of damage to the environment.

We are subject to environmental, health and safety laws and regulations that govern various aspects, including the use, storage, discharge and disposal of chemicals, gases and other hazardous substances used in our operations. Compliance with such laws and regulations could adversely affect our manufacturing costs or product sales by requiring us to acquire costly equipment, materials or greenhouse gas allowances, or to incur other significant expenses in adapting our manufacturing processes or waste and emission disposal processes. Furthermore, environmental claims or our failure to comply with present or future regulations could result in the assessment of damages or imposition of fines against us, suspension of production or a cessation of operations. Failure by us to control the use of, or adequately restrict the discharge of, chemicals or hazardous substances could subject us to future liabilities.

Climate change and related sustainability initiatives could place additional burden on us and our operations.

As climate change issues become more pronounced, we may correspondingly face increased expectations from our stakeholders to take actions beyond existing regulatory requirements to minimize our impact on the environment and mitigate climate change related effects. To meet these additional requirements, we may need to deploy additional equipment, introduce process changes, utilize alternative suppliers and materials, and take other similar actions, some or all of which may require us to incur additional costs which could result in a material adverse effect on our results of operations and our financial position. In addition, if we fail to meet these expectations, or foster additional sustainability initiatives, we may experience reputational risk which could impact our ability to attract and retain customers, employees, and investors.

Loss of key employees and the inability to continuously recruit and retain qualified employees could hurt our competitive position.

Our success depends to a significant extent upon our key executives and R&D, engineering, marketing, sales, manufacturing, support and other personnel. Our success also depends upon our ability to continue to identify, attract, retain and motivate highly trained and skilled engineering, technical and professional personnel in a competitive recruitment environment. For instance, in highly specialized areas, it may become more difficult to retain employees. We intend to continue to devote significant resources to recruit, train and retain qualified employees, however, we may not be able to attract, obtain and retain these employees, which may affect our growth in future years and the loss of the services of any of these key personnel without adequate replacement or the inability to attract new qualified personnel could have a material adverse effect on us.

The interests of our controlling shareholder, which is in turn indirectly controlled by the French and Italian governments, may conflict with other investors' interests. In addition, our controlling shareholder may sell our existing common shares or issue financial instruments exchangeable into our common shares at any time.

We have been informed that as of December 31, 2019, STMicroelectronics Holding N.V. ("ST Holding"), owned 250,704,754 shares, or approximately 27.5%, of our issued common shares. ST Holding may therefore be in a position to effectively control the outcome of decisions submitted to the vote at our shareholders' meetings, including but not limited to the appointment of the members of our Managing and Supervisory Boards.

We have been informed that ST Holding's shareholders, each of which is ultimately controlled by the French or Italian government, are party to a shareholders agreement (the "STH Shareholders Agreement"), which governs relations between them. We are not a party to the STH Shareholders Agreement. The STH Shareholders Agreement includes provisions requiring the unanimous approval by the shareholders of ST Holding before ST Holding can vote its shares in our share capital, which may give rise to a conflict of interest between our interests and investors' interests, on the one hand, and the (political) interests of ST Holding's shareholders, on the other hand. Our ability to issue new shares or other securities giving access to our shares may be limited by ST Holding's desire to maintain its shareholding at a certain level and our ability to buy back shares may be limited by ST Holding due to a Dutch law requiring one or more shareholders acquiring 30% or more of our voting rights to launch a tender offer for our outstanding shares.

The STH Shareholders Agreement also permits our respective French and Italian indirect shareholders to cause ST Holding to dispose of its stake in us at any time, thereby reducing the current level of their respective indirect interests in our common shares. Sales of our common shares or the issuance of financial instruments exchangeable into our common shares or any announcements concerning a potential sale by ST Holding could materially impact the market price of our common shares depending on the timing and size of such sale, market conditions as well as a variety of other factors.

Our shareholder structure and our preference shares may deter a change of control.

We have an option agreement in place with an independent foundation, whereby the foundation can acquire preference shares in the event of actions which the board of the independent foundation determines would be contrary to our interests, our shareholders and our other stakeholders and which in the event of a creeping acquisition or offer for our common shares are not supported by our Managing Board and Supervisory Board. In addition, our shareholders have authorized us to issue additional capital within the limits of the authorization by our General Meeting of Shareholders, subject to the requirements of our Articles of Association, without the need to seek a specific shareholder resolution for each capital increase. Accordingly, an issue of preference shares or new shares may make it more difficult for a shareholder to obtain control over our General Meeting of Shareholders. These anti-takeover provisions could substantially impede the ability of our shareholders to benefit from a change in control and, as a result, may materially adversely affect the market price of our ordinary shares and our investors' ability to realize any potential change of control premium.

Any decision to reduce or discontinue paying cash dividends to our shareholders could adversely impact the market price of our common shares.

On an annual basis, our Supervisory Board, upon the proposal of the Managing Board, may propose the distribution of a cash dividend to the general meeting of our shareholders. Any reduction or discontinuance by us of the payment of cash dividends at historical levels could cause the market price of our common shares to decline.

We are required to prepare financial statements under IFRS and we also prepare Consolidated Financial Statements under U.S. GAAP, and such dual reporting may impair the clarity of our financial reporting.

We use U.S. GAAP as our primary set of reporting standards. Applying U.S. GAAP in our financial reporting is designed to ensure the comparability of our results to those of our competitors, as well as the continuity of our reporting, thereby providing our stakeholders and potential investors with a clear understanding of our financial performance. As we are incorporated in The Netherlands and our shares are listed on Euronext Paris and on the Borsa Italiana, we are subject to EU regulations requiring us to also report our results of operations and financial statements using IFRS.

As a result of the obligation to report our financial statements under IFRS, we prepare our results of operations using both U.S. GAAP and IFRS, which are currently not consistent. Such dual reporting can materially increase the complexity of our financial communications. Our financial condition and results of operations reported in accordance with IFRS will differ from our financial condition and results of operations reported in accordance with U.S. GAAP, which could give rise to confusion in the marketplace.

There are inherent limitations on the effectiveness of our controls.

There can be no assurance that a system of internal control over financial reporting, including one determined to be effective, will prevent or detect all misstatements. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance regarding financial statement preparation and presentation. Projections of the results of any evaluation of the effectiveness of internal control over financial reporting into future periods are subject to inherent risk. The relevant controls may become inadequate due to changes in circumstances or the degree of compliance with the underlying policies or procedures may deteriorate.

Because we are subject to the corporate law of The Netherlands, U.S. investors might have more difficulty protecting their interests in a court of law or otherwise than if we were a U.S. company.

Our corporate affairs are governed by our Articles of Association and by the laws governing corporations incorporated in The Netherlands. The rights of our investors and the responsibilities of members of our Managing and Supervisory Boards under Dutch law are different than under the rules of some U.S. jurisdictions. Therefore, U.S. investors may have more difficulty in protecting their interests in the face of actions by our management, members of our Managing and Supervisory Boards or our controlling shareholders than U.S. investors would have if we were incorporated in the United States.

Our executive offices and a substantial portion of our assets are located outside the United States. In addition, ST Holding and most members of our Managing and Supervisory Boards are residents of jurisdictions other than the United States. As a result, it may be difficult or impossible for shareholders to effect service within the United States upon us, ST Holding, or members of our Managing or Supervisory Boards. It may also be difficult or impossible for shareholders to enforce outside the United States judgments obtained against such persons in U.S. courts, or to enforce in U.S. courts judgments obtained against such persons in courts in jurisdictions outside the United States. This could be true in any legal action, including actions predicated upon the civil liability provisions of U.S. securities laws. In addition, it may be difficult or impossible for shareholders to enforce, in original actions brought in courts in jurisdictions located outside the United States, rights predicated upon U.S. securities laws.

We have been advised by Dutch counsel that the United States and The Netherlands do not currently have a treaty providing for reciprocal recognition and enforcement of judgments (other than arbitration awards) in civil and commercial matters. With respect to choice of court agreements in civil or commercial matters, it is noted that the Hague Convention on Choice of Court Agreements entered into force in the Netherlands, but has not entered into force in the United States. As a consequence, a final judgment for the payment of money rendered by any federal or state court in the United States based on civil liability, whether or not predicated solely upon the federal securities laws of the United States, will not be enforceable in The Netherlands. However, if the party in whose favor such final judgment is rendered brings a new suit in a competent court in The Netherlands, such party may submit to The Netherlands court the final judgment that has been rendered in the United States. If The Netherlands court finds that the jurisdiction of the federal or state court in the United States has been based on grounds that are internationally acceptable and that proper legal procedures that are in accordance with the Dutch standards of proper administration of justice including sufficient safeguards (*behoorlijke rechtspleging*) have been observed, the court in The Netherlands would, under current practice, in principle give binding effect to the final judgment that has been rendered in the United States unless such judgment contradicts The Netherlands' public policy and provided that the judgment by the foreign court is not incompatible with a decision rendered between the same parties by a Dutch court, or with a previous decision rendered between the same parties by a foreign court in a dispute that concerns the same subject and is based on the same cause, provided that the previous decision qualifies for acknowledgment in the Netherlands. Even if such a foreign judgment is given binding effect, a claim based thereon may, however, still be rejected if the foreign judgment is not or no longer formally enforceable.

3.3.1.3. Risk appetite strategy

Risk management activities conducted as part of the ERM process are governed by our risk appetite, which has been discussed at the Supervisory Board and Audit Committee levels.

Our risk appetite strategy depends on the nature of risks. We determine, on a regular basis, the amount of risk we are willing to pursue or retain, depending on associated expected rewards, opportunities, and cost of risk optimization.

As an illustration, we strive to eliminate or mitigate to the lowest possible level through well-designed and effective internal controls risks pertaining to the following categories:

- Environment, Health & Safety,
- Product quality,
- Ethics, regulatory and compliance,

3.3.1.4. Illustrative risk management measures

Environment, Health & Safety

We listen to customers, investors, partners, employees and management's feedback before identifying, prioritizing and managing our Environmental, Health and Safety (EHS) risks. Based on feedback from all stakeholders, we maintain a regular materiality exercise on all related topics, and update our sustainability strategy accordingly. For each sustainability domain, we define precise ambitions and long-term goals, and deploy the relevant programs to manage the related risks.

We have a Company sustainability council that reviews the progress of these programs and related KPIs together with our stakeholders' continuous feedback. EHS risks are reviewed annually through our Enterprise Risk Management and business continuity processes. All our plants run their own EHS specific risk analyses and follow-up both on Company and local programs.

Our aim is to prevent employee and environmental risks, including chemicals, fire, ergonomics, mechanical, handling, radiation, movements and work at height, nanomaterials, wastes, water or air emission. We take a precautionary approach when assessing new processes, chemicals and products, as set out in Principle 15 of the Rio Declaration.

We constantly review our policies and rules, deploy certified management systems such as OHSAS18001 and ISO140001, reinforce our culture, strengthen job hazard analysis and training plans, deploy industry standards such as RBA, and audit all of our sites. Our EHS performance and management systems are regularly evaluated and certified through internal and third-party audits. Moreover, to limit any risks related to our license to operate, we have a three-year program to conduct third-party EHS legal compliance audits. This program covers all our manufacturing sites, all our warehouses and all our sites with more than 150 employees.

We promote and recognize shared vigilance and drive continuous improvements in behaviors. Everywhere we practice early detection of hazards, unsafe acts and conditions. We systematically implement adequate actions to address weak points and avoid recurrence of near misses. We share all data transparently and adapt our prevention and practices to the highest standards.

Product quality

Quality is a key priority in ST and our vision is to elevate ST to the highest level of quality as an asset for our customers. We can achieve a high level of quality because our employees and management are committed to quality, focused on customer's targets, and improvement programs are effective.

Product Quality & Reliability (PQR) is organized at a Company- level, and embedded in all our organizations. The PQR leadership team brings together quality directors from across our entire business operations: front-end and back-end manufacturing, product groups, sales regions and corporate organizations to deploy our quality strategy and quality programs throughout the Company.

ST is continuously adapting to have the necessary infrastructure and organization to ensure ST products meet the highest quality and reliability requirements of customers in the markets we address.

Our quality governance is based on our Quality Management System (QMS), as documented in our Quality Manual. Our manual details how we implement processes to guarantee that our products and processes meet the highest customer and standards requirements.

We adhere to internationally recognized quality management standards. We received our first company-wide ISOTS16949 certification in 2003 and this certification was renewed every three years since that time. Since 2018, we are certified IATF 16949:2016 and ISO 9001:2015 demonstrating our robust quality governance, effective QMS and quality compliance across the Company.

Ethics, regulatory and compliance

We believe that conducting our business with the highest standard of integrity is essential to our long term success, and that compliance and ethics is everyone's job and responsibility.

Our Code of Conduct is all about our values and the principles contained therein, which are shared throughout the Company, are the top level reference for guiding our behavior, decision making and activities.

- **Integrity:** we conduct our business with the highest ethical standards, honor our commitments, deliver on our promises, are loyal and fair, and stand up for what is right.
- **People:** we behave with openness, trust and simplicity; we are ready to share our knowledge, encourage everyone's contribution, develop our people through empowerment, teamwork and training; each one of us is committed and personally involved in the continuous improvement process.

- **Excellence:** we strive for quality and customer satisfaction and create value for all our partners; we are flexible, encourage innovation, develop our competences, seek responsibility and are accountable for our actions; we act with discipline, base our decisions on facts, and focus on the priorities.

In 2019, we continued to push forward and refreshed our Compliance & Ethics awareness and communication campaign (branded “Building Trust Together”), focusing on the importance of integrity and ethical conduct. This initiative establishes clear expectations throughout the Company and invites all employees to speak up without fear of retaliation.

We use a variety of tools to engage with employees, managers and third parties, such as: face-to-face and town-hall meetings, e-learning modules, dedicated intranet webpage, articles, posters, targeted emails and short videos (available in 10 languages). We have also developed a dedicated mobile application, our “ST Integrity App”, which we use to provide our employees with quick and easy access to important and useful information, push notifications, fun quizzes, training materials, and a link to our misconduct reporting hotline and other useful contact information.

We have a zero-tolerance approach to bribery and corruption, regardless of the identity or position of the originator or recipient of any bribe. It is also strictly forbidden for anybody to use Company funds or assets to make a political contribution.

Our Code of Conduct and Anti-Bribery and Corruption policy, which are also available in the corporate governance section of our website at <http://investors.st.com>, provide clear definitions regarding instances of bribery and corruption, and include detailed descriptions of the Company’s rules for engaging with third-parties. They also explain how to report actual or suspected violations and outline the potential disciplinary actions and legal consequences of any non-compliance.

We encourage everyone, including external business partners, to express, in good faith, any concerns they might have regarding possible violations of our Code of Conduct, the Company’s policies, or the law. Managers are accountable for maintaining a working atmosphere where employees are comfortable about speaking up and expressing their concerns freely.

Our misconduct reporting process is communicated to all employees through, *inter alia*, our Code of Conduct, dedicated intranet web page and our ST Integrity App. In addition to Company reporting channels, we have an independent multilingual misconduct reporting hotline.

The Company applies a high standard of confidentiality when handling reports of misconduct (received either through management or through the hotline) to ensure that no employee who reports a concern in good faith suffers retaliation in the form of harassment, adverse employment or career consequences.

3.3.1.5. Risks having had a significant impact during 2019

In 2019, no single risk event had a negative material impact on the Company’s financial results.

3.3.2. Internal Control

Our Managing Board is responsible for ensuring that we comply with all applicable legislation and regulations. As such, under the guidance of our CFO, we have established and implemented internal financial risk management and control systems. These controls and procedures are based on identified risk factors that could potentially influence our operations and financial objectives and contain a system of monitoring, reporting and operational reviews.

We regularly evaluate the effectiveness of our internal controls and procedures and correspondingly advise our Audit Committee on the results of such evaluations, any changes to such internal controls and procedures, as well as any significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting, which are reasonably likely to affect our ability to record, process or summarize and report financial information to our auditors and to our Audit Committee. Likewise, any fraud, whether or not material, that involves management, or other employees who have a significant role in our internal control over financial reporting, are disclosed to our external auditors and to our Audit Committee and approved by our Supervisory Board.

We have established policies and procedures which set forth principles, business rules of behavior and conduct which are considered to be consistent with proper business management, in line with our mission and strategic objectives.

We have adopted policies and procedures to describe the operational flow of actions to perform a task or activity, or to implement a policy within a given functional field. We have over two hundred standard operating procedures which cover a wide range of activities such as approvals, authorizations, verifications, reconciliations, review of operating performance, security of assets and segregation of duties, which are deployed throughout the Company.

Our Corporate Audit organization is strictly independent of corporate and local management. Its primary objective is to enhance and protect organizational value by providing risk-based and objective assurance, advice, and insights.

The internal audit plan is developed by our Corporate Audit organization and applies a risk-based approach. It is reviewed annually by our Audit Committee and approved by our Supervisory Board. Each year, the internal audit plan includes audit assignments covering a variety of organizational units, processes and risks.

Our Corporate Audit organization performs its activities in accordance with the International Standards for the Professional Practice of Internal Auditing, published by the Institute of Internal Auditors.

Based on the outcome of the aforementioned measures, the Managing Board states that to the best of its knowledge: (i) the internal risk management and control systems in place provide a reasonable assurance that STMicroelectronics' financial reporting does not include any errors of material importance as of and for the 2019 financial year; (ii) in relation to STMicroelectronics' financial reporting these systems operated effectively during 2019; (iii) it is justified that the financial reporting is prepared on a going concern basis; and (iv) the report states those material risks and uncertainties that are relevant to the expectation of the Company's continuity for the period of twelve months after the preparation of the report.

Our internal risk management and control systems, including the structure and operation thereof, were discussed and evaluated on several occasions with our Audit Committee, and also discussed by our Supervisory Board, during 2019 (in accordance with best practice provision 1.4.1 of the 2016 Dutch Corporate Governance Code).

4. Report of the Supervisory Board

The supervision of the policies and actions of our Managing Board is entrusted to our Supervisory Board, which, in a two-tier corporate structure under Dutch law, is a separate body and fully independent from our Managing Board. In fulfilling their duties under Dutch law, our Supervisory Board members serve the best interests of ST and its business, taking into consideration the interests of all ST shareholders and other stakeholders.

Our Supervisory Board supervises and advises our Managing Board in performing its management tasks and setting the direction of our affairs and business. Among other matters our Supervisory Board supervises the structure and management of systems of internal business controls, risk management, strategy and the financial reporting process. In addition, it determines the remuneration of the sole member of the Managing Board within the remuneration policy adopted by the General Meeting of Shareholders.

The members of our Supervisory Board are carefully selected based on their combined experience, expertise, knowledge, as well as the business in which we operate. Our Supervisory Board is empowered to recommend to the General Meeting of Shareholders people to be appointed as members of our Supervisory Board and our Managing Board.

In performing its duties, our Supervisory Board is advised and assisted by the following committees: the Strategic Committee, the Audit Committee, the Compensation Committee and the Nominating and Corporate Governance Committee. The committees all report to our Supervisory Board. Only members of the Supervisory Board can be committee members.

Our Supervisory Board has determined, based on the evaluation of an ad-hoc committee, the following independence criteria for its members: Supervisory Board members must not have any material relationship with STMicroelectronics N.V., or any of its consolidated subsidiaries, or its management. A “material relationship” can include commercial, industrial, banking, consulting, legal, accounting, charitable and familial relationships, among others, but does not include a relationship with direct or indirect shareholders. As a result, we have deviated from the independence criteria as included in best practice provision 2.1.8 of the 2016 Dutch Corporate Governance Code, specifically item vii. of such best practice provision, which states that a supervisory board member is not independent if he/she (or his/her registered partner or other life companion, foster child or relative by blood or marriage up to the second degree as defined under Dutch law) is a member of the management board — or is a representative in some other way — of a legal entity which holds at least 10% of our shares, unless such entity is a member of our Group. We do however comply with corporate governance listing standards of the NYSE.

Our Supervisory Board also adopted specific bars to independence. On that basis, our Supervisory Board concluded that all members qualify as independent based on the criteria set forth above.

The Supervisory Board is pleased to report on its Committees and its various activities in 2019.

4.1. Composition of the Supervisory Board

Our Supervisory Board advises our Managing Board and is responsible for supervising the policies pursued by our Managing Board, the manner in which the Managing Board implements the long-term value creation strategy and the general course of our affairs and business. Our Supervisory Board consists of such number of members as is resolved by our AGM upon a non-binding proposal of our Supervisory Board, with a minimum of six members. Decisions by our AGM concerning the number and the identity of our Supervisory Board members are taken by a simple majority of the votes cast at a meeting, provided quorum conditions are met.

Our Supervisory Board was composed of the following nine members as of December 31, 2019:

Name	Position	Year First Appointed	Term Expires	Nationality	Gender	Age
Nicolas Dufourcq	Chairman	2015	2021	French	Male	56
Maurizio Tamagnini	Vice Chairman	2014	2020	Italian	Male	54
Janet Davidson	Member	2013	2022	American	Female	63
Heleen Kersten	Member	2014	2020	Dutch	Female	54
Jean-Georges Malcor	Member	2011	2020	French	Male	63
Lucia Morselli	Member	2019	2022	Italian	Female	63
Alessandro Rivera	Member	2011	2020	Italian	Male	49
Frédéric Sanchez	Member	2017	2020	French	Male	59
Martine Verluyten	Member	2012	2020	Belgian	Female	68

Resolutions of our Supervisory Board require the approval of at least three-quarters of its members in office. Our Supervisory Board must meet upon request by two or more of its members or by our Managing Board. Our Supervisory Board meets at least five times a year, including once per quarter to approve our quarterly, semi-annual and annual accounts and their release. In 2019, the average attendance rate for the meetings of our Supervisory Board was 91%. Our Supervisory Board has adopted a Supervisory Board Charter, which is available on our website (www.st.com).

Our Supervisory Board may make a proposal to our AGM for the suspension or dismissal of one or more of its members. Each member of our Supervisory Board must resign no later than three years after appointment, as described in our Articles of Association, but may be reappointed following the expiration of his/her term of office. Pursuant to Dutch law, there is no mandatory retirement age for members of our Supervisory Board. Members of the Supervisory Board may be suspended or dismissed by our AGM. Certain of our Supervisory Board members are proposed by and may retain certain relationships with our direct or indirect shareholders represented through our major shareholder.

Biographies

Nicolas Dufourcq has been a member of our Supervisory Board since May 2015 and its Chairman since June 2017. He serves on our Supervisory Board's Nominating and Corporate Governance Committee and chairs its Compensation Committee and Strategic Committee. Mr. Dufourcq is a graduate of HEC (*Hautes Etudes Commerciales*) and ENA (*Ecole Nationale d'Administration*). He began his career at the French Ministry of Finance and Economics before joining the Ministry of Health and Social affairs in 1992. In 1994, he joined France Telecom, where he created the Multimedia division, before going on to chair Wanadoo, the firm's listed Internet and Yellow Pages subsidiary. After joining the Capgemini Group in 2003, he was made responsible for the Central and Southern Europe region, successfully leading their financial turnaround. He was appointed Chief Financial Officer of the Group and member of the Executive Committee in September 2004. In 2005, he was named deputy Chief Executive Officer in charge of finance, risk management, IT, delivery, purchases and LEAN program and, in 2007, also in charge of the follow-up of the group's major contracts. On February 7, 2013, Mr. Dufourcq was appointed Chief Executive Officer of Bpifrance (*Banque Publique d'Investissement*), which is indirectly controlled by the French Government and is one of the indirect shareholders of ST Holding. Mr. Dufourcq is also a member of the strategic advisory board of Euler Hermes Group and the board of directors of Orange Group.

Maurizio Tamagnini has been a member of our Supervisory Board since June 2014 and has been its Vice Chairman since June 2017. He was the Supervisory Board's Chairman from 2014 until June 2017. Mr. Tamagnini serves on our Supervisory Board's Nominating and Corporate Governance Committee, Compensation Committee and Strategic Committee. Mr. Tamagnini is currently Chief Executive Officer of FSI Sgr Spa, an asset management company participated, with a significant stake, among others, by Cassa depositi e prestiti Spa (CDP), which is 82.7% controlled by the Italian Government. FSI Sgr Spa manages "FSI I", a private equity closed-end fund with approximately €1.4 billion capital endowment, specialized on growth equity investments in Italian midmarket companies with development potential. Until April 2019, he was non-executive Chairman of FSI Investimenti Spa, which is controlled 77% by CDP. Until March 2016, Mr. Tamagnini was Chief Executive Officer and Chairman of the Investment Committee of Fondo Strategico Italiano Spa (now CDP Equity Spa), an investment company controlled by CDP. Until 21 April 2016, he was Chairman of the Joint Venture between CDP Equity and Qatar Holding (IQ Made in Italy Investment Company Spa) with capital endowment of up to €2 billion in total for investments in the food, brands, furniture & design and tourism sectors. He was previously Southern European Manager of the Corporate & Investments Banking division of Bank of America Merrill Lynch and a member of the Executive Committee of Bank of America Merrill Lynch for the EMEA region. Mr. Tamagnini has gained over 25 years of experience in the financial sector specializing in the areas of Corporate Finance, Private Equity, Debt and Equity. Mr. Tamagnini is also a member of the International Advisory Board of BIDMC Harvard Medical School. He holds a degree in International Monetary Economics from Bocconi University in Milan and has also studied at the Rensselaer Polytechnic Institute — Troy in New York, USA.

Janet Davidson has been a member of our Supervisory Board since June 2013. She serves on our Supervisory Board's Audit Committee and Strategic Committee. She began her career in 1979 as a member of the Technical Staff of Bell Laboratories, Lucent Technologies (as of 2006 Alcatel Lucent), and served from 1979 through 2011 in several key positions, most recently as Chief Strategy Officer (2005 – 2006), Chief Compliance Officer (2006 – 2008) and EVP Quality & Customer Care (2008 – 2011). From 2005 through 2012, Ms. Davidson was a member of the Lehigh University Board of Trustees. In 2007 she served on the Riverside Symphonia Board of Trustees and in 2005 and 2006, Ms. Davidson was a member of the Liberty Science Center Board of Trustees. Ms. Davidson was a member of the board of the Alcatel Lucent Foundation from 2011 until 2014. Ms. Davidson is also a member of the board of directors of Millicom, since April 2016, and The AES Corporation, since February 2019. Ms. Davidson is a graduate of the Georgia Institute of Technology (Georgia Tech), Atlanta, GA, USA, and Lehigh University, Bethlehem, PA, USA and holds a Master's degree in Electrical Engineering.

Heleen Kersten has been a member of our Supervisory Board since June 2014. She serves on our Supervisory Board's Audit Committee and Compensation Committee and chairs its Nominating and Corporate Governance Committee. Ms. Kersten is a partner at Stibbe in Amsterdam, where she held the position of managing partner from 2008 to 2013. Stibbe is a Benelux law firm with offices in Amsterdam, Brussels, Luxembourg, London, New York and Dubai. She began her career in 1989 with Stibbe before joining Davis Polk in New York and London (1992-1993). After her return to Stibbe Amsterdam, she rose through the ranks to become a partner in 1997. As a member of the Bar of Amsterdam since 1989, Ms. Kersten specializes in mergers and acquisitions, equity capital markets, corporate law and corporate governance. Ms. Kersten was a supervisory board member of the Dutch listed bank Van Lanschot N.V. until May 2015 and the Chairman of the supervisory board of Egeria Investment B.V. until April 2016. She is currently Chairman of the board of the Dutch Red Cross (*Vereniging Het Nederlandse Rode Kruis*), since January 2020, and a supervisory board member of the Rijksmuseum (Stichting Het Rijksmuseum), since 2015. She is also a board member of the Foundation Donors of the Royal Concertgebouw Orchestra (Stichting *Donateurs Koninklijk Concertgebouw*), since 2010. Ms. Kersten holds master's degrees in Dutch law and tax law, both from Leiden University in the Netherlands.

Jean-Georges Malcor has been a member of our Supervisory Board since May 2011. He serves on our Supervisory Board's Audit Committee. Until his retirement on October 1, 2018, Mr. Malcor was the Chief Executive Officer of CGG. He is a graduate of Ecole Centrale de Paris. He also holds a Master of Sciences degree from Stanford University, and a Doctorat from Ecole des Mines. Mr. Malcor began his career at the Thales group as an acoustic engineer in the Underwater Activities division where he was particularly in charge of hydrophone and geophone design and towed streamer programs. He then moved to the Sydney based Thomson Sintra Pacific Australia, becoming Managing Director of the company in 1990. Back in France, he became Director of Marketing and Communications (1991), then Director, Foreign Operations of Thomson Sintra Activités Sous Marines (1993). In 1996, he was appointed Managing Director of Thomson Marconi Sonar Australia which was, in addition to its military activities, the lead developing company for the solid geophysical streamer. In 1999, Mr. Malcor became the first Managing Director of the newly formed joint venture Australian Defense Industry. During this time he operated the Sydney based Woolloomooloo Shipyard (the largest dry dock in the southern hemisphere). In 2002, he became Senior Vice President, International Operations of Thales International. From 2004 to 2009, he was Senior Vice President in charge of the Naval Division, supervising all naval activities in Thales including ship design, building and maintenance. In January 2009, he became Senior Vice President, in charge of the Aerospace Division. In June 2009, he moved to the position of Senior Vice President, Continental Europe, Turkey, Russia, Asia, Africa, Middle East, and Latin America. Mr. Malcor joined CGG in January 2010 as President and became CEO in June 2010 until his retirement in October 2018. Since June 2013, Mr. Malcor has been a member of the Supervisory Board of the Fives Group. He is also a member of the board of directors and the audit committee of Atlas Arteria (since November 2018), a member of the board of directors of Ortec Expansion (since April 2018) and chairman of Cubik Partners (since July 2019).

Lucia Morselli has been a member of our Supervisory Board since 2019. She serves on our Supervisory Board's Audit Committee and Compensation Committee. Ms. Morselli is a member of the board of directors and President of the Related Party Committee and member of the Audit Committee of Telecom Italia. She is a member of the board of directors of EssilorLuxottica (Paris), of Sisal S.p.A., and member of the advisory board of Veneranda Fabbrica del Duomo di Milano. She is also in charge of the degree course in Economics of the Link Campus University (Rome). Ms. Morselli graduated with the highest grades in Mathematics at the University of Pisa. She completed a PhD in Mathematical Physics at the University of Rome and she holds two master degrees, the first one in Business Administration at the University of Turin and the second one in European Public Administration at the University of Milan. She started her career at Olivetti as an assistant to the CFO; from 1985 to 1990 she was senior manager Strategic and Manufacturing Service with Accenture; from 1990 to 1995 she was CFO of the Aircraft Division at Finmeccanica S.p.A. Subsequently she was CEO of Telepiù Group (1995-1998), of News Corporate Europe and Stream (Sky) S.p.A. (1998-2003), of Tecnosistemi S.p.A. (2004), of Mikado S.p.A. and Compagnia Finanziaria S.p.A. (2009), of Bioera S.p.A. (2010-2011), of Berco Group (2013-2014), of Acciai Speciali Terni (2014-2016) and of Acciaitalia spa (2016). She also served as chairman of the board and CEO of Magiste International SA (2006), and of Scorpio Shipping Group Ltd (2011-2013). She was a member of the board of directors of NDS (2004-2005) and IPI S.p.A. (2007-2008). In 2003 she funded the consulting firm Franco Tatò & Partner. Since 2009 she has been a member of the advisory board (restructuring fund) of DGPA & TATO' Investment Fund. In October 2019 Ms. Morselli was appointed chairman of the board of directors and CEO of ArcelorMittal Italia.

Alessandro Rivera has been a member of our Supervisory Board since May 2011. Mr. Rivera serves on our Supervisory Board's Strategic Committee and Nominating and Corporate Governance Committee. Prior to his appointment as Director General of the Treasury in August 2018, Mr. Rivera was the Head of Directorate IV "Financial Sector Policy and Regulation Legal Affairs" at the Department of the Treasury, Ministry of Economy and Finance, from 2008 to 2018. He served as Head of Unit in the Department of the Treasury from 2000 to 2008 and was responsible for a variety of policy matters: financial services and markets, banking foundations, accounting, finance, corporate governance and auditing. Since 2008, Mr. Rivera has been the Government representative in the "Consiglio Superiore" of the Bank of Italy, and in the Financial Services Committee. Since 2013 he has been a member of the board of directors and compensation committee of Cassa Depositi e Prestiti. Since 2017, he is also the chairman of SGA S.p.A. From 2011 to 2014 he was a member of the board of directors and compensation committee of Poste Italiane S.p.A. From 2008 to 2011 he was a member of the European Securities Committee. He was a member of the Accounting Regulatory Committee from 2002 to 2008 and a member of the Audit Regulatory Committee from 2005 to 2008. He served on the board of Italia Lavoro S.p.A. from 2005 to 2008 and was a member of the audit committee and the compensation committee. Mr. Rivera was also the chairman of the audit committee of the "Fondo nazionale di garanzia degli intermediari finanziari" (Italian investor compensation scheme) from 2003 to 2008. From 2001 to 2010, he was the Project Leader and Deputy Project Leader in several twinning projects with Eastern European Countries (the Russian Federation, the Czech Republic, Lithuania, and Bulgaria). He also served on the board of Mediocredito del Friuli — Venezia Giulia S.p.A from 2001 to 2003.

Frédéric Sanchez has been a member of our Supervisory Board since June 2017. He serves on our Supervisory Board's Compensation Committee, Strategic Committee and Nominating and Corporate Governance Committee. Mr. Sanchez is the chairman of the executive board of Fives, an industrial engineering group with heritage of over 200 years of engineering excellence and expertise. Fives designs and supplies machines, process equipment and production lines for the world's largest industrial groups in various sectors such as aluminum, steel, glass, automotive, logistics, aerospace, cement and energy, in both developing and developed countries. Mr. Sanchez started his career in 1985 with Renault in Mexico, then in the USA. In 1987 he became a mission manager at Ernst & Young. In 1990 he joined Fives-Lille group, in which he held various positions before being appointed chief financial officer in 1994 and becoming chief operating officer in 1997. In 2002, the "Compagnie de Fives-Lille" (renamed Fives in 2007) became a company with a management board and supervisory board chaired by Mr. Sanchez. In 2018, Fives became a French simplified joint stock company (*société par actions simplifiée*) and Mr. Sanchez its chairman and CEO. Within MEDEF (French Business Confederation), Mr. Sanchez is President of MEDEF International and President of the Council of Entrepreneurs France-Vietnam, France-Cambodia and France-Saudi Arabia and UAE. Mr. Sanchez is also a member of the Supervisory Board of Mirion, an administrator of Thea, Primagaz and Bureau Veritas and honorary co-president of the Alliance Industrie du Futur. Mr. Sanchez graduated from HEC Business School (1983) and Sciences-Po Paris (1985) and he also holds a Master Degree in Economics from Université Paris-Dauphine (1984).

Martine Verluyten has been a member of our Supervisory Board since May 2012. Ms. Verluyten serves on our Supervisory Board's Audit Committee and has been its Chair since April 2013. Until 2011, Ms. Verluyten acted as CFO of Umicore N.V. based in Brussels. Previously she was CFO of Mobistar N.V. (2001-2006), having initially joined Mobistar in 2000 as Group Controller. She had earlier worked at Raychem since 1976, holding various management positions during her 23-year tenure, from Manager European Consolidations (1976-1979), to General Accounting Manager based in the US (1979-1983). She was then promoted to Division Controller Telecom Division Europe from 1983 to 1990. In 1990, she was appointed Finance & Administration Director back in Europe, then in 1995, Europe Controller Finance & Administration Director until 1999. Ms. Verluyten was also member of the board of directors of Thomas Cook plc until January 18, 2020. She is also a member of the board of directors of and GBL (group Bruxelles Lambert). Ms. Verluyten began her career in 1973 at KPMG as an Auditor.

4.2. Meetings and activities of the Supervisory Board

Activities of the Supervisory Board

Our Supervisory Board held ten meetings in 2019, of which all were held in the presence of the sole member of the Managing Board and other select members of our Senior Management, with the exception of the evaluation of the functioning of our Managing Board, Supervisory Board, its Committees and its individual members as described below.

The items discussed in those meetings included recurring subjects such as our annual budget, financial performance, Annual Report on Form 20-F as well as its statutory annual accounts, objectives and results, strategy and long term value creation, operations review, reports of the various Committees of our Supervisory Board, the convocation of our AGM, the risks of our business and the assessment by our Managing Board of the structure of our internal risk management and control systems, as well as any significant changes thereto, corporate governance requirements and developments and the compensation of the sole member of our Managing Board. Certain Supervisory Board meetings also included presentations by senior executive management.

Outside the Supervisory Board meetings, the Chairman and other members of our Supervisory Board had regular contact with the sole member of the Managing Board, and other members of our Senior Management.

At one of our Supervisory Board meetings and in accordance with best practice provisions 2.2.6 and 2.2.7 of the 2016 Dutch Corporate Governance Code, our Supervisory Board evaluated outside the presence of the sole member of our Managing Board and other executive officers, the performance of the sole member of our Managing Board as well as of its own functioning, its members and its Committees. In doing so, the Chairman of our Supervisory Board had invited each member of our Supervisory Board to provide his/her comments on these topics to the Chairman. The Chairman then shared the main conclusions drawn from such comments with the other Supervisory Board members in the aforementioned Supervisory Board meeting. At that meeting our Supervisory Board unanimously concluded that the sole member of our Managing Board, the full Supervisory Board, its members and its Committees are functioning adequately.

Membership and Attendance

As of December 31, 2019, the composition of the four standing committees of our Supervisory Board was as follows: (i) Ms. Martine Verluyten is the Chair of the Audit Committee, and Ms. Janet Davidson, Ms. Heleen Kersten, Mr. Jean-Georges Malcor and Ms. Lucia Morselli are members of the Audit Committee; (ii) Mr. Nicolas Dufourcq is the Chairman of the Compensation Committee, and Mr. Maurizio Tamagnini, Ms. Heleen Kersten, Ms. Lucia Morselli and Mr. Frédéric Sanchez are members of the Compensation Committee; (iii) Ms. Heleen Kersten is the Chair of the Nominating and Corporate Governance Committee, and Messrs. Nicolas Dufourcq, Alessandro Rivera, Frédéric Sanchez and Maurizio Tamagnini are members of the Nominating and Corporate Governance Committee; and (iv) Mr. Nicolas Dufourcq is the Chairman of the Strategic Committee, and Ms. Janet Davidson and Messrs. Frédéric Sanchez, Maurizio Tamagnini and Alessandro Rivera are members of the Strategic Committee.

Detailed information on attendance at full Supervisory Board and Supervisory Board Committee meetings during 2019 is as follows:

Number of Meetings Attended in 2019	Supervisory Board		Audit Committee		Compensation Committee		Strategic Committee		Nominating & Corporate Governance Committee	
		% Attendance		% Attendance		% Attendance		% Attendance		% Attendance
Nicolas Dufourcq	9	90%	-	-	2	100%	3	100%	6	100%
Maurizio Tamagnini	9	90%	-	-	2	100%	3	100%	5	83%
Janet Davidson	10	100%	9	90%	-	-	3	100%	-	-
Heleen Kersten	10	100%	9	90%	2	100%	-	-	6	100%
Jean-Georges Malcor	10	100%	10	100%	-	-	-	-	-	-
Salvatore Manzi ⁽¹⁾	5	100%	-	-	-	-	-	-	-	-
Lucia Morselli ⁽²⁾	3	60%	5	100%	-	-	2	67%	-	-
Alessandro Rivera	7	70%	4	80%	2	100%	-	-	5	83%
Frédéric Sanchez	10	100%	-	-	2	100%	3	100%	6	100%
Martine Verluyten	10	100%	9	90%	-	-	-	-	-	-

(1) Mr. Manzi stepped down on May 23, 2019

(2) Ms. Morselli was appointed on May 23, 2019

4.3. Audit Committee

Our Audit Committee assists the Supervisory Board in fulfilling its oversight responsibilities relating to corporate accounting, reporting practices, and the quality and integrity of our financial reports as well as our auditing practices, legal and regulatory related risks, execution of our auditors' recommendations regarding corporate auditing rules and the independence of our external auditors.

Our Audit Committee met ten times during 2019. At many of the Audit Committee's meetings, the committee received presentations on current financial and accounting issues and had the opportunity to discuss with our CEO, CFO, Chief Accountant, Chief Audit and Risk Executive, Legal Counsel, Chief Compliance Officer and external auditors. Our Audit Committee also discussed with outside U.S. legal counsel corporate requirements pursuant to NYSE's corporate governance rules and the Sarbanes Oxley Act. Our Audit Committee also proceeded with its annual review of our internal audit function. Our Audit Committee reviewed our annual Consolidated Financial Statements in U.S. GAAP for the year ended December 31, 2019, and the results press release was published on January 23, 2020. Furthermore our Audit Committee also reviewed our annual Consolidated Financial Statements in IFRS, as adopted by the European Union, for the year ended December 31, 2019.

Our Audit Committee approved the compensation of our external auditors for 2019 and discussed the scope of their audit, audit related and non-audit related services for 2019.

Also in 2019, our Audit Committee reviewed with our external auditors our compliance with Section 404 of the Sarbanes-Oxley Act. In addition, our Audit Committee regularly reviewed management's conclusions as to the effectiveness of internal control over financial reporting, supervised the implementation of our corporate ERM process, and reviewed our Compliance & Ethics program.

As part of each of its quarterly meetings, our Audit Committee also reviewed our financial results as presented by Management/ and whistleblowing reports, including independent investigative reports provided by internal audit or outside consultants on such matters.

4.4. Compensation Committee

Our Compensation Committee advises our Supervisory Board in relation to the compensation of our President and Chief Executive Officer and sole member of our Managing Board, including the variable portion of such compensation based on performance criteria recommended by our Compensation Committee. Our Compensation Committee also reviews the stock based compensation plans for our senior managers and key employees. Our Compensation Committee met twice in 2019.

Among its main activities, in 2019 our Compensation Committee: (i) reviewed the objectives met as compared to the performance criteria relating to the bonus of our President and CEO, Mr. Jean-Marc Chery, for the fiscal year ended on December 31, 2018; (ii) defined the performance targets relating to the bonus of our President and CEO for the fiscal year ending on December 31, 2019 (which targets are based on, *inter alia*, revenues growth, certain specific financial targets, the share price evolution versus PHLX Semiconductor Sector IndexSM (SOXSM) and a list of three special programs); and (iii) established, on behalf and with the approval of the entire Supervisory Board, the applicable performance criteria, which must be met by senior managers and selected key employees participating in the employee stock award plans to benefit from such awards. For the 2019 unvested stock awards plan, these performance criteria are based on sales evolution and operating income evolution, both as compared against a panel of ten semiconductor companies, and the return on net assets targets.

4.5. Strategic Committee

Our Strategic Committee advises the Supervisory Board on and monitor key developments within the semiconductor industry and our overall strategy, and is, in particular, involved in supervising the execution of corporate strategies and in reviewing long-term planning and budgeting. Our Strategic Committee met three times in 2019. In addition, there were strategic discussions, many of which occurred at extended Supervisory Board meetings and involved all Supervisory Board members.

4.6. Nominating and Corporate Governance Committee

Our Nominating and Corporate Governance Committee advises the Supervisory Board on the selection criteria and procedures relating to the appointment of members to our Supervisory Board and Managing Board, and the review of principles relating to corporate governance. Our Nominating and Corporate Governance Committee met six times during 2019 to discuss succession planning for our Supervisory Board and Managing Board, recent developments in Dutch and U.S. law, best practices regarding corporate governance, and the update of our corporate governance documents.

4.7. Secretariat and Controllers

Our Supervisory Board appoints a Secretary and Vice Secretary. Furthermore, the Managing Board makes an Executive Secretary available to our Supervisory Board, who is also appointed by the Supervisory Board. The Secretary, Vice Secretary and Executive Secretary constitute the Secretariat of the Supervisory Board. The mission of the Secretariat is primarily to organize meetings, to ensure the continuing education and training of our Supervisory Board members and to maintain record keeping. Ms. Charlotte Fadlallah serves as Secretary and Mr. Gabriele Pagnotta serves as Vice Secretary. Ms. Fadlallah and Mr. Pagnotta serve as a Managing Director of ST Holding. Our Chief Compliance Officer, Philippe Dereeper, serves as Executive Secretary for our Supervisory Board, and for each of the four standing committees of our Supervisory Board.

Our Supervisory Board also appoints two financial experts (“Controllers”). The mission of the Controllers is primarily to assist our Supervisory Board in evaluating our operational and financial performance, business plan, strategic initiatives and the implementation of Supervisory Board decisions, as well as to review the operational reports provided under the responsibility of the Managing Board. The Controllers generally meet once a month with the management of the Company and report to our full Supervisory Board. The current Controllers are Messrs. Samuel Dalens and Giorgio Ambrosini. The STH Shareholders Agreement between our principal indirect shareholders contains provisions with respect to the appointment of the Secretary, Vice Secretary and Controllers.

4.8. Remuneration report

On December 1, 2019, a Dutch act implementing the revised EU Shareholders’ Rights Directive (2017/828/EU (“SRDII”) took effect in The Netherlands. As we are incorporated under the laws of The Netherlands and our common shares are admitted to trading on regulated markets in the European Union, we are required, inter alia, to update the remuneration policy with respect to the compensation of the Supervisory Board members and the sole member of our Managing Board, President and Chief Executive Officer and to comply with the respective disclosure requirements introduced to the Dutch Civil Code. In connection therewith, we present in this section certain comparative information on our performance relative to the compensation of the Supervisory Board members and the sole member of our Managing Board, President and Chief Executive Officer. In addition, we provide information on the ratio of fixed to variable compensation of the sole member of our Managing Board, President and Chief Executive Officer.

4.8.1. Supervisory board remuneration

Our Articles of Association provide that the compensation of our Supervisory Board members is determined by our General Meeting of Shareholders. Currently, we have no remuneration policy in place in relation to the Supervisory Board members. In 2020, we expect to submit to the AGM a proposal for adoption of a remuneration policy for the Supervisory Board members to ensure compliance with the new requirements under the Dutch Civil Code following the implementation of SRDII.

The Supervisory Board Members are only awarded a fixed remuneration (including an attendance fee), promoting effective and independent supervision in the interest of the Company and the long-term success of the Company. The aggregate compensation for current and former members of our Supervisory Board with respect to service in 2019 was €937,000 before any applicable withholding taxes, as set forth in the following table:

Supervisory Board Members Fees ⁽¹⁾		In Euros
Nicolas Dufourcq	€	0 ⁽²⁾
Maurizio Tamagnini	€	166,000
Janet Davidson	€	106,000
Heleen Kersten	€	117,000
Jean-Georges Malcor	€	99,500
Lucia Morselli	€	92,500
Alessandro Rivera	€	92,000
Frédéric Sanchez	€	108,000
Martine Verluyten	€	151,500
Salvatore Manzi ⁽³⁾	€	4,500
Total	€	937,000

(1) These amounts include a fixed annual compensation for the directors' mandate, together with attendance fees from January 1, 2019 until December 31, 2019.

(2) Mr. Dufourcq would have been entitled to receive €167,500 in 2019, but he waived his rights to receive any compensation from the Company in relation to his mandate as a member of the Supervisory Board.

(3) Since May 23, 2019 Mr. Manzi has not been a member of the Supervisory Board.

Set forth in the following table is the annual change over the last five years of (i) the average remuneration of our Supervisory Board Members, (ii) the performance of the Company and (iii) the average remuneration of our global indirect employees (i.e., all employees other than those directly manufacturing our products), excluding the compensation of our Senior Management and Managing Board and President and Chief Executive Officer):

In US dollars	2019	2018	2017	2016	2015
Supervisory Board Members remuneration					
Average remuneration of Supervisory Board Members ⁽¹⁾	\$ 116,740 ⁽²⁾	\$ 115,618	\$ 123,281	\$ 118,073	\$ 116,727
Company performance					
Net revenues (amounts in millions)	\$ 9,556	\$ 9,664	\$ 8,347	\$ 6,973	\$ 6,897
Operating income - US GAAP (amounts in millions)	\$ 1,203	\$ 1,400	\$ 1,005	\$ 227	\$ 121
Average remuneration of all global indirect employees (FTE basis)⁽³⁾					
Average remuneration of employees	\$ 97,300	\$ 100,600	\$ 93,500	\$ 91,600	\$ 85,600

(1) Using the euro per US dollar exchange rate on December 31, 2019 of €1 = \$1.1213.

(2) Since May 23, 2019 Mr. Manzi has not been a member of the Supervisory Board and was replaced by Ms. Lucia Morselli, therefore for the calculation of the 2019 average remuneration of our Supervisory Board members nine board seats were taken into account.

(3) Global indirect employees are all employees other than those directly manufacturing our products (excluding the compensation of our Senior Management and Managing Board and President and Chief Executive Officer).

We do not have any service agreements with members of our Supervisory Board. We did not extend any loans or overdrafts to any of our Supervisory Board members. Furthermore, we have not guaranteed any debts or concluded any leases with any of our Supervisory Board members or their families. No share awards or stock options were granted to Supervisory Board Members.

For further details on the compensation of the members of our Supervisory Board we refer to Note 7.6.35 to our consolidated financial statements.

4.8.2. Senior Management remuneration

Our Senior Management, including the sole member of our Managing Board and our President and Chief Executive Officer, received a combination of short term and long-term compensation. The following table sets forth the total cash amount paid as compensation in 2019, 2018 and 2017 to the 22, 22 and 20 members, respectively, of our Senior Management (including the sole member of our Managing Board, our President and Chief Executive Officer) on duty on December 31st of each year, before applicable withholding taxes and social contributions (amounts in millions):

	2019 ⁽¹⁾	2018 ⁽³⁾	2017 ⁽³⁾
Total cash amount paid as compensation⁽²⁾	\$ 21.3	\$ 22.2	\$ 19.0

- (1) Including amounts paid in 2019 to our former President, Human Resources and Corporate Social Responsibility, Mr. Brun.
- (2) Total cash amount paid as compensation comprises fixed salary, annual cash bonus incentive and other cash benefits. In addition, non-cash amounts paid as compensation, including vested stock awards and other non-cash benefits, as well as all applicable withholding taxes, pension contributions and social contributions, were approximately \$22.3 million in 2019, \$25.3 million in 2018 and \$12.5 million in 2017. Total cash amount paid as compensation includes the fixed salary, annual cash bonus incentive and other cash benefits paid to our former President, Human Resources and Corporate Social Responsibility, Mr. Brun.
- (3) In 2019, we changed the classification of pension contributions and we determined that pension contributions are attributable to non-cash amounts paid as compensation. In addition, in 2019, we classified housing and meal allowances (as applicable) as other cash benefits. The reclassification of pension contributions and housing and meal allowances resulted in restatement of the total cash amount paid as compensation and non-cash amounts paid as compensation in 2018 and 2017.

The total remuneration of our Senior Management (including the Sole Member of our Managing Board and President and CEO) takes into consideration factors such as the size and complexity of our Company, our global presence and that of our customers, the pace of change in our industry, our strategy and goal of long-term value creation, and the need to recruit and retain key personnel.

For the year 2019, the Senior Management pay ratio is 19.9 (2018: 19.6). This ratio is based on:

(i) the average remuneration of our Senior Management, including the Sole Member of our Managing Board and President and CEO (including the compensation of Philippe Brun);

compared to

(ii) the average remuneration of our global indirect employees (i.e., all employees other than those directly manufacturing our products), excluding the compensation of our Senior Management and Managing Board and President and Chief Executive Officer.

The annual cash bonus incentive, which we call Corporate Executive Incentive Program (the "EIP"), entitles selected executives to a yearly bonus based upon the assessment of the achievement of individual, organizational and company objectives that are set on an annual basis and focused, inter alia, on return on net assets, customer service, profit, cash flow and market share. The maximum bonus awarded under the EIP is based upon a percentage of the executive's salary and the overall achievement of the above objectives on an annual basis.

The amounts paid in 2019 to our Senior Management (including the sole member of our Managing Board, our President and Chief Executive Officer) pursuant to the EIP represented approximately 41% of the total compensation paid to our Senior Management.

	Bonus paid in 2019 (2018 performance)	Bonus paid in 2018 (2017 performance)	Bonus paid in 2017 (2016 performance)
Bonus (cash) amount ⁽¹⁾	\$ 8,239,417	\$ 10,181,945	\$ 6,095,335
Ratio bonus / base salary + EIP/CEO Bonus	41.12%	48.84%	35.22%

- (1) Including amounts paid in 2019 to our former President, Human Resources and Corporate Social Responsibility, Mr. Brun.

Our Supervisory Board has approved the establishment of a complementary pension plan for certain members of our Senior Management, comprising the sole member of our Managing Board, President and Chief Executive Officer, and certain other key executives as selected by the sole member of our Managing Board, President and Chief Executive Officer, according to the general criteria of eligibility and service set up by the Supervisory Board upon the proposal of its Compensation Committee. With respect to such plan, we have set up an independent foundation under Swiss law which manages the plan and to which we make contributions. Pursuant to this plan, in 2019, we made a contribution of approximately \$0.5 million to the plan of the sole member of our Managing Board, President and Chief Executive Officer, and \$0.5 million to the plan for all other beneficiaries. The amount of pension plan payments made for other beneficiaries, such as former employees retired in 2019 and/or no longer salaried in 2019, was \$1.1 million.

We did not extend any loans or overdrafts to the sole member of our Managing Board, President and Chief Executive Officer, nor to any other member of our Senior Management. Furthermore, we have not guaranteed any debts or concluded any leases with the sole member of our Managing Board, President and Chief Executive Officer, nor with any other member of our Senior Management or their families.

The members of our Senior Management, including the sole member of our Managing Board, President and Chief Executive Officer, were covered in 2019 under certain group life and medical insurance programs provided by us. The aggregate additional amount set aside by us in 2019 to provide pension, retirement or similar benefits for our Senior Management, including the sole member of our Managing Board, President and Chief Executive Officer, as a group is including the amounts allocated to the complementary pension plan described above and is estimated to have been approximately \$5.1 million, which includes statutory employer contributions for state run retirement, similar benefit programs and other miscellaneous allowances.

For further details on the compensation of our Senior Management we also refer to Note 7.6.35 to our consolidated financial statements.

4.8.3. Managing Board remuneration

For details on the performance of ST in 2019, we refer to the Business overview in section 3.2.1.

The remuneration of the sole member of our Managing Board, President and Chief Executive Officer, is determined by our Supervisory Board on the advice of the Compensation Committee and within the scope of the remuneration policy as adopted by our 2005 AGM. In 2020, we expect to submit to the AGM a proposal for revision of the remuneration policy to align it with the new requirements under the Dutch Civil Code following the implementation of SRDII.

The objectives of our remuneration policy, are for the Managing Board to focus on improving the performance of the Company, to enhance its long-term value and to implement the long-term strategy, as well as to motivate and retain the member(s) of the Managing Board. Before setting targets for the Managing Board, the Compensation Committee carries out scenario analyses of the possible financial outcomes of meeting target levels.

The Compensation Committee took note of the view of the sole member of the Managing Board on its own remuneration.

We did not extend any loans or overdrafts to the sole member of our Managing Board, President and Chief Executive Officer.

For further details on the compensation of the sole member of our Managing Board, President and Chief Executive Officer we also refer to Note 7.6.35 to our consolidated financial statements.

The sole member of our Managing Board, President and Chief Executive Officer, received compensation in the form of: a fixed salary, annual bonus, stock awards, employer social contributions, company car allowance, pension contributions and miscellaneous allowances. To strengthen the alignment of the sole member of our Managing Board, President and Chief Executive Officer, to the interests of the shareholders and the enhance the long-term value creation of the Company, the sole member of our Managing Board, President and Chief Executive Officer is eligible to receive variable remuneration.

Set forth in the following table is the total compensation of the sole member of our Managing Board, President and Chief Executive Officer, in 2019, 2018 and 2017. The total compensation of the sole member of our Managing Board, President and Chief Executive Officer, comprises (i) with relation to 2019 (y) the total compensation of Mr. Jean-Marc Chery and (z) contractually obligated deferred compensation relating to Mr. Carlo Bozotti's departure in 2018; and (ii) with relation to 2018 (x) the total compensation of Mr. Bozotti until May 31, 2018 (excluding any accelerated compensation), (y) the total compensation of Mr. Chery from June 1, 2018 and (z) accelerated compensation relating to Carlo Bozotti's departure and (iii) with relation to 2017 the total compensation of Carlo Bozotti:

	2019	2018	2017
Base salary	\$ 896,297	\$ 927,820	\$ 903,186
Bonus⁽¹⁾	\$ 1,280,173	\$ 3,214,578	\$ 1,044,514
Charges and Non-cash Benefits⁽²⁾	\$ 5,618,382	\$ 6,971,946	\$ 1,828,814
Total	\$ 7,794,852	\$ 11,114,344	\$ 3,776,514

- (1) The bonus paid in 2019, 2018 and 2017 was approved by the Compensation Committee and Supervisory Board with respect to the 2018, 2017 and 2016 financial year, respectively, based on the evaluation and assessment of the actual fulfillment of a number of pre-defined objectives for such year.
- (2) Including stock awards, employer social contributions, company car allowance, pension contributions, complementary pension contributions, miscellaneous allowances as well as one-off contractually obligated deferred compensation paid to Mr. Bozotti in 2019 in an amount of \$ 3,331,919. In accordance with the resolutions adopted at our AGM held on May 30, 2012, the bonus of our former President and Chief Executive Officer, Mr. Bozotti, in 2018 and 2017 included a portion of a bonus payable in stock awards and corresponding to 86,782 and 59,435 vested shares, respectively, based on fulfillment of a number of pre-defined objectives. In addition, our sole member of our Managing Board, President and Chief Executive Officer, Mr. Chery, was granted, in accordance with the compensation policy adopted by our General Meeting of Shareholders and subsequent shareholder authorizations, up to 100,000 unvested Stock Awards. The vesting of such stock awards is conditional upon the sole member of our Managing Board, President and Chief Executive Officer's, continued service with us.

Set forth in the following table is the total compensation of the sole member of our Managing Board, President and Chief Executive Officer in office during the years 2019, 2018 and 2017:

Name	Year	Base Salary	Bonus ⁽²⁾	Benefits	Social security contributions ⁽³⁾	Pensions	Unvested stock awards	Total	Proportion of fixed and variable remuneration
Jean-Marc Chery	2019	\$ 896,297	\$ 1,280,173	\$ 94,889	\$ 584,915	\$ 476,216	\$ 1,130,443 ⁽⁴⁾	\$ 4,462,933	46% fixed 54% variable
	2018	\$ 535,762	-	\$ 53,309	\$ 269,142	\$ 475,575	-	\$ 1,333,788	100% fixed ⁽¹⁾
Carlo Bozotti	2018	\$ 392,058	\$ 3,214,578	\$ 39,376	\$ 705,259	-	\$ 5,429,285	\$ 9,780,556	12% fixed 88% variable
	2017	\$ 903,186	\$ 1,044,514	\$ 95,045	\$ 408,869	\$ 253,155	\$ 1,071,745	\$ 3,776,514	44% fixed 56% variable

- (1) Since Mr. Jean-Marc Chery was appointed as sole member our Managing Board, President and Chief Executive Officer, during 2018 he did not receive variable remuneration in that capacity in 2018, as any variable remuneration paid in 2018 related to 2017 performance.
- (2) The bonus paid in 2019, 2018 and 2017 was approved by the Compensation Committee and Supervisory Board with respect to the 2018, 2017 and 2016 financial year, respectively, based on the evaluation and assessment of the actual fulfillment of a number of pre-defined objectives for such year.
- (3) The social security contributions relate to the fixed and variable remuneration, including the unvested stock awards.
- (4) Including vesting of unvested stock awards granted before the appointment of Mr. Jean-Marc Chery as sole member of our Managing Board, President and Chief Executive Officer (amounting in total to \$645,334).

The sole member of our Managing Board, President and Chief Executive Officer, was appointed on May 31, 2018 for a three-year term expiring at the 2021 AGM. He has employment agreements with us, the first with our Dutch parent company, which relates to his activities as sole member of our Managing Board and representative of the Dutch legal entity, and the second with one of our entities in Switzerland, which relates to his activities as President and Chief Executive Officer, the EIP, Pension and other items covered by the compensation policy adopted by our General Meeting of Shareholders. While the relationship between a member of the managing board and a listed Dutch company will be treated as a mandate agreement, not an employment agreement, existing employment agreements, including the employment agreement between us and our sole member of the Managing Board, will remain in effect.

(i) *CEO Bonus*

In accordance with the resolutions adopted at our AGM held on May 30, 2012, and confirmed on May 23, 2019, the annual bonus of the sole member of our Managing Board and President and Chief Executive Officer is composed of a portion payable in cash (up to a maximum of 150% of the base salary for the relevant year) and a portion payable in shares (up to a maximum of 60% of the base salary for the relevant year), all subject to the assessment and fulfillment of a number of pre-defined conditions which are set annually by the Compensation Committee of our Supervisory Board.

Consistent with the remuneration policy adopted by our General Meeting of Shareholders, the Supervisory Board, upon the recommendation of its Compensation Committee, set the conditions and performance criteria that must be met by Mr. Jean-Marc Chery for the attribution of his 2019 bonus. Those conditions are based, inter alia, on revenues growth, certain financial targets, the share price evolution versus the SOXSM, as well as certain special programs. The evaluation and assessment of the fulfillment of those conditions and performance criteria were completed by the Compensation Committee of our Supervisory Board on March 25, 2020 in order to determine the actual amount of the CEO bonus for 2019. In this meeting, the Compensation Committee of our Supervisory Board has determined that based on the 2019 performance of Mr. Jean-Marc Chery and the fulfillment of relevant conditions and performance criteria, the portion of the CEO Bonus for 2019 payable in cash is an amount of € 880,000 (gross), which is 110 % of his base salary for 2019 and the portion of the CEO Bonus for 2019 payable in shares amounts to 34,960 shares, representing 60 % of his base salary for 2019. The CEO Bonus for 2019 was based on the overall performance of the Company in 2019, the individual performance of Jean-Marc Chery and the execution of a set of pre-defined strategic initiatives.

(ii) *CEO Stock Awards*

Our Supervisory Board, upon recommendation of the Compensation Committee, determines whether the performance criteria, as described below, have been met and conclude whether and to which extent all eligible employees, including the sole member of our Managing Board, President and Chief Executive Officer, are entitled to any stock awards under the stock award plan. The stock awards vest 32% after one year, a further 32% after two years and the remaining 36% after three years, respectively, after the date of the grant as defined by the plan, provided that the eligible employee is still an employee at such time (subject to the acceleration provisions in the event of a change in control).

(iii) *Unvested Stock Awards Allocation*

Name	Year	Performance Achieved ⁽¹⁾	Result	Weighted Performance Criteria	Number of Shares	Grant Date	Vesting Date
Jean-Marc Chery	2019 ⁽²⁾	66,67%	2 criteria out of 3 met (66.67% awarded)	Evolution of Sales criteria met (33.3%) Evolution of Operating Income criteria met (33.3%) Return on Net Assets (RONA) criteria not met (33.3%)	66,672	July 24, 2019	May 23, 2020 / May 23, 2021/ May 23, 2022
	2018	100%	3 criteria out of 3 met (100% awarded)	Evolution of Sales criteria met (33.3%) Evolution of Operating Income criteria met (33.3%) Return on Net Assets (RONA) criteria met (33.3%)	100,000	July 24, 2018	May 31, 2019 / May 31, 2020/ May 31, 2021
Carlo Bozotti	2017	100%	3 criteria out of 3 met (100% awarded)	Evolution of Sales criteria met (33.3%) Evolution of Operating Income criteria met (33.3%) Return on Net Assets (RONA) criteria met (33.3%)	100,000	July 25, 2017	May 31, 2018 ⁽³⁾

(1) In accordance with the resolution adopted by our General Meeting of Shareholders, the maximum grant allowed in relation to the CEO stock award for each of 2017, 2018 and 2019 was 100,000 unvested stocks awards.

(2) The assessment of the fulfillment of the conditions and performance criteria for 2019 was made on 25 March 2020.

(3) Accelerated vesting due to Mr. Bozotti's departure.

During 2019, our sole member of our Managing Board, President and Chief Executive Officer, Mr. Chery, did not have any stock options, and did not purchase or sell any of our shares.

For further details on the compensation of the sole member of our Managing Board, President and Chief Executive Officer we also refer to Note 7.6.35 to our consolidated financial statements.

For further information regarding stock options and other stock-based compensation granted to members of our Supervisory Board, the Managing Board and our senior management, please refer to “4.8.5. Stock Awards and Options” below.

Comparative information on the change of remuneration and company performance

Set forth in the following table is the annual change over the last five years of (i) the remuneration of the sole member of our Managing Board and President and Chief Executive Officer, (ii) the performance of the Company and (iii) the average remuneration of our global indirect employees (i.e., all employees other than those directly manufacturing our products), excluding the compensation of our Senior Management and Managing Board and President and Chief Executive Officer):

Year	2019	2018	2017	2016	2015
Managing Board remuneration					
Total remuneration of the sole member of our Managing Board and President and Chief Executive Officer	\$ 7,794,852 ⁽¹⁾	\$ 11,114,344 ⁽²⁾	\$ 3,776,514	\$ 1,630,680	\$ 2,532,343
Company's performance					
Net revenues (amounts in millions)	\$ 9,556	\$ 9,664	\$ 8,347	\$ 6,973	\$ 6,897
Operating income US GAAP (amounts in millions)	\$ 1,203	\$ 1,400	\$ 1,005	\$ 227	\$ 121
Average remuneration of all global indirect employees (FTE-basis)⁽³⁾					
Average remuneration of employees	\$ 97,300	\$ 100,600	\$ 93,500	\$ 91,600	\$ 85,600

(1) Total Managing Board remuneration for 2019 includes one-off contractually obligated deferred compensation paid to Mr. Bozotti.

(2) Total Managing Board remuneration for 2018 includes the accelerated remuneration to Mr. Bozotti.

(3) Global indirect employees are all employees other than those directly manufacturing our products.

4.8.4. Share ownership

None of the members of our Supervisory Board, Managing Board or Senior Management holds shares or options to acquire shares representing more than 1% of our issued share capital.

4.8.5. Stock awards and options

Our stock-based compensation plans are designed to incentivize, attract and retain our executives and key employees by aligning compensation with our performance and the evolution of our share price. We have adopted stock based compensation plans comprising either stock options or unvested stock awards for our Senior Management as well as key employees. Furthermore, until 2012, the Compensation Committee (on behalf of the Supervisory Board and with its approval) granted stock-based awards (the options to acquire common shares in the share capital of the Company) to the members and professionals of the Supervisory Board.

Pursuant to the shareholders' resolutions adopted by our general meetings of shareholders, our Supervisory Board, upon the proposal of the Managing Board and the recommendation of the Compensation Committee, took the following actions:

- approved conditions relating to our 2016 unvested stock award allocation under the 2013 Unvested Stock Award Plan, including restriction criteria linked to our performance (for selected employees);
- approved, for a four-year period, our 2017 Unvested Stock Award Plan for Executives and Key Employees, under which directors, managers and selected employees may be granted stock awards upon the fulfillment of restricted criteria, such as those linked to our performance (for selected employees) and continued service with us;
- approved conditions relating to our 2018 unvested stock award allocation under the 2017 Unvested Stock Award Plan, including restriction criteria linked to our performance (for selected employees); and
- approved conditions relating to our 2019 unvested stock award allocation under the 2017 Unvested Stock Award Plan, including restriction criteria linked to our performance (for selected employees).

The exercise of stock options and the sale or purchase of shares of our stock by the members or professionals of our Supervisory Board, the sole member of our Managing Board and President and Chief Executive Officer, and all our employees are subject to an internal policy which involves, inter alia, certain blackout periods.

5. Corporate Governance

5.1. Commitment to the principles of good corporate governance

Our consistent commitment to good corporate governance principles is evidenced by:

- Our corporate organization under Dutch law that entrusts our management to a Managing Board acting under the supervision and control of a Supervisory Board totally independent from the Managing Board. Members of our Managing Board and of our Supervisory Board are appointed and dismissed by our shareholders;
- Our early adoption of policies on important issues such as business ethics and conflicts of interest and strict policies to comply with applicable regulatory requirements concerning financial reporting, insider trading and public disclosures;
- Our compliance with Dutch securities laws, because we are a company incorporated under the laws of The Netherlands, and, as applicable, our compliance with American, French and Italian securities laws, because our shares are listed in these jurisdictions, in addition to our compliance with the corporate, social and financial laws applicable to our subsidiaries in the countries in which we do business;
- Our broad-based activities in the field of corporate social responsibility, encompassing environmental, social, health, safety, educational and other related issues including our corporate governance statement which evidences our policy objectives with respect to diversity as well as the results of implementing our diversity policy for the year ended December 31, 2019;
- Our implementation of a non-compliance reporting channel (managed by an independent third party). We encourage everyone, including external business partners, to express, in good faith, any concerns they might have regarding possible violations of our Code of Conduct, the Company's policies, or the law (including, without limitations, any concerns regarding accounting, internal controls or auditing matters). Our misconduct reporting process is communicated to all employees and includes, in addition to internal local and corporate reporting channels, an independent multilingual misconduct reporting hotline;
- Our Corporate Ethics Committee and Local Ethics Committees, whose mandate is to provide support to our management in its efforts to foster a business ethics culture consistent across regions, functions and organizations;

- Our Chief Compliance Officer, who reports to our CEO, also acts as Executive Secretary to our Supervisory Board; and
- Our Chief Audit and Risk Executive, who reports directly to our Audit Committee for Internal Audit and directly to the CEO for Enterprise Risk Management and Resilience (business continuity and crisis management) is also responsible for our whistle-blowing hotline and related investigations.

As a Dutch company, we are subject to the 2016 Dutch Corporate Governance Code (“DCGC”). We are committed to informing our shareholders of any significant changes in our corporate governance policies and practices at our AGM. Along with our Supervisory Board Charter (which we last updated in October 2019 and which also includes the charters of our Supervisory Board Committees) and our Code of Conduct, the current version of our Corporate Governance Charter is posted on our website (www.st.com), and these documents are available in print to any shareholder who may request them.

As required by the DCGC, our Corporate Governance Charter includes information on the broad outline of our corporate governance structure and our compliance with the DCGC.

Our Supervisory Board is carefully selected based upon the combined experience and expertise of its members. In fulfilling their duties under Dutch law, Supervisory Board members serve the best interests of the Company and its business, taking into consideration the interests of all our shareholders and other stakeholders, and must act independently in their supervision of our management. Our Supervisory Board has adopted criteria to assess the independence of its members in accordance with corporate governance listing standards of the NYSE.

Our Supervisory Board has on various occasions discussed Dutch corporate governance standards, the implementing rules and corporate governance standards of the SEC and of the NYSE, as well as other corporate governance standards. The Supervisory Board has determined, based on the evaluations by an ad hoc committee, the following independence criteria for its members: Supervisory Board members must not have any material relationship with STMicroelectronics N.V., or any of our consolidated subsidiaries, or our management. A “material relationship” can include commercial, industrial, banking, consulting, legal, accounting, charitable and familial relationships, among others, but does not include a relationship with direct or indirect shareholders.

We believe we are fully compliant with all material NYSE corporate governance standards, to the extent possible for a Dutch company listed on Euronext Paris, Borsa Italiana, as well as the NYSE.

Because we are a Dutch company, the Audit Committee is an advisory committee to the Supervisory Board, which reports to the Supervisory Board, and our General Meeting of Shareholders appoints our statutory auditors. Our Audit Committee has established a charter outlining its duties and responsibilities with respect to, among others, the monitoring of our accounting, auditing, financial reporting and the appointment, retention and oversight of our external auditors. In addition, our Audit Committee has established procedures for the receipt, retention and treatment of complaints regarding accounting, internal accounting controls or auditing matters, and the confidential anonymous submission by our employees regarding questionable accounting or auditing matters.

Pursuant to our Supervisory Board Charter, the Supervisory Board is responsible for handling and deciding on potential reported conflicts of interests between the Company and members of the Supervisory Board, as well as the Managing Board.

In accordance with our Corporate Governance Charter, the sole member of our Managing Board and our senior managers may not serve on the board of a public company without the prior approval of our Supervisory Board. Pursuant to the Supervisory Board Charter, the sole member of our Managing Board must inform our Supervisory Board of any (potential) conflict of interest and pursuant to such charter and Dutch law, any Managing Board resolution regarding a transaction in relation to which the sole member of our Managing Board has a conflict of interest must be approved and adopted by our Supervisory Board. Should our entire Supervisory Board also have a conflict of interest, the resolution must be adopted by our shareholders’ meeting pursuant to Dutch law. We are not aware of any potential conflicts of interests between the private interest or other duties of our sole Managing Board member and our senior managers and their duties to us.

5.2. General Meeting of Shareholders

Our ordinary General Meetings of Shareholders are held at least annually, within six months after the close of each financial year, in Amsterdam, Haarlemmermeer (Schiphol Airport), Rotterdam or The Hague, The Netherlands. Extraordinary General Meetings of Shareholders may be held as often as our Supervisory Board deems necessary, and must be held upon the written request of registered shareholders or other persons entitled to attend General Meetings of Shareholders of at least 10% of the total issued share capital to our Managing Board or our Supervisory Board specifying in detail the business to be dealt with. Such written requests may not be submitted electronically. In the event that the Managing Board or the Supervisory Board does not convene the General Meeting of Shareholders within six weeks of such a request, the aforementioned shareholders or individuals may be authorized by a competent judicial authority.

Notice of General Meetings of Shareholders shall be given by our Managing Board or by our Supervisory Board or by those who according to the law or our Articles of Association are entitled thereto. The notice shall be given in such manner as shall be authorized or required by law (including but not limited to a written notice, a legible and reproducible message sent by electronic means and an announcement published by electronic means), as well as in accordance with the regulations of a stock exchange where our shares are officially listed at our request. In addition, shareholders and other persons entitled to attend our General Meetings of Shareholders that are registered in our share register shall be notified by letter that the meeting is being convened. The notice convening our General Meeting of Shareholders shall be given with due observance of the statutory notice period, which is currently 42 days prior to the meeting.

The notice of our General Meeting of Shareholders states the business to be transacted as well as other information prescribed by law and our Articles of Association. The agenda is fixed by the author of the notice of the meeting; however, one or more shareholders or other persons entitled to attend General Meetings of Shareholders representing at least one-tenth of our issued share capital may, provided that the request was made at least five days prior to the date of convocation of the meeting, request that proposals be included on the agenda. Notwithstanding the previous sentence, proposals of persons who are entitled to attend General Meetings of Shareholders will be included on the agenda, if such proposals are made in writing to our Managing Board within a period of sixty days before that meeting by persons who are entitled to attend our General Meetings of Shareholders who, solely or jointly, represent at least 1% of our issued share capital or a market value of at least €50 million. The requests referred to in the previous two sentences may not be submitted electronically. The aforementioned requests must comply with conditions stipulated by our Managing Board, subject to the approval of our Supervisory Board, which shall be posted on our website. Pursuant to Dutch law, a shareholder requesting discussion of an agenda item must disclose to us its entire beneficial interest (long and short position). We are required to disclose this interest on our website.

Dutch law prescribes a fixed registration date of 28 days prior to the date of the General Meeting of Shareholders, which means that shareholders and other persons entitled to attend our General Meetings of Shareholders are those persons who have such rights at such date and, as such, are registered in a register designated by our Managing Board, regardless of who is a shareholder or otherwise a person entitled to attend our General Meeting of Shareholders at the time of the meeting if a registration date would not be applicable.

Unless otherwise required by our Articles of Association or Dutch law, resolutions of our General Meetings of Shareholders require the approval of a majority of the votes cast at a meeting at which at least fifteen percent of the issued and outstanding share capital is present or represented. If a quorum is not present, a further meeting can be convened which shall be entitled, irrespective of the share capital represented, to pass a resolution. We may not vote our shares held in treasury. Blank and invalid votes shall not be counted.

In general, the most important items of our General Meetings of Shareholders are:

- the adoption of our annual accounts;
- the adoption of a dividend;
- the discharge of the members of our Managing Board and Supervisory Board;
- the adoption of the compensation policy of our Managing Board;
- the determination of the compensation of the members of our Supervisory Board;
- the appointment, suspension and dismissal of the sole member of our Managing Board;
- the appointment, suspension and dismissal of the members of our Supervisory Board;
- the appointment of our auditors;
- the authorization to our Managing Board to repurchase shares;
- the issuance of shares and the granting of rights to subscribe for shares (option rights) as well as the delegation of these authorities to our Supervisory Board;
- approving resolutions of our Managing Board as referred to below under “Managing Board”; and
- resolutions regarding the amendment of our Articles of Association, our liquidation, legal merger and legal demerger.

Under Dutch law, our General Meeting of Shareholders has the authority to adopt our statutory annual accounts as prepared by our Managing Board. Our General Meeting of Shareholders does not have the authority to amend our statutory annual accounts as prepared by our Managing Board. Our General Meeting of Shareholders can:

- i. either adopt our statutory annual accounts in the form as prepared by our Managing Board; or
- ii. instruct our Managing Board to amend our statutory annual accounts before adopting these annual accounts; or
- iii. not adopt the statutory annual accounts.

If our General Meeting of Shareholders instructs our Managing Board to amend our statutory annual accounts, our Managing Board is required to make the necessary amendments, unless the instruction contravenes the provisions of reasonableness and fairness (*redelijkheid en billijkheid*). Furthermore, the instruction must not contravene with the applicable presentation rules for the statutory annual accounts, including requirements of consistency and balance continuity. If there are multiple options, our General Meeting of Shareholders is authorized to decide with due observance of said limits.

If there are doubts regarding the correctness of our statutory annual accounts, the annual report and the other information, a petition for revision of our statutory annual accounts can be filed with the Enterprise Chamber (*Ondernemingskamer*) of the Amsterdam Court of Appeal in The Netherlands by each interested party on the basis of non-compliance with the applicable presentation requirements for the statutory annual accounts, the annual report and/or the other information prescribed by the EU IFRS regime, Title 9 of Book 2 of the Dutch Civil Code and/or the Dutch Financial Markets Supervision Act (*Wet op het financieel toezicht*). The petition must state in which respect the documents require revision. The petition can also be filed by the Advocate General (*advocaat-generaal*) of the Amsterdam Court of Appeal on the basis of public interest as well as the Dutch Authority for the Financial Markets (*Autoriteit Financiële Markten*) with due observance of Section 4 of the Dutch Financial Markets Supervision Act.

5.3. Supervisory Board

Our Supervisory Board advises our Managing Board and is responsible for supervising the policies pursued by our Managing Board, the manner in which the Managing Board implements the long-term value creation strategy and the general course of our affairs and business. Our Supervisory Board consists of such number of members as is resolved by our General Meeting of Shareholders upon a non-binding proposal of our Supervisory Board, with a minimum of six members. Decisions by our shareholders concerning the number and the identity of our Supervisory Board members are taken by a simple majority of the votes cast at a meeting, provided quorum conditions are met.

Under Dutch law, certain statutory provisions limit the number of supervisory positions that members of our Supervisory Board may hold. A member of our Supervisory Board can only be appointed as such if he/she does not hold more than four supervisory positions at other so-called “large” Dutch entities. In this connection, the position of chairman equals two positions. The term supervisory position means the position of supervisory director or non-executive director. Supervisory positions at several entities belonging to the same group constitute one position, and supervisory positions at non-Dutch entities are not taken into account. Furthermore, an appointment by the Enterprise Chamber (*Ondernemingskamer*) of the Amsterdam Court of Appeal as part of corporate inquiry proceedings is not taken into account. For purposes of the foregoing, “large” Dutch entities are Dutch limited liability companies, private companies with limited liability and foundations which meet at least two of the following three criteria (“Large Dutch Entities”): (i) the value of the assets according to the consolidated statement of financial position with explanatory notes exceeds €20 million; (ii) the net turnover for the financial year exceeds €40 million; or (iii) there are, on average, 250 or more employees during the financial year.

In the Netherlands, companies such as ours are expected to pursue a policy of having a balanced participation by men and women in supervisory boards. Where seats on a supervisory board are to be divided among individuals, balanced participation is deemed to exist if at least 30% of the seats are taken by men and at least 30% by women. We have balanced participation by men and women on our Supervisory Board and currently, our Supervisory Board comprises nine members of which 4 are female and 5 are male.

In accordance with the criteria as reflected in our Supervisory Board Charter and diversity policy, members of our Supervisory Board are selected on the basis of their specific business, financial, technical and/or legal expertise, prior professional experience, soundness of judgment, ability to make analytical enquiries and willingness to devote the time required to adequately perform their activities as Supervisory Board members. The object of our diversity policy is to have a diverse composition of our Supervisory Board in the areas that are relevant to us, such as nationality, experience, background, gender and age. Our Supervisory Board endorses the principle of a diversified Supervisory Board, including the aforementioned statutory gender balance rules, within the scope of the criteria as reflected in our Supervisory Board Charter and diversity policy. We will continue to ensure an appropriate balance as recommended by the aforementioned statutory gender balance rules. The Supervisory Board meets the other criteria as set forth in their Charter as well, resulting in a diversified composition of the Supervisory Board.

The responsibilities of our Supervisory Board include (but are not limited to):

- supervising, monitoring, and advising our Managing Board on: (i) our performance, (ii) our strategy and risks inherent to our business activities, (iii) the structure and management of the internal risk management and control systems, and (iv) compliance with legislation and regulations;
- disclosing, complying with and enforcing our corporate governance structure;
- selecting and recommending the appointment of the member(s) of the Managing Board;
- proposing the compensation policy for the member(s) of our Managing Board (such policy to be adopted by our General Meeting of Shareholders), fixing the compensation annually and the contractual terms and conditions of employment of the member(s) of our Managing Board (in accordance with the said compensation policy);
- electing and recommending the appointment of the members of our Supervisory Board and proposing their remuneration;

- evaluating and assessing the functioning of our Managing Board, our Supervisory Board, and their individual members (including the evaluation of our Supervisory Board’s profile and the induction, education and training program);
- handling, and deciding on, potential reported conflicts of interest between us on the one hand and members of our Supervisory Board, our Managing Board, our external auditor and our (major) shareholder(s) on the other hand;
- selecting and recommending the appointment of our external auditor upon proposal by our Audit Committee;
- reviewing and approving our whistle-blower procedures upon approval by the Audit Committee;
- handling, and deciding on, reported alleged irregularities that relate to the functioning of our Managing Board;
- approving decisions by our Managing Board as referred above under “Managing Board”;
- supervising the adoption and implementation by our Managing Board on a consolidated basis of strategic pluri-annual plans and annual budgets in line with the decisions of our Supervisory Board;
- on an annual basis, the renewal of the authorization by our Managing Board to issue guarantees to companies whose accounts are consolidated by us, as well as guarantees granted to third parties including nonconsolidated subsidiaries of us; and
- declaring independently as well as proposing to our General Meeting of Shareholders to declare, distributions out of our share premium reserve and other reserves available for shareholder distributions under Dutch law.

Our Supervisory Board Charter, as posted on our website, contains detailed provisions on the reporting and handling of (potential) conflicts of interest.

For information on the identity of our Supervisory Board members, including its committees, as well as the compensation of the members of our Supervisory Board, see the report of our Supervisory Board. We believe that at least one member of our Supervisory Board can be regarded as a financial expert.

For information on the role and identity of the committees of our Supervisory Board, see the report of our Supervisory Board.

5.4. Managing Board

In accordance with Dutch law, our management is entrusted to the Managing Board under the supervision of our Supervisory Board. Mr. Jean-Marc Chery is currently the sole member of our Managing Board with the function of President and Chief Executive Officer. Under our Articles of Association, the sole member of our Managing Board is appointed for a three-year term, upon a non-binding proposal by our Supervisory Board, at our AGM (by a simple majority of the votes cast, provided quorum conditions are met), which term may be renewed one or more times.

In the Netherlands, companies such as ours are expected to pursue a policy of having a balanced participation by men and women in managing boards. Where seats on a managing board are to be divided among individuals, balanced participation is deemed to exist if at least 30% of the seats are taken by men and at least 30% by women. Since its creation in 1987, our Managing Board has always been comprised of a sole member.

Our shareholders may suspend or dismiss one or more members of our Managing Board, in accordance with the procedures laid down in our Articles of Association. Under Dutch law, our Managing Board is entrusted with our general management and the representation of our Company. Our Managing Board must seek prior approval from our shareholders for decisions regarding a significant change in the identity or nature of the Company. Under our Articles of Association and our Supervisory Board Charter, our Managing Board must also seek prior approval from our Supervisory Board for certain other decisions with regard to the Company and our direct or indirect subsidiaries.

The sole member of our Managing Board may not serve on the board of a public company without the prior approval of our Supervisory Board. Pursuant to our Supervisory Board Charter, the sole member of our Managing Board must inform our Supervisory Board of any (potential) conflict of interest and pursuant to such charter and Dutch law, any Managing Board resolution regarding a transaction in relation to which the sole member of our Managing Board has a conflict of interest must be approved and adopted by our Supervisory Board. Should our entire Supervisory Board also have a conflict of interest, the resolution must be adopted by our shareholders pursuant to Dutch law. We are not aware of any potential conflicts of interests between the private interest or other duties of our sole Managing Board member and our senior managers and their duties to us.

Pursuant to our Articles of Association and the Supervisory Board Charter, the following decisions by our Managing Board with regard to the Company and any of our direct or indirect subsidiaries (an “ST Group Company”) require prior approval from our Supervisory Board: (i) any modification of our or any ST Group Company’s Articles of Association or other constitutional documents, other than those of wholly owned subsidiaries; (ii) other than for wholly owned subsidiaries, any change in our or any ST Group Company’s authorized share capital or any issue, acquisition or disposal by us — with the exception of shares in our share capital acquired in order to transfer these shares under employee stock option or stock purchase plans — or any ST Group Company of own shares or change in share rights and any issue of instruments resulting in a share in the capital of any ST Group Company or its profits (iii) the liquidation or dissolution of the Company or any ST Group Company or the disposal of all or a substantial and material part of our business or assets, or those of any ST Group Company, or of any shares in any ST Group Company; (iv) any merger, acquisition or joint venture agreement (and, if substantial and material, any agreement relating to IP) to which we or any ST Group Company is, or is proposed to be, a party, as well as the formation of new companies by us or any ST Group Company (with the understanding that only acquisitions above \$25 million per transaction are subject to prior Supervisory Board approval); (v) our draft Consolidated Statement of Financial Position and Consolidated Financial Statements, as well as our and any ST Group Company’s profit distribution policies; (vi) entering into any agreement that may qualify as a related party transaction, including any agreement between us or any ST Group Company and any of our major shareholders; (vii) the appointment of members of the Executive Committee; (viii) the key parameters of our pluri-annual plans and our consolidated annual budgets, as well as any significant modifications to said plans and budgets, or any one of the matters set forth in our Articles of Association and not included in the approved plans or budgets; (ix) operations which have to be submitted for Supervisory Board prior approval even if their financing was already provided for in the approved annual budget; (x) our quarterly, semi-annual and annual Consolidated Financial Statements prepared in accordance with U.S. GAAP and, as required, according to IFRS; (xi) the exercise of any shareholder right in a ST joint venture company, which is a company (a) with respect to which we hold directly or indirectly either a minority equity position in excess of 25% or a majority position without the voting power to adopt extraordinary resolutions, or (b) in which we directly or indirectly participate and such participation has a value of at least one-third of our total assets according to the Consolidated Statement of Financial Position and notes thereto in our most recently adopted (statutory) annual accounts, with the understanding, for the avoidance of doubt, that decisions of the Managing Board regarding the general management and/or operations of such ST joint venture company are not subject to Supervisory Board approval and that the Managing Board reports to the Supervisory Board on the operations of the ST joint venture companies as part of its regular reporting to the Supervisory Board and in principle at least every six months; (xii) the strategy of our company; (xiii) the annual internal audit plan and the appointment, replacement, reassignment and dismissal of our Chief Audit and Risk Executive; (xiv) all proposals to be submitted to a vote at the AGM; (xv) the formation of all companies, acquisition or sale of any participation and conclusion of any cooperation and participation agreement; (xvi) all our pluri-annual plans and the budget for the coming year (covering investment policy, policy regarding research and development, and commercial policy and objectives, general financial policy and policy regarding personnel); and (xvii) all acts, decisions or operations covered by the foregoing and constituting a significant change with respect to decisions already approved by the Supervisory Board or not provided for in the above list and as specifically laid down by a Supervisory Board resolution to that effect.

Senior Management

Changes within 2019

In December 2019, our President, Human Resources and Corporate Social Responsibility, Philippe Brun, left the Company. We are currently considering various options for Mr. Brun's replacement and, in the interim, we have taken adequate measures to ensure continuity in the performance of his duties.

General management of our business

The sole member of our Managing Board, our President and Chief Executive Officer, is entrusted with our general management and is supported in his tasks by our Executive Committee and Executive Vice Presidents, who together constitute our Senior Management.

As a company committed to good governance, we hold corporate meetings on a regular basis. Such meetings, which involve the participation of several members of our Senior Management include:

Executive Committee, which meets once every month and oversees the general strategy and is responsible for the risk management of the Company.

Corporate Operations Review, which meets twice per quarter to review monthly results, short-term forecasts and monthly business results.

Corporate Staff Meeting, which meets once per quarter to review the business in its entirety and to plan and forecast for the next quarter and beyond.

Executive Committee

The Executive Committee was established on May 31, 2018 to improve the corporate governance of the Company consistent with evolving Dutch practice. The Executive Committee acts under the authority and responsibility of the Managing Board and in this respect manages the Company. The Managing Board remains legally responsible for the management of the Company. The responsibilities of the Executive Committee include overseeing the general strategy as well as the risk management in connection with the Company's activities, operational and financial objectives and financial reporting processes. The Executive Committee adopts resolutions based on consensus, or if no consensus can be reached, by a majority of the votes cast by the members of the Managing Board including the vote of the chairman of the Executive Committee.

The chairman of the Executive Committee is the President and Chief Executive Officer of the Company and thus serves as the primary interface between the Executive Committee and the Supervisory Board. Members of the Executive Committee are appointed by the Managing Board subject to the approval of the Supervisory Board. Members of the Executive Committee can be suspended and dismissed by the Managing Board without prior approval by the Supervisory Board.

The Executive Committee was composed of the following eight members as of December 31, 2019 as set forth in the table below. In December 2019, our former President, Human Resources and Corporate Social Responsibility, Philippe Brun, left the Company.

Name	Position	Years with Company	Years in Semi-Conductor Industry	Age
Jean-Marc Chery	President and Chief Executive Officer	35	35	59
Orio Bellezza	President, Technology, Manufacturing and Quality	36	36	60
Marco Cassis	President, Sales, Marketing, Communications & Strategy Development	32	32	56
Claude Dardanne	President, Microcontrollers and Digital ICs Group	37	40	67
Lorenzo Grandi	President, Finance, Infrastructure and Services, and Chief Financial Officer	32	32	58
Marco Monti	President, Automotive and Discrete Group	33	33	58
Steven Rose	President, Legal Counsel	28	28	57
Benedetto Vigna	President, Analog, MEMS and Sensors Group	25	25	50

Detailed biographies of our Executive Committee Members are available on our website www.st.com.

Executive Vice Presidents

The group of Executive Vice Presidents consisted of the following people as of December 31, 2019:

Name	Position	Years with Company	Years in Semi-Conductor Industry	Age
Michael Anfang	Executive Vice President Sales & Marketing, Europe, Middle East and Africa Region	21	29	51
Eric Aussedat	Executive Vice President Imaging Sub-Group General Manager Analog, MEMS and Sensors Group	39	39	65
Stefano Cantù	Executive Vice President Automotive and Discrete Group Supply Chain General Manager Automotive Business Deputy	25	25	51
Alberto Della Chiesa	Executive Vice President, Supply Chain	31	31	55
Paul Cihak	Executive Vice President, General Manager, Sales and Marketing, Americas Region	21	26	48
Fabio Gualandris	Executive Vice President, Head of Back-End Manufacturing & Technology	31	35	60
Joël Hartmann	Executive Vice President, Digital & Smart Power Technology and Digital Front-End Manufacturing	19	41	64
Michael Hummel	Executive Vice President, Front-End Manufacturing, Analog and Power	1 ⁽¹⁾	29	60
Claudia Levo	Executive Vice President, Integrated Marketing & Communications	8	10	54
Matteo Lo-Presti	Executive Vice President, Analog, Sub-Group General Manager, Analog MEMS and Sensors Group	26	26	55
Giuseppe Notarnicola	Executive Vice President, Corporate Treasury, Insurance, M&A, IP BU, Real Estate, and Italy Public Affairs	14	14	58
Jerome Roux	Executive Vice President, Sales and Marketing, Asia Pacific Region	28	32	54
Thierry Tingaud	Executive Vice President Europe and France Public Affairs STMicroelectronics, President, STMicroelectronics France	35	35	60
Nicolas Yackowlew	Executive Vice President Product Quality & Reliability	24	25	50

(1) Michael Hummel holds the position of Executive Vice President of STMicroelectronics, Analog and Power Front-End Manufacturing since March 2019.

Detailed biographies of our Executive Vice Presidents are available on our website www.st.com.

5.5. Indemnification of members of our Managing Board and Supervisory Board

To the extent permitted by Dutch law, members of our Managing Board and Supervisory Board as well as our officers or agents shall be indemnified by us against expenses, such as the reasonable costs of defending claims, as stated in our Articles of Association. Under certain circumstances, there will be no entitlement to this reimbursement. We hold a Director & Officer liability insurance for the members of our Managing Board and Supervisory Board as well as our officers.

5.6. Risk Management and Control Systems

For our statement on the main features of our risk management and control systems and of the group of which the financial data are included in our annual accounts, please refer to the section Risk Management and Internal Control in the Report of the Managing Board.

5.7. Required information Article 10 Takeover Directive

The EU Takeover Directive requires that listed companies publish additional information providing insight into defensive structures and mechanisms which they apply. The relevant provision has been implemented into Dutch law by means of a decree of April 5, 2006. Pursuant to this decree, Dutch companies whose securities have been admitted to trading on a regulated market have to include information in their annual report which could be of importance for persons who are considering taking an interest in the company.

This information comprises amongst other things:

- the capital structure of the company;
- restrictions on the transfer of securities and on voting rights;
- special powers conferred upon the holders of certain shares;
- the rules governing the appointment and dismissal of board members and the amendment of the articles of association;
- the rules on the issuing and the repurchasing of shares by the company;
- significant agreements to which the company is a party and which contain change of control rights (except where their nature is such that their disclosure would be seriously prejudicial to the company); and
- agreements between the Company and its board members or employees providing for a “golden parachute”.

Capital structure.

The authorized share capital of STMicroelectronics N.V. is €1,810 million consisting of 1,200,000,000 common shares and 540,000,000 preference shares, each with a nominal value of €1.04. As at December 31, 2019, the number of common shares issued was 911,186,920 shares (December 31, 2018: 911,156,920 shares).

As of December 31, 2019, the number of common shares outstanding was 891,434,489 shares (December 31, 2018: 898,305,080 shares). There were no preference shares issued as of December 31, 2019 and December 31, 2018 respectively.

Restrictions on the transfer of shares.

We do not have restrictions on the transfer of our common and preference shares, provided that Stichting Continuïteit ST, if it holds preference shares, requires our consent to sell or otherwise dispose of preference shares or voting rights attached thereto.

Holdings in us that are subject to a disclosure obligation.

For information on holdings in us that are subject to a disclosure obligation pursuant to Chapter 5.3 of the Dutch Financial Markets Supervision Act (“*Wet op het financieel toezicht*”) (the “FMSA”), please refer to chapter “Major Shareholders” further on.

Special controlling rights.

We do not have special controlling rights attached to our common or preference shares.

Control of employees share/option schemes.

We do not have any scheme granting rights to employees to subscribe for or acquire shares in our share capital or the share capital of a subsidiary of us where the control is not directly exercised by the employees. However, key employees as determined by our Unvested Share Award Plans are granted share awards (as part of their compensation) with a staggered vested schedule pursuant to our determined criteria. For more information on employees share/option schemes, see the Remuneration Report.

Restrictions on voting rights.

We do not have any restrictions on voting rights nor have we cooperated in the issuance of depository receipts for shares.

Agreements with shareholders that may give rise to restrictions on the transfer of shares or restrictions of voting rights.

We do not have any agreements with shareholders that may give rise to restrictions on the transfer of shares or restrictions of voting rights. However, please see below under “Shareholders’ Agreements” for certain information on shareholders’ agreements regarding us to which we are not a party.

Provisions on appointment and dismissal of members of our Managing Board and Supervisory Board and amendment of our Articles of Association.

Please see the information included above under “Managing Board” and “Supervisory Board” with respect to the appointment and dismissal of the members of our Managing Board and Supervisory Board.

Our Articles of Association can be amended by our General Meeting of Shareholders, upon the proposal of our Supervisory Board, by a simple majority of the votes cast at a meeting where at least 15% of the issued and outstanding share capital is present or represented. If a quorum is not present, a further meeting can be convened which shall, irrespective of the share capital represented, to pass a resolution. If the relevant amendment affects the rights of holders of common shares or holders of preference shares, the approval of the meeting of holders of common shares and the meeting of holders of preference shares, respectively, is required.

Authority of the Managing Board and Supervisory Board regarding the issuance and repurchase of shares.

Pursuant to our Articles of Association, our Managing Board does not have the authority to issue shares or grant rights to subscribe for shares. Our Supervisory Board has this authority. Our 2019 AGM, held on May 23, 2019, authorized our Supervisory Board, until the conclusion of the 2020 AGM, to resolve upon: (i) the issuance of common and preference shares or the granting of rights to subscribe for common and preference shares in our share capital, up to a maximum of 10% of our issued common share capital as per December 31, 2018, increased with another 10% of our issued common share capital, as per December 31, 2018, in the case of mergers and acquisitions, but not exceeding the limits of authorized share capital, and without limitation for preference shares (ii) the terms and conditions of an issuance of common and preference shares; and (iii) the limitation and/or exclusion of pre-emptive rights of existing shareholders upon issuance of common shares or rights to subscribe for it.

Pursuant to a shareholders' resolution adopted at our 2019 AGM held on May 23, 2019, our Managing Board, subject to the approval of our Supervisory Board, was authorized, until the conclusion of the 2020 AGM, to acquire common shares and/or preference shares subject to the limits of our Articles of Association and the acquisition price conditions set forth in such shareholders' resolution. Furthermore, our Articles of Association provide that we shall be able to acquire shares in our own share capital in order to transfer these shares under employee stock option or stock purchase plans, without an authorization of our General Meeting of Shareholders.

Significant agreements to which we are a party and which contain change of control rights

On June 22, 2017, we announced the issuance of senior unsecured bonds, in two tranches, one of \$750 million with a maturity of 5 years and one of \$750 million with a maturity of 7 years, convertible into new or existing common shares in our share capital. Pursuant to the terms and conditions of the senior bonds (the "Conditions"), bondholders have certain conversion rights and redemption rights upon a change of control, all as provided in the Conditions.

Agreements with the sole member of our Managing Board and other employees regarding distributions upon the termination of their employment contract in connection with a public offer on us.

The contract of our President and Chief Executive Officer, Mr. Jean-Marc Chery, provides that upon a change of control following a takeover bid (i) all unvested stock awards granted to Mr. Chery will fully vest and (ii) the bonus payable under our Executive Incentive Plan will be due for the full amount, which is 150% of the executive gross annual base salary. Such benefits are not linked to termination of the employment agreement.

Stichting Continuïteit ST — our preference shares

We have an option agreement with an independent foundation, Stichting Continuïteit ST (the "Stichting"), regarding our preference shares. This is a common practice used by a majority of publicly traded Dutch companies. Our Managing Board and our Supervisory Board, along with the board of the Stichting, have declared that they are jointly of the opinion that the Stichting is independent of us. The option agreement provides for the issuance of up to a maximum 540,000,000 preference shares. Any such shares would be issued to the Stichting upon its request and in its sole discretion and upon payment of at least 25% of the par value of the preference shares to be issued.

The Stichting would have the option, which it shall exercise in its sole discretion, to take up the preference shares. The shares would be issuable in the event of actions which the board of the Stichting determines would be contrary to our interests, our shareholders and our other stakeholders and which in the event of a creeping acquisition or offer for our common shares are not supported by our Managing Board and Supervisory Board. The preference shares may remain outstanding for no longer than two years.

No preference shares have been issued to date. The effect of the preference shares may be to deter potential acquirers from effecting an unsolicited acquisition resulting in a change of control as well as to create a level-playing field in the event actions which are considered to be hostile by our Managing Board and our Supervisory Board, as described above, occur and which the board of the Stichting determines to be contrary to our interests and our shareholders and other stakeholders.

The board of the Stichting is currently comprised of the following three members:

- Professor S.C.J.J. Kortmann, a well-known professor at law at the Radboud University in Nijmegen, The Netherlands, as Chairman of the Board;
- Mr. F. Ago, a well-known and experienced attorney at law in Italy; and
- Mr. E. Alphandery, a professor of economics and former French Minister of Economy.

All members of the board of the Stichting are independent from the Company.

5.8. Code of Ethics

Our Code of Conduct is designed to promote honest and ethical business conduct, to deter wrongdoing and to provide principles to which our employees are expected to adhere and advocate. Our Code of Conduct is applicable to all of our employees and senior managers. We have adapted and will amend our Code of Conduct and related policies, as appropriate, to raise awareness, ensure effectiveness and compliance, and to reflect regulatory or other changes. Our Code of Conduct also encourage our employees (or any interest third party) to speak up and express any concern they may have in good faith, without fear of retaliation. Our Code of Conduct provides that if any employee or senior manager acts in contravention of the principles set forth therein, we will take appropriate steps in terms of the procedures in place for fair disciplinary action. This action may, in cases of severe breaches, include dismissal. Our Code of Conduct is available on our website in the Corporate Governance section, at <http://investors.st.com>.

5.9. Deviations from the Code

According to the DCGC, we are required to publish a list of current deviations from the DCGC, and an explanation why we do not comply (“Comply or Explain”). For more information on the DCGC, please visit the website www.commissiecorporategovernance.nl. Because we are listed on the NYSE, we are required to comply with the U.S. Sarbanes-Oxley Act of 2002, as well as NYSE listing rules, and the rules and regulations promulgated by the U.S. Securities and Exchange Commission (“SEC”). For the full text of the U.S. Sarbanes-Oxley Act of 2002 as well as the NYSE listing rules, and the rules and regulations promulgated by the SEC, please see www.sec.gov.

We comply with the DCGC by applying its principles and best practice provisions or by explaining why it deviates from such provisions. We comply such principles and best practice provisions, with the exception of the following best practice provisions:

- Best practice provision 3.2.3: The remuneration in the event of dismissal of the sole member of our Managing Board exceeds one year’s salary and is equal to a gross lump sum payment in the amount of two years of the last gross annual salary, plus the variable (being the average of the last three-year payout), subject to any and all legal, regulatory and/or contractual deductions applicable. Furthermore, the Unvested Stock Awards allocated to the sole member of our Managing Board under the Unvested Stock Awards Plan that are not exercisable and vested will become fully exercisable and fully vested without any condition linked to this accelerated vesting. The remuneration in the event of dismissal shall be paid only if the employment agreement is terminated by us. This element is part of the employment conditions on the basis of which the sole member of the Managing Board accepted his responsibilities in 2005. Those conditions were among others based on the international context in which we operate, industry standards and applicable laws, and in line with our remuneration policy as approved by our 2005 AGM. This departure is expected to continue for more than one financial year.
- Best practice provision 3.4.1: We believe we comply with most elements of this best practice provision but do not disclose certain select compensation information, among others, to the extent that we believe it is competitively sensitive information that if disclosed could harm our ability to attract and retain executives and other key personnel.
- Best practice provision 2.2.2: The term of office of Supervisory Board members may from time to time exceed the maximum term mentioned in the DCGC. However, if the maximum term is exceeded, this is always approved by our shareholders as members of our Supervisory Board are appointed by our General Meeting of Shareholders. As mentioned in our Supervisory Board Charter, we consider that it may not always be in our best interests to limit the number of terms members may serve on our Supervisory Board. However, none of the current members of our Supervisory Board currently exceed the maximum term mentioned in the DCGC.
- Best practice provision 2.1.7: As explained in the report of our Supervisory Board, our criteria deviate from the criteria as included in best practice provision 2.1.7 of the DCGC, specifically item iii. of such best practice provisions, but are in conformity with governance listing standards of the NYSE and our Corporate Governance Charter as approved by our shareholders in the 2004 AGM. This departure is expected to continue for more than one financial year.

- Best practice provision 2.3.4: The Chairman of our Supervisory Board is also the Chairman of the Compensation Committee. This has been a standing practice for many years and is functioning well within our governance. This departure is expected to continue for more than one financial year.

5.10. Major Shareholders

Holders of our shares (including certain comparable instruments, such as instruments with a value (partly) dependent on shares or distributions on shares, or contracts creating an economic position similar to shares) or voting rights (including potential interests, such as via options or convertible bonds) may have disclosure obligations under Dutch law. Any person or entity whose direct or indirect interest in our share capital or voting rights (including potential interest) reaches, exceeds or falls below a certain threshold must make a disclosure to the AFM immediately. The threshold percentages are 3%, 5%, 10%, 15%, 20%, 25%, 30%, 40%, 50%, 60%, 75% and 95%. If a person's direct or indirect interest in the share capital or voting rights passively reaches, exceeds or falls below the abovementioned thresholds (e.g. as a result of a change in the capital of the company), the person in question must give notice to the AFM no later than the fourth trading day after the AFM has published the change in the share capital and/or voting rights in the public register. In addition, a notification requirement applies in respect of shares with special statutory rights (e.g. priority shares), regardless of the abovementioned percentages.

Furthermore, each person who is or ought to be aware that the substantial holding he holds in the Company, reaches, exceeds or falls below any of the abovementioned thresholds vis-à-vis his most recent notification to the AFM, which change relates to the composition of the notification as a result of certain acts (e.g. (i) the exchange of certain financial instruments for shares or depositary receipts for shares, (ii) the exchange of shares for depositary receipts for shares, or (iii) as a result of the exercise of rights pursuant to a contract for the acquisition of voting rights) must give notice to the AFM no later than the fourth trading day after he became or ought to be aware of this change.

For the purpose of calculating the percentage of capital interest or voting rights, among others, the following interests must be taken into account: (i) those directly held by him; (ii) those held by his controlled undertakings for purposes of the Dutch Financial Supervision Act; (iii) shares held by a third party for such person's account and the votes such third party may exercise; (iv) the votes held by a third party if such person has concluded an oral or written voting agreement with such party which provides for a lasting common policy on voting; (v) the votes held by a third party if such person has concluded an oral or written agreement with such party which provides for a temporary and paid transfer of the votes; and (vi) the votes which a person may exercise as a proxy but in his own discretion. A person who has a 3% or larger interest in the share capital or voting rights and who ceases to be a controlled undertaking must without delay notify the AFM. As of that moment, all notification obligations under the Dutch Financial Supervision Act will become applicable to the former controlled undertaking itself. The management company of a common fund (beleggingsfonds) shall be deemed to have the disposal of the shares held by the depositary and the related voting rights. The depositary of a common fund shall be deemed not to have the disposal of shares or voting rights. Furthermore, special rules apply to the attribution of the ordinary shares which are part of the property of a partnership or other community of property. A holder of a pledge or right of usufruct in respect of our shares can also be subject to a notification obligation if such person has, or can acquire, the right to vote on our shares. If a pledgor or usufructuary acquires such voting rights, this may also trigger a notification obligation for the holder of our shares. A person is also deemed to hold shares if he has a financial instrument (i) whose rise in value depends in part on the rise in value of the underlying shares or on dividend or other payments on those shares (in other words, a long position must be held in those shares), and (ii) which does not entitle him to acquire shares in a listed company (i.e., it is a cash-settled financial instrument). In addition, a person who may, by virtue of an option, be obliged to buy shares in a listed company is also equated with a shareholder. Moreover, a person who has entered into a contract (other than a cash-settled financial instrument) that gives him an economic position comparable to that of a shareholder in a listed company is also deemed to hold shares for the purposes of the disclosure obligation.

The holder of a financial instrument representing a short position in our shares is required to notify the AFM if such short position, expressed in a capital percentage, reaches or crosses a threshold percentage. The threshold percentages are the same as referred to above in this section. Short position refers to the gross short position (i.e., a long position held by the holder cannot be offset against the short position). There is also a requirement to notify

the AFM of the net short position (i.e., long positions are offset against short positions) if such short position, expressed in a capital percentage, reaches or crosses a threshold percentage; The threshold percentages are 0.2% and each 0.1% above that. Notifications as of 0.5% and each 0.1% above that will be published by the AFM. The notification shall be made no later than 3:30 pm CET on the following trading day.

Under Dutch law, the sole member of our Managing Board and each of the members of our Supervisory Board must without delay notify the AFM of any changes in his interest or potential interest in our share capital or voting rights. Under the European Market Abuse Regulation, the sole member of our Managing Board, the members of the Executive Committee and each of the members of our Supervisory Board, as well as any other person who would have the power to take managerial decisions affecting the future developments and business prospects of the Company having regular access to inside information relating, directly or indirectly, to the Company, must notify the AFM of any transactions conducted for his or her own account relating to the shares or in financial instruments the value of which is also based on the value of the shares. In addition, certain persons who are closely associated with members of the Managing Board, the Executive Committee and Supervisory Board or any of the other persons as described above, are required to notify the AFM of any transactions conducted for their own account relating to the shares or in financial instruments the value of which is also based on the value of the shares.

The AFM publishes all notifications on its public website (www.afm.nl). Non-compliance with the notification obligations under European or Dutch law can lead to imprisonment or criminal fines, or administrative fines or other administrative sanctions. In addition, non-compliance with these notification obligations may lead to civil sanctions, including, without limitation, suspension of the voting rights attaching to our shares held by the offender for a maximum of three years, (suspension and) nullification of a resolution adopted by our shareholders' meeting (if it is likely that such resolution would not have been adopted if the offender had not voted) and a prohibition for the offender to acquire our shares or votes for a period of no more than five years. Shareholders are advised to consult with their own legal advisers to determine whether notification obligations apply to them.

The following table sets forth certain information with respect to the ownership of our issued common shares as of December 31, 2019 based on information available to us:

Shareholders	Common Shares Owned	
	Number	%
STMicroelectronics Holding N.V. ("ST Holding")	250,704,754	27.5
Public	640,729,735	70.3
Treasury shares	19,752,431	2.2
Total	911,186,920	100.0

We are not aware of any significant change over the past three years in the percentage ownership of our shares by ST Holding, our major shareholder. ST Holding does not have any different voting rights from those of our other shareholders.

According to the report on Schedule 13G ("ST Holding 13G") jointly filed with the SEC on February 11, 2020 by ST Holding, the Italian Ministry of the Economy and Finance (the "MEF"), Bpifrance Participations S.A., a successor to its former wholly-owned subsidiary FT1CI, ("Bpifrance" and together with the MEF, the "STH Shareholders") and the Italian Government and the French Government, each indirectly through the MEF and Bpifrance, respectively, hold 14.1% of our share capital as of December 31, 2019. The ownership percentages of each the MEF and Bpifrance are based on 891,434,489 shares outstanding as of December 31, 2019. On November 17, 2016, *Commissariat à l'Énergie Atomique et aux Énergies Alternatives* ("CEA") and Bpifrance, which were, at the time, the shareholders of FT1CI, entered into a share purchase agreement pursuant to which CEA transferred 721,513 shares of FT1CI to Bpifrance. As a result of the transaction, Bpifrance increased its shareholding in FT1CI from 79.2% to 95.1%, with CEA retaining the remaining 4.9% in FT1CI. On November 16, 2018, CEA and Bpifrance entered into a second purchase agreement, pursuant to which CEA transferred 222,265 shares, representing its remaining ownership interest in FT1CI, to Bpifrance. As a result of this transaction, Bpifrance became the sole shareholder of FT1CI. On June 21, 2019, FT1CI merged with and into Bpifrance and ceased to exist.

All transactions with major shareholders were in compliance with provisions of the 2016 Dutch Corporate Governance Code.

5.11. Shareholders' Agreements

5.11.1. STH Shareholders' Agreement

The filers of the ST Holding 13G have entered into a shareholders agreement which governs relations between them, including for certain matters relating to the ownership of our shares and the actions of our management to the extent shareholder approval is required (the "STH Shareholders Agreement"). Below is a brief summary of certain details from the ST Holding 13G.

5.11.1.1. Standstill

The STH Shareholders' Agreement contains a standstill provision that precludes any of the parties and the parties' affiliates from acquiring, directly or indirectly, any of our common shares or any instrument providing for the right to acquire any of our common shares other than through ST Holding. The standstill is in effect for as long as such party holds our common shares through ST Holding. The parties agreed to continue to hold their stakes in us at all times through the current holding structure of ST Holding, subject to certain limited exceptions.

5.11.1.2. Corporate Governance

The STH Shareholders' Agreement provides for a balanced corporate governance between the STH Shareholders for the duration of the "Balance Period", despite actual differences in indirect economic interest in us. The "Balance Period" lasts as long as each STH Shareholder owns at any time a voting stake in ST Holding equal to at least 47.5% of the total voting stakes of ST Holding.

Managing Board and Supervisory Board members can only be appointed by the General Meeting of Shareholders upon a proposal by the Supervisory Board. The Supervisory Board passes resolutions, including on such a proposal, by at least three quarters of the votes of the members in office. The STH Shareholders Agreement, to which STM is not a party, furthermore provides that: (i) each of the STH Shareholders, Bpifrance, on the one hand, and the MEF, on the other hand, may propose the same number of members for election to the Supervisory Board by our shareholders, and ST Holding shall vote in favor of such members; and (ii) any decision relating to the voting rights of ST Holding shall require the unanimous approval of the STH Shareholders. ST Holding may therefore be in a position to effectively control actions that require shareholder approval, including, as discussed above, the proposal of six out of nine members for election to our Supervisory Board (three members by each STH Shareholder) and the appointment of our Managing Board, as well as corporate actions, and the issuance of new shares or other securities. As a result of the STH Shareholders Agreement, the Chairman of our Supervisory Board is proposed by an STH Shareholder for a three-year term, and the Vice-Chairman of our Supervisory Board is proposed by the other STH Shareholder for the same period, and vice-versa for the following three-year term. The STH Shareholder proposing the appointment of the Chairman may furthermore propose the appointment of the Assistant Secretary of our Supervisory Board, and the STH Shareholder proposing the appointment of Vice-Chairman proposes the appointment of the Secretary of our Supervisory Board. Finally, each STH Shareholder also proposes the appointment of a Financial Controller to the Supervisory Board.

The STH Shareholders furthermore agreed that during the Balance Period, any other decision, to the extent that a resolution of ST Holding is required, must be pursuant to the unanimous approval of the shareholders of ST Holding.

At the end of the Balance Period i.e., once a shareholder's voting stake in ST Holding has decreased under the 47.5% threshold, such STH Shareholder being thereafter referred to as "minority shareholder" and the other one being referred to as "majority shareholder", the members of our Supervisory Board and those of ST Holding designated by the minority shareholder of ST Holding will, pursuant to the Shareholders' Agreement, immediately resign upon request of ST Holding's majority shareholder.

After the end of the Balance Period, unanimous approval by the shareholders of ST Holding remains required to approve:

- i. As long as any of the STH Shareholders indirectly owns at least the lesser of 3% of our issued and outstanding share capital or 10% of the STH Shareholders' aggregate stake in us at such time, with respect to ST Holding, any changes to the articles of association, any issue, acquisition or disposal of shares in ST Holding or change in the rights of its shares, its liquidation or dissolution and any legal merger, de-merger, acquisition or joint venture agreement to which ST Holding is proposed to be a party.
- ii. As long as any of the STH Shareholders indirectly owns at least 33% of the STH Shareholders' aggregate stake in us, certain changes to our articles of association (including any alteration in our authorized share capital, or any issue of share capital and/or financial instrument giving the right to subscribe for our common shares, changes to the rights attached to our shares, changes to the preemptive rights, issues relating to the form, rights and transfer mechanics of the shares, the composition and operation of the Managing and Supervisory Boards, matters subject to the Supervisory Board's approval, the Supervisory Board's voting procedures, extraordinary General Meetings of Shareholders and quorums for voting at General Meetings of Shareholders).
- iii. Any decision to vote our shares held by ST Holding at our General Meeting of Shareholders with respect to any substantial and material merger decision. In the event of a failure by the STH Shareholders to reach a common decision on the relevant merger proposal, our shares attributable to the minority shareholder and held by ST Holding will be counted as present for purposes of a quorum of shareholders at one of our General Meeting of Shareholders, but will not be voted (i.e., will be abstained from the vote in a way that they will not be counted as a negative vote or as a positive vote).
- iv. In addition, the minority shareholder will have the right to designate at least one member of the list of candidates for the Supervisory Board to be proposed by ST Holding if that shareholder indirectly owns at least 3% of our total issued and outstanding share capital, with the majority STH Shareholder retaining the right to appoint that number of members to the Supervisory Board that is at least proportional to such majority shareholder's voting stake.

Finally, at the end of the Balance Period, the unanimous approval required for other decisions taken at the STMicroelectronics N.V. level shall only be compulsory to the extent possible, taking into account the actual power attached to the direct and indirect shareholding together held by the STH Shareholders in our company.

5.11.1.3. Ownership of ST Shares

The STH Shareholders Agreement provides that each STH Shareholder retains the right to cause ST Holding to dispose of its stake in us at its sole discretion pursuant to the issuance of financial instruments, an equity swap, a structured finance deal or a straight sale; however, except in the case of a public offer, no sales by any party to the STH Shareholders Agreement may be made of any of our shares or any shares of Bpifrance or ST Holding to any of our top ten competitors or any company controlling such a competitor. The STH Shareholders Agreement also requires all of the parties to the STH Shareholders Agreement to hold their stakes in us at all time through the current holding structure of ST Holding, subject to certain limited exceptions, and precludes all such parties and their affiliates from acquiring any of our common shares other than through ST Holding.

5.11.1.4. Change of Control Provision

The STH Shareholders Agreement provides for tag-along rights, pre-emptive rights, and provisions with respect to a change of control of any of the STH Shareholders, on the one hand, and the Italian Ministry of the Economy and Finance, on the other hand. The STH Shareholders may transfer shares of ST Holding, to any of their respective affiliates, which could include entities ultimately controlled by the Italian Government or the French Government.

5.11.1.5. *Deadlock*

In the event of a disagreement that cannot be resolved between the parties as to the conduct of the business and actions contemplated by the STH Shareholders' Agreement, each party has the right to offer its interest in ST Holding to the other, which then has the right to acquire, or to have a third party acquire, such interest. If neither party agrees to acquire or have acquired the other party's interest, then together the parties are obligated to try to find a third party to acquire their collective interests, or such part thereof as is suitable to resolve the deadlock.

5.11.1.6. *Duration*

The STH Shareholders' Agreement will remain in force as long as the Italian State, on the one hand and Bpifrance, on the other hand, are shareholders of ST Holding.

6. Dividend Policy

Our dividend policy reads as follows: "STMicroelectronics seeks to use its available cash in order to develop and enhance its position in a competitive semiconductor market while at the same time managing its cash resources to reward its shareholders for their investment and trust in STMicroelectronics. Based on its results, projected capital requirements as well as business conditions and prospects, the Managing Board proposes on an annual basis to the Supervisory Board, whenever deemed possible and desirable in line with STMicroelectronics' objectives and financial situation, the distribution of a quarterly cash dividend, if any. The Supervisory Board, upon the proposal of the Managing Board, decides or proposes on an annual basis, in accordance with this policy, which portion of the profits or distributable reserves shall not be retained in reserves to fund future growth or for other purposes and makes a proposal concerning the amount, if any, of the quarterly cash dividend."

On May 23, 2019, our shareholders approved a cash dividend of US\$0.24 per outstanding share of our common stock, which was distributed in quarterly installments of US\$0.06 in each of the second, third and fourth quarters of 2019 and in the first quarter of 2020. Future dividends, if any, and their timing and amounts may be affected by our accumulated profits, our capacity to generate cash flow, our financial situation, the general economic situation and prospects and any other factors that the Supervisory Board, upon the recommendation of our Managing Board, shall deem important. For a history of dividends paid by us to our shareholders, see Note 7.6.22.7 of our Consolidated Financial Statements.

7. Consolidated financial statements

7.1. Consolidated income statement

In millions of USD except per share amount	Notes	Year ended	
		December 31, 2019	December 31, 2018
Sales	7.6.27	9,529	9,612
Other revenues	7.6.27	27	52
Total revenues		9,556	9,664
Cost of sales	7.6.29	(6,300)	(6,096)
Gross profit		3,256	3,568
Selling, general and administrative	7.6.29	(1,099)	(1,109)
Research and development	7.6.29	(1,208)	(1,127)
Other income	7.6.30	142	64
Other expenses	7.6.30	(56)	(41)
Operating profit		1,035	1,355
Finance income	7.6.31	81	453
Finance costs	7.6.31	(607)	(56)
Share of profit (loss) of joint ventures	7.6.10	1	8
Profit before income tax		510	1,760
Income tax expense	7.6.33	(122)	(125)
Net profit		388	1,635
Attributable to:			
The equity holders of the parent		387	1,629
Non-controlling interests		1	6
Net profit		388	1,635
Earnings per share attributable to the equity holders of the parent			
Earnings per share (Basic)	7.6.34	0.43	1.81
Earnings per share (Diluted)	7.6.34	0.43	1.80

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

7.2. Consolidated statement of comprehensive income

In millions of USD	Notes	Year ended	
		December 31, 2019	December 31, 2018
Net profit (loss)		388	1,635
Other comprehensive income (loss), net of tax:			
Items that will not be reclassified to profit or loss			
Re-measurements of employee benefit obligations		(52)	(38)
Income tax effect		12	3
Re-measurements of employee benefit obligations, net of tax		(40)	(35)
Total items that will not be reclassified to profit or loss		(40)	(35)
Items that may be subsequently reclassified to profit or loss			
Exchange differences on translation of foreign operations		(35)	(86)
Cash flow hedges	7.6.32	19	(56)
Income tax effect		-	1
Net movement on cash flow hedges		19	(55)
Changes in Fair value of debt instruments at FVOCI	7.6.16.1	2	(1)
Income tax effect		-	-
Net changes in Fair value of debt instruments at FVOCI		2	(1)
Total items that may be subsequently reclassified to profit or loss		(14)	(142)
Other comprehensive income (loss), net of tax		(54)	(177)
Total comprehensive income (loss), net of tax		334	1,458
Attributable to:			
The equity holders of the parent		333	1,452
Non-controlling interests		1	6
Total comprehensive income (loss), net of tax		334	1,458

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

7.3. Consolidated statement of financial position

In millions of USD	Notes	December 31, 2019	December 31, 2018
Non-current assets			
Property, plant and equipment	7.6.12	4,219	3,715
Goodwill	7.6.15	144	103
Intangible assets	7.6.14	1,191	1,220
Investments in joint ventures	7.6.10	—	49
Other non-current financial assets	7.6.16.1	57	43
Deferred tax assets	7.6.33	387	367
Other non-current assets	7.6.17	414	434
Total non-current assets		6,412	5,931
Current assets			
Inventories	7.6.18	1,693	1,567
Trade accounts receivable	7.6.19	1,380	1,277
Other current financial assets	7.6.16.1	156	335
Other receivable and assets	7.6.20	434	427
Short-term deposits		4	—
Restricted cash	7.6.11	10	—
Cash and cash equivalents	7.6.21	2,597	2,266
Total current assets		6,274	5,872
Total assets		12,686	11,803
Equity			
Equity attributable to the equity holders of the parent		7,086	7,062
Non-controlling interests		68	65
Total equity	7.6.22	7,154	7,127
Non-current liabilities			
Interest-bearing loans and borrowings	7.6.16.3	1,200	1,758
Other non-current financial liabilities	7.6.16.2	532	166
Employee benefits	7.6.24	566	496
Deferred tax liabilities	7.6.33	31	15
Non-current provisions	7.6.23	1	50
Other non-current liabilities		94	64
Total non-current liabilities		2,424	2,549
Current liabilities			
Interest-bearing loans and borrowings – current portion	7.6.16.3	869	146
Trade accounts payable	7.6.25	950	981
Other payables and accrued liabilities	7.6.25	260	328
Employee benefits – current portion	7.6.24	572	554
Current provisions	7.6.23	13	25
Other current financial liabilities	7.6.16.2	392	34
Income tax payable	7.6.33	52	59
Total current liabilities		3,108	2,127
Total equity and liabilities		12,686	11,803

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

7.4. Consolidated statement of changes in equity

For the year ended December 31, 2019

In millions of USD	Notes	Ordinary shares	Capital surplus	Treasury shares	Other reserves	Retained earnings	Equity attributable to the equity holders of the parent	Non-controlling interests	Total equity
As at January 1, 2019		1,157	2,185	(141)	1,221	2,640	7,062	65	7,127
Net profit		—	—	—	—	387	387	1	388
Other comprehensive income, net of tax		—	—	—	(54)	—	(54)	—	(54)
Total comprehensive income		—	—	—	(54)	387	333	1	334
Contribution of noncontrolling interest		—	—	—	—	—	—	8	8
Business Combination	7.6.11	—	4	—	—	—	4	(4)	—
Transfer of cash flow hedge reserve to inventories		—	—	—	1	—	1	—	1
Repurchase of common stock		—	—	(250)	—	—	(250)	—	(250)
Employee share award scheme	7.6.22.5	—	—	63	149	(63)	149	—	149
Dividends		—	—	—	—	(213)	(213)	—	(213)
Dividends to non-controlling interests		—	—	—	—	—	—	(2)	(2)
As at December 31, 2019		1,157	2,189	(328)	1,317	2,751	7,086	68	7,154

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

For the year ended December 31, 2018

In millions of USD	Notes	Ordinary shares	Capital surplus	Treasury shares	Other reserves	Retained earnings	Equity attributable to the equity holders of the parent	Non-controlling interests	Total equity
As at January 1, 2018		1,157	2,185	(132)	1,269	1,280	5,759	63	5,822
Net profit		–	–	–	–	1,629	1,629	6	1,635
Other comprehensive income, net of tax		–	–	–	(177)	–	(177)	–	(177)
Total comprehensive income		–	–	–	(177)	1,629	1,452	6	1,458
Transfer of cash flow hedge reserve to inventories		–	–	–	4	–	4	–	4
Repurchase of common stock		–	–	(62)	–	–	(62)	–	(62)
Employee share award scheme	7.6.22.5	–	–	53	125	(53)	125	–	125
Dividends		–	–	–	–	(216)	(216)	–	(216)
Dividends to non-controlling interests		–	–	–	–	–	–	(4)	(4)
As at December 31, 2018		1,157	2,185	(141)	1,221	2,640	7,062	65	7,127

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

7.5. Consolidated statement of cash flows

In millions of USD	Note	Year ended	
		December 31, 2019	December 31, 2018
Cash flows from operating activities			
Net profit (loss)		388	1,635
Items to reconcile net result and cash flows from operating activities:			
Depreciation and amortization		1,221	1,071
Interests and amortization of issuance costs on convertible bonds		40	38
Senior convertible bonds and related conversion options adjustments		519	(405)
Share-based compensation		156	121
Other non-cash items		(126)	(90)
Deferred income tax		(10)	50
Share of profit of joint ventures, impairments or reversal of impairments on investments in joint ventures		(1)	(8)
Impairment, restructuring and other related closure costs		126	6
Changes in net working capital:			
Movement of trade receivables, net		(103)	(155)
Movement of inventories, net		(142)	(254)
Movement of trade payables		(15)	4
Movement of other assets and liabilities, net		239	127
Interests paid		(19)	(12)
Interests received		54	45
Income tax paid		(130)	(60)
Net cash from operating activities		2,197	2,113
Cash flows from investing activities			
Payments for purchases of tangible assets		(1,181)	(1,263)
Proceeds from sale of tangible assets		7	1
Investment in short-term deposits		—	(26)
Proceeds from matured short-term deposits		—	26
Proceeds from mature marketable securities	7.6.16.1	200	100
Payments for purchase of intangible assets		(354)	(336)
Payment for purchase of financial assets		(3)	—
Proceeds from sale of equity investment		1	—
Payment for business acquisitions, net of cash and cash equivalents acquired		(127)	—
Net cash used in investing activities		(1,457)	(1,498)
Cash flows from financing activities			
Proceeds from interest-bearing loans and borrowings	7.6.16.3	281	281
Repayment of interest-bearing loans and borrowings	7.6.16.3	(144)	(103)
Payment of lease liabilities	7.6.16.3	(60)	—
Repurchase of common stock		(250)	(62)
Dividends paid to equity holders of the parent company		(214)	(216)
Dividends paid to non-controlling interests		(2)	(4)
Proceeds from noncontrolling interests		3	—
Net cash used in financing activities		(386)	(104)
Effect of changes in exchange rates		(13)	(4)
Net cash increase		341	507
Cash and cash equivalents and restricted cash at the beginning of the period		2,266	1,759
Cash and cash equivalents and restricted cash at the end of the period		2,607	2,266

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

7.6. Notes to the consolidated financial statements

7.6.1. Corporate information

STMicroelectronics N.V. (“the Company”), with Commercial Register No. 33194537 and RSIN 008751171, is organized under the laws of the Netherlands with its corporate legal seat in Amsterdam, the Netherlands, and head offices at WTC Schiphol Airport, Schiphol Boulevard 265, 1118 BH Schiphol, the Netherlands. Headquarters and operational offices are managed through STMicroelectronics International N.V., a wholly owned subsidiary of STMicroelectronics N.V., and are located at 39, Chemin du Champ des Filles, 1228 Plan-les-Ouates, Geneva, Switzerland.

The Company and its subsidiaries (together “the Group”) are a global independent semiconductor group that designs, develops, manufactures and markets a broad range of products, including discrete and standard commodity components, application-specific integrated circuits (“ASICs”), full custom devices and semi-custom devices and application-specific standard products (“ASSPs”) for analog, digital and mixed-signal applications. In addition, the Group participates in the manufacturing value chain of smartcard products, which includes the production and sale of both silicon chips and smartcards.

The Group’s products are used in a wide variety of applications for the four end-markets the Group addresses: automotive, industrial, personal electronics and communications equipment, computers and peripherals. For the automotive and industrial markets, the Group addresses a wide customer base, particularly in industrial, with a broad and deep product portfolio. In personal electronics and communications equipment, computers and peripherals the Group has a selective approach both in terms of the customers the Group serves, as well as in the technologies and products it offers. Together with its customers the Group enables smarter driving by making vehicles safer, more environmentally friendly and more connected. The Group enables smart industry helping to make factories and workplaces more efficient, more flexible and safer. The Group enables smarter homes and cities making houses, buildings and city infrastructure more efficient, more convenient and more secure. The Group helps make everything more intelligent, more connected and more secure. In doing this the Group ensures that ST is found everywhere microelectronics make a positive and innovative contribution to people’s lives. By getting more from technology to get more from life, ST stands for life.augmented.

The Company is a publicly traded company, listed on the New York Stock Exchange, on Euronext Paris and on the Borsa Italiana (Italian Stock Exchange).

These consolidated financial statements have been approved by the Supervisory Board on March 25, 2020 for submission to the Annual General Meeting of Shareholders.

7.6.2. Basis of preparation

The consolidated financial statements have been prepared on a historical cost basis, except for derivative financial instruments, debt and equity financial assets that have been measured at fair value. The consolidated financial statements are presented in dollars of the United States of America and all values are rounded to the nearest million (\$ million) except when otherwise stated. Under Article 35 of the Company’s Articles of Association, the financial year extends from January 1 to December 31, which is the period-end of each fiscal year. Certain prior year amounts have been reclassified to conform to current year presentation.

7.6.3. Statement of compliance

These Consolidated Financial Statements are prepared for Dutch statutory purposes in accordance with International Financial Reporting Standards (“IFRS”) as adopted by the European Union. These consolidated financial statements also comply with Article 362.9 of Book 2 of the Dutch Civil Code. For internal and external reporting purposes, the Group applies US GAAP as primary accounting framework.

7.6.4. Basis of consolidation

The consolidated financial statements comprise the financial statements of the Company and its subsidiaries as at December 31, 2019.

Subsidiaries are fully consolidated from the date of acquisition, being the date on which the Group obtains control and continues to be consolidated until the date that such control ceases. Subsidiaries are all entities over which the Group has control. The Group controls an entity when the Group is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. If the Group loses control over a subsidiary, it:

- Derecognizes the assets (including goodwill) and liabilities of the subsidiary
- Derecognizes the amount of any non-controlling interest
- Derecognizes the cumulative translation differences, recorded in equity
- Recognizes the fair value of the consideration received
- Recognizes the fair value of any investment retained
- Recognizes any surplus or deficit in profit or loss
- Reclassifies the parent's share of components previously recognized in other comprehensive income to profit or loss.

The financial statements of the subsidiaries are prepared for the same reporting period as the parent company, using consistent accounting policies. All intra-group assets and liabilities, equity, income, expenses and cash flows resulting from intra-group transactions are eliminated in full on consolidation.

Non-controlling interest is the share of equity in a subsidiary not attributable, directly or indirectly, to the parent company. Non-controlling interests are presented separately in the consolidated income statement and within equity in the consolidated statement of financial position, separately from the equity attributable to the equity holders of the parent. Changes in a parent's ownership interest in a subsidiary that do not result in a loss of control are accounted for as equity transactions.

7.6.5. Changes in accounting policies

The accounting policies adopted are consistent with those followed in the preparation of the Group's annual financial statements for the year ended December 31, 2018, except for the following new or amended standards adopted by the Group on or after January 1, 2019:

IFRS 16 Leases: The new standard on lease accounting no longer distinguishes for the lessee between a finance lease and an operating lease. IFRS 16 sets forth a single, on-balance sheet accounting model for lessees and for virtually all lease contracts. As a result, the Group, as a lessee, recognizes lease liabilities representing its obligations to make future lease payments and right-of-use assets representing its rights to use the underlying assets.

The Group has applied IFRS 16 using the modified retrospective approach, with a nil cumulative effect of initial application to be recognized in retained earnings as at January 1, 2019. Accordingly, the comparative information presented for 2018 has not been restated and is presented, as previously reported, under IAS 17 and related interpretations. The details of the changes are disclosed below.

(a) Definition of a lease

Based on previous guidance, the Group determined at contract inception whether an arrangement was or contained a lease under IFRIC 4 Determining Whether an Arrangement Contains a Lease. The Group now assesses whether a contract is or contains a lease based on the new definition set forth in IFRS 16. A contract is or contains a lease if the contract conveys a right to control the use of an identified asset for a period of time in exchange for consideration. On transition to IFRS 16, the Group elected to apply the practical expedient to grandfather the assessment of which transactions are leases, and consequently did not reassess whether any expired or existing contracts were or

contained leases. IFRS 16 was consequently applied upon transition only to contracts that were previously identified as leases. Contracts that were not identified as leases under previous applicable guidance were not reassessed and IFRS 16 definition has been applied only to contracts entered into or changed on or after January 1, 2019. Additionally, the Group applied upon transition the practical expedient on the assessment of contracts that contained a lease component and has elected not to separate non-lease components from lease components. The lease and non-lease components were instead accounted for as single lease components upon transition.

(b) Lease accounting as a lessee

As a lessee, the Group previously classified leases as operating or finance leases based on its assessment of whether the lease transferred substantially all of the risks and rewards of ownership. Under IFRS 16, the Group recognizes right-of-use assets and lease liabilities for most leases and these leases are on-balance sheet elements. However, the Group has elected not to recognize right-of-use assets and lease liabilities for some leases of low-value and for leases whose term ends within 12 months of the date of initial application (primarily for certain office and IT small equipment). The Group recognizes the lease payments associated with these leases as an expense on a straight-line basis over the lease term. They are reported as “Cost of sales”, “Selling, general and administrative”, or “Research and development” in the consolidated income statement according to the intended use of the leased asset, which is consistent with prior guidance applicable on lease arrangements determined to be operating leases.

Prior to IFRS 16 adoption, the Group classified as finance leases arrangements in which the Group had substantially all the risks and rewards of ownership. The Group did not report any material finance lease arrangement as at December 31, 2018. Only assets leased under finance leases were included in “Property, plant and equipment” on the consolidated statement of financial position and recorded at the lower of their fair value and the present value of the minimum lease payments.

The Group has elected to present right-of-use assets on the line “Property, plant and equipment” of the consolidated statement of financial position, the same line as it presents underlying assets of the same nature that the Group owns. The Group does not lease any property that meets the definition of investment property. The carrying amounts of right-of-use assets are as follows:

In millions of USD	Lands	Buildings	Machinery and equipment	Computer and R&D equipment	Other	Total
Balance as at January 1, 2019	38	157	3	10	14	222
Balance as at December 31, 2019	38	145	1	8	12	204

The Group recognizes a right-of-use asset and a lease liability at the commencement date. The right-of-use asset is initially measured at cost, and subsequently at cost less accumulated depreciation and any impairment losses or adjusted for certain re-measurements of the lease liability when deemed necessary. The adoption of IFRS 16 has had no impact on OCI as the Group does not apply the revaluation model on its long-lived assets. For income statement purposes, the depreciation charge on right-of-use assets is recorded on a straight-line basis over the lease period and reported as “Cost of sales”, “Selling, general and administrative”, or “Research and development” in the consolidated income statement according to the intended use of the leased asset.

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted using the interest rate implicit in the lease or, if that rate cannot be readily determined, the Group’s incremental borrowing rate. Generally, the Group uses its incremental borrowing rate as the discount rate. The lease liability is subsequently increased by the interest cost of the lease liability and decreased by the lease payments. The interest cost is reported on the line “Finance costs” of the consolidated income statement. The Group has applied judgment to determine the lease term for some lease contracts with renewal options. The assessment of whether the Group is reasonably certain to exercise such options impacts the lease term, which affects the amount of reported lease liabilities and corresponding right-of-use assets. The lease liabilities are reported on the line “Other non-current financial liabilities” on the consolidated statement of financial position when payment is expected beyond twelve months, and on the line “Other current financial liabilities” for the current

portion of the lease obligations. The carrying amount of lease liabilities is remeasured if there is a modification, a change in the lease term, a change in the lease payments or a change in the assessment of an option to purchase the underlying asset. Variable lease payments based on an index or a rate are initially measured using the index or rate as at the commencement date. Potential future increases in variable lease payments based on an index or rate are not included in the lease liability until they take effect. When adjustments to lease payments based on an index or rate take effect, the lease liability is reassessed and adjusted against the right-of-use asset.

For cash flow presentation purposes, cash payments for the principal portion of the lease liabilities are reported as cash flows used in financing activities, consistent with lease payments related to arrangements classified as finance leases under prior IAS 17 guidance. The interest expense recorded on the subsequent measurement of lease liabilities are reported within cash flows from operations, consistent with the Group's cash flow presentation for interest paid. Short-term lease payments and payments for leases of low-value assets are reported as operating outflows, consistent with lease payments related to arrangements classified as operating leases under prior IAS 17 guidance.

(c) Sales leaseback transactions and lease accounting as a lessor

Lessor accounting is similar to the previous IAS 17 model, but updated to align with certain changes to the lessee model and the new revenue recognition guidance. Existing sales-leaseback guidance has been replaced with a new model applicable to both lessees and lessors. The Group did not report any existing sales-leaseback transaction upon adoption and as at December 31, 2019. Moreover, the Group is not involved in any significant lease arrangement in which it acts as a lessor.

(d) Transition to IFRS 16

At transition, for leases classified as operating leases under IAS 17, lease liabilities were measured at the present value of the remaining lease payments, discounted at the Group's incremental borrowing rate as at January 1, 2019. Right-of-use assets were measured at an amount equal to the lease liability, adjusted by the amount of any prepaid or accrued lease payments. The Group applied this approach to all leases.

The Group used the following practical expedients when applying IFRS 16 to leases previously classified as operating leases under IAS 17:

- No recognition of right-of-use assets and liabilities for leases with less than 12 months of lease term and amounts below \$5,000;
- No reassessment of initial direct costs for any existing leases;
- Use of hindsight when determining the lease term if the contract contains options to extend or terminate the lease.

Prior to the new guidance adoption, the Group classified as finance leases arrangements in which the Group had substantially all the risks and rewards of ownership. Only assets leased under finance leases were included in "Property, plant and equipment" on the consolidated statement of financial position and recorded at the lower of their fair value and the present value of the minimum lease payments. The Group did not report any material finance lease arrangement upon IFRS 16 adoption. For these arrangements, the carrying amount of the right-of-use asset and the lease liability as at January 1, 2019 were determined at the carrying amount of the lease asset and the lease liability under IAS 17 immediately before that date.

(e) Impacts on transition

On transition to IFRS 16, the Group recognized additional right-of-use assets and additional lease liabilities, with impacts on transition summarized below:

In millions of USD	January 1, 2019
Right-of-use assets presented in Property, plant and equipment	222
Lease liabilities presented in current and non-current other financial liabilities	222
Deferred tax asset	—
Retained earnings	—

When measuring lease liabilities for leases that were classified as operating leases, the Group discounted lease payments using its incremental borrowing rate as at January 1, 2019. The weighted average discount rate was 2.77% as at January 1, 2019.

A reconciliation between operating lease commitments as at December 31, 2018 as disclosed in the Group's consolidated financial statements prior to IFRS 16 transition and lease liabilities recognized as at January 1, 2019 upon IFRS 16 adoption is presented below:

In millions of USD	January 1, 2019
Operating lease commitments as at December 31, 2018 as disclosed in the Group's consolidated financial statements	214
Operating lease commitments as at December 31, 2018 discounted using the incremental borrowing rate measured as at January 1, 2019	190
- Extension options reasonably certain to be exercised	21
- Capitalization of non-lease components	4
- Other	7
Lease liabilities recognized under IFRS 16 as at January 1, 2019	222

(f) Impacts for the period ended December 31, 2019

As a result of applying IFRS 16, in relation to the leases that were previously classified as operating leases, the Group recognized \$204 million of right-of-use assets and \$207 million lease liabilities as at December 31, 2019. Also in relation to those leases under IFRS 16, the Group has recognized depreciation and interest costs, instead of operating lease expense. During the year ended December 31, 2019, the Group recognized \$62 million of depreciation charges and \$6 million of interest costs from these leases. Impacts for the period ended December 31, 2019 are further described in note 7.6.13.

IFRIC Interpretation 23 Uncertainty over Income Tax Treatments: The new interpretation addresses the assessment of the supportability of an uncertain tax treatment based on the merits of the tax position, assuming that the tax authority will have full knowledge of the entity's position. It consequently addresses the accounting for income taxes when tax treatments involve uncertainty that affects the application of IAS 12 Income Taxes. The new guidance does not apply to taxes and levies outside the scope of IAS 12. Upon adoption of IFRIC 23 on January 1, 2019, the Group determined which uncertain tax treatments, if any, were to be considered separately or in conjunction with one or more other uncertain tax treatments. The Group must apply professional judgement to determine the level that better predicts the resolution of the uncertainties, as described in Note 7.6.8.2. If the Group concludes that it is probable that the taxing authorities will accept an uncertain tax treatment that has been taken or is expected to be taken on a tax return, the accounting for income taxes is determined consistently with that tax treatment. If the Group concludes it is not probable that the treatment will be accepted, the effect of the uncertainty is reflected in its income tax accounting in the period in which that determination is made. The Group should measure the impact of the uncertainty using the method that best predicts the resolution of the uncertainty; either the most likely amount method or the expected value method. In most cases, the Group applies the most likely amount method to determine the amount of uncertainty to be reflected in the consolidated financial statements, as the assessment generally relies on probabilities of possible outcomes that are either binary or concentrated on one value.

The Group adopted IFRIC 23 on January 1, 2019 using the modified retrospective method. As the new guidance is consistent with the way the Group assessed the amounts of income tax expenses expected to be paid and the amounts of tax benefits expected to be realized on prior reporting periods, no cumulative effect of initially applying IFRIC 23 was reported as an adjustment to Retained earnings upon adoption. As at December 31, 2019 and December 31, 2018, the Group reported liabilities for uncertain tax treatments totaling \$48 million and \$38 million, respectively. Prior to IFRIC 23 adoption, the Group reported uncertain tax positions on the line “Non-current provisions” on the consolidated statement of financial position as at December 31, 2018, as described in Note 7.6.23. Following the IFRS Interpretations Committee’s agenda decision published in September 2019, the Group presents uncertain tax liabilities as current tax when the uncertainty relates to the amount of income tax payable in respect of taxable profit or as deferred tax when the uncertainty relates to the amounts of income taxes payable or recoverable in future periods in respect of temporary differences and, in the case of deferred tax assets, the carryforward of unused tax losses and credits.

The following amendments and improvements to current IFRS guidance were effective and adopted on January 1, 2019, with no material impact on the accounting policies, financial position or performance of the Group:

- **Amendments to IFRS 9: Prepayment Features with Negative Compensation**
- **Amendments to IAS 28: Long-term Interests in Associates and Joint Ventures**
- **Amendments to IAS 19: Plan Amendment, Curtailment or Settlement**
- **Improvements to IFRS (2015-2017 cycle)**

7.6.6. Standards and amendments issued but not yet effective

Standards and amended standards issued but not yet effective up to the date of issuance of the Group’s financial statements are listed below. The detailed descriptions of new or amended standards and interpretations issued are those that the Group reasonably expects to have an impact on disclosures, financial position or performance when applied at a future date. The Group intends to adopt these standards when they become effective.

Amendment to IFRS 3 Business Combinations: the amendment provides a revised definition of a business and is intended to reduce the number of transactions that qualify as business combinations and for which the acquisition method is mandatory. IFRS 3, as amended, has not been endorsed by the European Union yet. The Group will adopt the amendment when effective and no significant impact is expected from its adoption.

Amendments to IFRS 9 and IFRS 7, Interest Rate Benchmark Reform: the amendments provide temporary reliefs which enable hedge accounting to continue during the period of uncertainty before the replacement of an existing interest rate benchmark with an alternative nearly risk-free interest rate. The amendments were endorsed by the European Union, with January 1, 2020 as the effective date. The adoption of these amendments is not expected to have a material impact on the Group’s accounting policies and consolidated financial statements as the Group does not report any hedging relationships that are directly affected by the interest rate benchmark reform.

Amendments to IAS 1, Presentation of Financial Statements: the amendments specify the requirements for classifying liabilities as current or non-current by clarifying the requirements of IAS 1 when an entity expects to refinance or roll over an obligation under an existing loan facility. The amendments also have implications on the requirements related to covenant breaches. The amendments clarify: what is meant by a right to defer settlement; that a right to defer must exist at the end of the reporting period and that the classification is not affected by the likelihood that an entity will exercise its deferral right and; that only if an embedded derivative in a convertible liability is itself an equity instrument would the terms of a liability not impact its classification. IAS 1, as amended, has not been endorsed by the European Union yet. The Group will apply these amendments when effective. The presentation of the convertible bonds issued in 2017 on the consolidated statement of financial positions is in the scope of the amended guidance, which is not expected to have a significant impact upon adoption.

The following new standard and amendments are not expected to have a material impact on the accounting policies, financial position or performance of the Group:

- IFRS 17: Insurance Contracts

- Amendments to References to the Conceptual Framework in IFRS Standards
- Amendments to IAS 1 and IAS 8: Definition of Material

7.6.7. Summary of significant accounting policies

7.6.7.1. Business combinations and goodwill

The Group applies the acquisition method to account for business combinations. The consideration transferred in a business combination (including any contingent consideration) is measured at fair value. Acquisition-related costs are expensed as incurred.

Each identifiable asset and liability is measured at its acquisition-date fair value. Only components of non-controlling interests that constitute a present ownership interest that entitles their holder to a proportionate share of the entity's net assets in the event of liquidation are measured at either fair value or at the present ownership instruments' proportionate share of the acquiree's identifiable net assets. All other components of non-controlling interests are measured at their acquisition date fair value.

Goodwill arises when there is a positive difference between:

- the aggregate of consideration transferred, any non-controlling interest in the acquiree and, in a business combination achieved in stages, the acquisition-date fair value of the acquirer's previously held equity interest in the acquiree; and
- the net identifiable assets acquired.

Goodwill is initially recorded at cost. If the acquirer has made a gain from a bargain purchase, that gain is recognized in the income statement.

After initial recognition, goodwill is not subject to amortization and is tested at least annually for impairment. For the purpose of impairment testing, goodwill acquired in a business combination is, from the acquisition date, allocated to each of the Group cash generating units ("CGU") that are expected to benefit from the synergies of the combination, irrespective of whether other assets or liabilities of the acquiree are assigned to those units.

A cash-generating unit is the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets.

Goodwill impairment tests are undertaken annually or more frequently if events or changes in circumstances indicate a potential impairment. The impairment test determines whether the recoverable amount of each cash-generating unit, which is the higher of its assets' fair value less costs of disposal and its value in use, is lower than its total carrying amount. If lower, an impairment loss is recognized for the excess of the carrying amount over the recoverable amount. If the impairment loss exceeds the book value of goodwill, allocation is made on a pro rata basis over the remaining assets of the CGU. In determining the value in use of a cash-generating unit, the Group usually estimates the expected discounted future cash flows associated with the unit. Significant management judgments and estimates are used in forecasting the future discounted cash flows, including: the applicable industry's sales volume forecast and selling price evolution, the cash-generating unit's market penetration, the market acceptance of certain recent technologies or the relevant cost structure. The pre-tax discount rates applied are based on various scenarios incorporating a weighted average cost of capital and the perpetuity rates used in calculating cash flow terminal values.

7.6.7.2. Investments in joint ventures

The Group's investment in its joint ventures is accounted for using the equity method. A joint venture is an entity whereby the partners have a contractual arrangement that establishes joint control over the economic activities of the entity. The agreement requires unanimous agreement for financial and operating decisions among the partners.

Under the equity method, the investment in the joint venture is carried in the statement of financial position at cost plus post-acquisition changes in the Group's share of net assets of the joint venture. Goodwill relating to the joint venture is included in the carrying amount of the investment and is neither amortized nor individually tested for impairment.

The income statement reflects the share of the result of operations of the joint venture. Where there has been a change recognized directly in the equity of the joint venture, the Group recognizes its share of any changes and discloses this element, when applicable, in the statement of changes in equity or other comprehensive income. Unrealized gains and losses resulting from transactions between the Group and the joint ventures are eliminated to the extent of the interest in the joint venture.

The share of profit (loss) of joint ventures is shown on the face of the income statement on the line “Share of profit (loss) of joint ventures”. This is the profit (loss) attributable to equity holders of the joint ventures and therefore is after tax and after net result attributable to non-controlling interests of the joint venture subsidiaries, if any.

The financial statements of the joint ventures are prepared for the same reporting period as the parent company or with not more than a quarter-lag if the joint venture cannot prepare financial statements in a timing compliant with the closing timeframe of the Group. Where necessary, adjustments are made to bring the accounting policies in line with those of the Group.

After application of the equity method, the Group determines whether it is necessary to recognize an additional impairment loss on the Group’s investment in its joint ventures. The Group determines at each reporting date whether there is any objective evidence that the investment in the joint venture is impaired. If this is the case, the Group calculates the amount of impairment as the difference between the recoverable amount of the joint venture and its carrying value and recognizes the amount in the income statement. To the extent that the recoverable amount of an investment in a joint venture subsequently increases, the Group reverses the impairment previously recorded.

7.6.7.3. Foreign currency translation

The U.S. dollar is the functional currency for the Company and the presentation currency for the Group, which is the currency of the primary economic environment in which the Group operates. The worldwide semiconductor industry uses the U.S. dollar as a currency of reference for actual pricing in the market. Furthermore, the majority of the Group’s transactions are denominated in U.S. dollars, and revenues from external sales in U.S. dollars largely exceed revenues in any other currency. However, certain significant costs are largely incurred in the countries of the Euro zone and other non-US dollar currency areas.

The functional currency of each subsidiary throughout the Group is either the local currency or the U.S. dollar, determined on the basis of the economic environment in which each subsidiary operates. For consolidation purposes, assets and liabilities included in the statement of financial position of the Group’s subsidiaries having the local currency as functional currency are translated at current rates of exchange at the reporting date. Income and expense items and cash flow items are translated at the prevailing exchange rate in which they are recognized. The currency translation adjustments (“CTA”) generated by the conversion of the financial position and results of operations from local functional currencies are reported as a component of other comprehensive income in the consolidated statement of comprehensive income and the consolidated statement of changes in equity.

Goodwill and fair value adjustments arising on the acquisition of a foreign entity are treated as assets and liabilities of the foreign entity and translated at the closing rate. Exchange differences arising are recognized in other comprehensive income.

Assets, liabilities, revenues, expenses, gains or losses arising from transactions denominated in foreign currency are recorded in the functional currency of the recording entity at the prevailing exchange rate. At each reporting date, balances denominated in a currency other than the recording entity’s functional currency are re-measured into the functional currency at the exchange rate prevailing at the reporting date. The related exchange gains and losses are recorded in the consolidated income statement as “Other income” or “Other expenses”.

7.6.7.4. Revenue recognition

Arrangements with customers are considered contracts if all the following criteria are met: (a) parties have approved the contract and are committed to perform their respective obligations; (b) each party’s rights regarding the goods or services to be transferred can be identified; (c) payment terms for the goods or services to be transferred can be identified; (d) the contract has commercial substance and (e) collectability of substantially all of the consideration is

probable. The Group recognizes revenue from products sold to a customer, including distributors, when it satisfies a performance obligation by transferring control over a product to the customer. This usually occurs at the time of shipment. In certain circumstances, the Group may enter into arrangements that concern principally revenues from services where the performance obligation is satisfied over time. The objective when allocating the transaction price is to allocate the transaction price to each performance obligation (or distinct good or service) in an amount that depicts the amount of consideration to which the Group expects to be entitled in exchange for transferring the promised goods or services to the customer. The payment terms range between 30 and 90 days.

Consistent with standard business practice in the semiconductor industry, price protection is granted to distribution customers on their existing inventory of the Group's products to compensate them for declines in market prices. The Group accrues a provision for price protection based on a rolling historical price trend computed on a monthly basis as a percentage of gross distributor sales. This historical price trend represents differences in recent months between the invoiced price and the final price to the distributor, adjusted if required, to accommodate a significant change in the current market price. The short outstanding inventory time period, visibility into the inventory product pricing and long distributor pricing history have enabled the Group to reliably estimate price protection provisions at period-end. The Group records the accrued amounts as a reduction of "Sales" in the consolidated income statement at the time of the sale.

The Group's customers occasionally return the Group's products for technical reasons. The Group's standard terms and conditions of sale provide that if the Group determines that products do not conform, the Group will repair or replace the non-conforming products, or issue a credit note or rebate of the purchase price. Quality returns are identified shortly after sale in customer quality control testing. Quality returns are usually associated with end-user customers, not with distribution channels. The Group records the accrued amounts as a reduction of "Sales" in the consolidated income statement, using past history and current conditions to form a reasonable estimate of future returns.

The Group's insurance policy relating to product liability covers third party physical damages and bodily injury, indirect financial damages as well as immaterial non-consequential damages caused by defective products. The Group records a provision for warranty costs as a charge against "Cost of sales" in the consolidated income statement, based on historical trends of warranty costs incurred as a percentage of sales, which management has determined to be a reasonable estimate of the probable losses to be incurred for warranty claims in a period. Any potential warranty claims are subject to the Group's determination that the Group is at fault for damages, and such claims usually must be submitted within a short period of time following the date of sale. This warranty is given in lieu of all other warranties, conditions or terms expressed or implied by statute or common law. The Group's contractual terms and conditions typically limit its liability to the sales value of the products which gave rise to the claims.

In addition to product sales, the Group enters into arrangements with customers consisting in transferring licenses or related to license services. The revenues generated from these arrangements are reported on the line "Other revenues" of the consolidated income statement. Other revenues also include patent royalty income, sale of scrap materials and manufacturing by-products.

7.6.7.5. Other significant categories of income

Funding

The Group receives funding mainly from governmental entities and income is recognized when all contractual conditions for receipt of these funds are fulfilled. The Group's primary sources for government funding are French, Italian and other European Union ("EU") governmental entities. Such funding is generally provided to encourage research and development activities, industrialization and local economic development. Public funding in France, Italy and Europe generally is open to all companies, regardless of their ownership or country of incorporation. The conditions for receipt of government funding may include eligibility restrictions, approval by EU authorities, annual budget appropriations, compliance with European Commission regulations, as well as specifications regarding objectives and results. Certain specific contracts require compliance with extensive regulatory requirements and set forth certain conditions relating to the funded programs. There could be penalties if these objectives are not fulfilled. Other contracts contain penalties for late deliveries or for breach of contract, which may result in repayment obligations.

The Group's funding programs are classified under three general categories: funding for research and development activities, capital investments, and loans. The Group also benefits from tax credits for R&D activities in several countries (notably in France and Italy) as they are generally available to all companies.

Funding for research and development activities

Funding for research and development activities is the most common form of funding that the Group receives. Public funding for such activities is recorded as "Other income" in the Group's consolidated income statement. Public funding for research and development is recognized ratably as the related costs are incurred once the agreement with the respective governmental agency has been signed and all applicable conditions are met. The majority of this public funding is not received for development projects recognized by the Group as intangible assets, in which case the Group would have recognized such funding as a reduction of the corresponding intangible assets.

The Group receives certain specific project-related research tax credits – "Crédit Impôt Recherche" and "Credito d'Imposta Ricerca e Sviluppo" – in the French and Italian tax jurisdictions, respectively. The Group considers the tax credits received as government grants based on the fact that the tax credits are received independently from tax payments of the Group. The Group recognizes these credits as long-term or short-term receivables depending on the expected time of collection. These credits are deducted from "Research and development" in the consolidated income statement or recorded as a reduction of intangible assets, as described in note 7.6.7.6.

Capital investments

Capital investment funding is recorded as a reduction of "Property, plant and equipment" in the consolidated statement of financial position and is recognized in the Group's consolidated income statement according to the depreciation charges of the funded assets during their useful lives. The Group also receives capital funding in Italy, which is recovered through the reduction of various government liabilities, including income taxes, value-added tax and employee-related social charges.

When the funding has been classified as a long-term receivable with no tax attribute or legal restriction, it is reflected in the statement of financial position at its discounted net present value. The subsequent accretion of the discount is recorded as non-operating profit in "Finance income".

Loans

The Group receives certain loans, mainly related to large capital investment projects, at preferential interest rates. The loans are measured and recognized in accordance with IFRS 9. The benefit, if any, is calculated as the difference between the initial carrying amount of the loans determined in accordance with IFRS 9 and the proceeds received and is recognized in accordance with the policy described in the preceding paragraphs.

Finance income

Finance income is calculated by applying the effective interest rate to the gross carrying amount of a financial asset, except for financial assets that subsequently become credit impaired. For credit-impaired financial assets, the effective interest rate is applied to the net carrying amount of the financial asset.

7.6.7.6. Research and development

Research and development expenditures include costs incurred by the Group, the Group's share of costs incurred by other research and development interest groups and costs associated with co-development contracts. Research costs are expensed as incurred and are reported net of research tax credits received in the French and Italian tax jurisdictions, as described in note 7.6.7.5.

Expenditures incurred on development projects, mainly related to the design and testing of new or improved products controlled by the Group are recognized as "Intangible assets" in the consolidated statement of financial position when it is probable that the project will be a success considering its economic profitability and technological feasibility, and costs can be measured reliably, as described in note 7.6.7.11. Certain research tax credits are also recognized as a reduction of intangible assets for the portion that can be reliably allocated to development projects.

Development expenditures recognized as assets are amortized, when ready for intended use, over their estimated useful lives, not exceeding three years (Refer to note 7.6.7.11. Intangible assets with definite useful lives). Other development costs are expensed as incurred. Development expenditures recognized as expenses are not recognized as assets in a subsequent period. Amortization expense recognized on capitalized development costs in use is recorded as "Cost of sales" in the consolidated income statement. Amortization expense on technologies and licenses purchased by the Group from third parties or acquired in a business combination to facilitate the Group's research is recorded as "Research and development" in the consolidated income statement.

An impairment test is performed whenever a triggering event questions the future recoverability, or at least annually, for the capitalized development projects still not in use. A loss is recognized in the consolidated income statement as "Cost of sales" for the amount by which the asset's carrying amount exceeds its recoverable amount.

7.6.7.7. Current and deferred income tax

The income tax benefit (expense) in the consolidated income statement for the period comprises current and deferred income tax. Current income tax benefit (expense) represents the income tax benefit expected to be received or the income tax expected to be paid related to the current year loss or income in each individual tax jurisdiction. Items recognized in other comprehensive income or directly in equity are recognized net of tax. Management periodically evaluates positions taken in tax returns with respect to situations in which applicable tax regulation is subject to interpretation. Prior to adoption of IFRIC Interpretation 23, Uncertainty over Income Tax Treatments, provisions were recorded when appropriate on the basis of amounts expected to be paid to the tax authorities. Upon adoption of IFRIC 23, as described in details in note 7.6.5, the Group determines whether it is probable that the taxing authorities will accept an uncertain tax treatment that has been taken or is expected to be taken on a tax return and the accounting for income taxes is determined consistently with that tax treatment. If the Group concludes it is not probable that the treatment will be accepted, the effect of the uncertainty is reflected in its income tax accounting in the period in which that determination is made.

Deferred tax assets and liabilities are recorded for temporary differences arising between the tax and book bases of assets and liabilities and for the benefits of tax credits and operating loss carry-forwards. However, deferred income tax is not accounted for if it arises from initial recognition of an asset or liability in a transaction other than a business combination that, at the time of the transaction, affects neither accounting nor taxable profit or loss. The Group applies this exception rule on deferred income tax arising from the initial recognition of right-of-use assets and financial liabilities recorded on lease arrangements. Moreover, deferred tax liabilities are not recognized if they arise from the initial recognition of goodwill. Deferred income tax is determined using tax rates and laws that have been enacted or substantively enacted by the reporting date and are expected to apply when the related deferred income tax asset is realized or the deferred income tax liability is settled.

Deferred income tax assets are recognized to the extent that it is probable that future taxable profit will be available against which the temporary differences can be utilized.

Income taxes are recognized as cash flows from (used in) operating activities in the consolidated statement of cash flows.

7.6.7.8. Earnings per share

Basic earnings per share are computed by dividing net result attributable to the equity holders of the parent by the weighted average number of ordinary shares outstanding during the period. Diluted earnings per share are computed by dividing net result attributable to the equity holders of the parent (adding-back interest expense, net of tax effects, related to convertible debt if determined to be dilutive) by the weighted average number of ordinary shares and potential ordinary shares outstanding during the period. The weighted average shares used to compute diluted earnings per share include the incremental shares of ordinary shares relating to unvested shares or stock options granted and convertible debt to the extent such incremental shares are dilutive. Unvested shares with performance conditions are included in the computation of diluted earnings per share if their conditions have been satisfied at the reporting date and if the awards are dilutive. If all the conditions have not been satisfied by the end of the period, the number of contingently issuable shares included in the diluted earnings per share calculation is based on the number of shares that would be issuable if the end of the period were the end of the contingency period.

7.6.7.9. Cash and cash equivalents

Cash and cash equivalents include cash on hand, deposits held at call with external financial institutions and other short-term highly liquid investments with original maturities of three months or less. They are readily convertible to known amounts of cash and so near their maturity that they present insignificant risk of changes in value because of changes in interest rates. Bank overdrafts, if any, are not netted against cash and cash equivalents in the consolidated cash flow statement and are shown as part of current liabilities on the consolidated statement of financial position.

7.6.7.10. Inventories

Inventories are stated at the lower of cost or net realizable value. Cost is based on the weighted average cost by adjusting standard cost to approximate actual manufacturing costs on a quarterly basis; the cost is therefore dependent on the Group's manufacturing performance. In the case of underutilization of manufacturing facilities, the costs associated with the excess capacity are not included in the valuation of inventories but charged directly to cost of sales. Net realizable value is a market value as the estimated selling price in the ordinary course of business, less applicable variable selling expenses and cost of completion.

As described in Note 7.6.7.15, the Group hedges a portion of its Euro-denominated front-end manufacturing costs of semi-finished goods as well as certain Singapore dollar-denominated forecasted transactions. The Group adjusts the initial carrying amount of inventory by the cumulative amount of the hedging instrument fair value changes recorded as other comprehensive income for settled hedging transactions.

The Group performs on a continuous basis inventory write-off of products, which have the characteristics of slow-moving, old production date and technical obsolescence. Indeed, the Group evaluates its product inventory to identify obsolete inventory and records a specific reserve if the Group estimates the inventory will eventually become obsolete. Reserve for obsolescence is estimated for excess uncommitted inventory based on the previous quarter sales, order backlog and production plans. Inventory associated with obsolete or uncommitted inventory is expensed to "Cost of sales" in the consolidated income statement.

7.6.7.11. Intangible assets with definite useful lives

Intangible assets acquired separately are recognized at cost in the consolidated statement of financial position and include technologies and licenses purchased from third parties and purchased software. The cost of intangible assets acquired in a business combination is the acquisition-date fair value.

Expenditures incurred on development projects, mainly related to the design and testing of new or improved products controlled by the Group and internally generated software developed for the Group's internal use, are recognized as intangible assets when the Group can demonstrate all of the following:

- the technical feasibility of completing the item under development so that it will be available for use or sale;
- its intention to complete the item under development and ability to use it or sell it;
- how the item under development will generate probable future economic benefits;
- the availability of adequate technical, financial and other resources to complete the development and to use or sell the item under development; and
- its ability to measure reliably the expenditures attributable to the project during its development.

Refer to Note 8.3.12 for composition of Company's legal reserves, which includes capitalized development costs and internally developed software.

Expenditures incurred on development projects that do not meet these criteria and all research activities are recognized as expenses when incurred.

Development costs are amortized, when the development is complete, on a straight-line basis over the period of their expected benefits, not exceeding three years.

Intangible assets with definite lives are amortized over their useful economic lives. The amortization period and the amortization method for an intangible asset with a definite useful life are reviewed at least at each financial year end. Amortization is computed using the straight-line method over their estimated useful lives.

A summary of the policies applied to the Group's intangible assets is as follows:

	Technologies and licenses	Purchased software	Internally developed software	Capitalized development costs
Useful lives	Definite	Definite	Definite	Definite
Amortization method used	Straight line basis over estimated useful life / 3-7 years	Straight line basis over estimated useful life / Max 4 years	Straight line basis over estimated useful life / Max 4 years	Straight line basis over estimated useful life / Max 3 years
Internally generated or acquired	Acquired	Acquired	Internally generated	Internally generated

Intangible assets not ready to use, such as capitalized development expenditures, are tested annually for impairment. The carrying value of intangible assets with definite useful lives and subject to amortization is assessed for impairment at the level of a CGU whenever there is an indication that intangible assets may be impaired. An impairment loss is recognized in the consolidated income statement for the amount by which the carrying amount exceeds the recoverable amount. The recoverable amount is the higher of an asset's fair value less costs of disposal and value in use. In determining recoverability, the Group usually estimates the value in use based on the projected discounted future cash flows associated with the intangible assets. The Group makes maximum use of market inputs and minimizes the use of unobservable inputs when measuring fair value. Prior impairment charges on intangible assets other than goodwill are reviewed for possible reversal at each reporting date.

7.6.7.12. Property, plant and equipment

Property, plant and equipment are stated at historical cost, net of government funding, accumulated depreciation and any impairment losses. Property, plant and equipment acquired in a business combination are recognized at fair value at the acquisition date. Major additions and improvements are capitalized, while minor replacements and repairs are expensed and reported as "Cost of sales", "Selling, general and administrative", or "Research and development" in the consolidated income statement according to their intended use.

Land is not depreciated. Depreciation on fixed assets is computed using the straight-line method over the following estimated useful lives:

Nature of tangible asset	Estimated useful life
Buildings	33 years
Facilities & leasehold improvements	5-10 years
Machinery and equipment	2-10 years
Computer and R&D equipment	3-6 years
Other	2-5 years

The assets' residual values and useful lives are reviewed, and adjusted if appropriate, at the end of each reporting period. The Group evaluates in each period whether there is a reason to suspect that tangible assets or groups of assets might not be recoverable. Several impairment indicators exist for making this assessment such as: restructuring plans, significant changes in the technology, market, economic or legal environment in which the Group operates, available evidence of obsolescence of the asset, or indication that its economic performance is, or will be, worse than expected. For the purposes of assessing impairment, assets are grouped at the lowest levels for which there are separately identifiable cash flows (cash-generating units). An impairment loss is recognized in the consolidated income statement for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs of disposal and value in use. The fair

value is normally estimated by the Group based on independent market appraisals and the value in use by applying discounted cash-flow procedures. The Group makes maximum use of market inputs and minimizes the use of unobservable inputs when measuring fair value.

When property, plant and equipment are retired or otherwise disposed of, the net book value of the assets is removed from the Group's books and the net gain or loss is included in "Other income" or "Other expenses" in the consolidated income statement. A manufacturing line is composed of several individual equipment which are individually recorded, depreciated and disposed of if needed.

As described in details in note 7.6.5, the Group assesses at contract inception whether a contract implying the use of an asset is, or contains, a lease, which is the case if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. The Group recognizes right-of-use assets at the commencement date of the lease as a category of "Property, plant and equipment" in the consolidated statement of financial position. The corresponding lease liabilities are reported on the line "Other non-current financial liabilities" on the consolidated statement of financial position when payment is expected beyond twelve months, and on the line "Other current financial liabilities" for the current portion of the lease obligations. Lease arrangements with a sum of lease payments not exceeding \$5,000 or a total duration lower than twelve months are excluded from capitalization.

7.6.7.13. Financial Assets

7.6.7.13.1. Offsetting financial instruments

Financial assets and liabilities are offset and the net amount reported in the consolidated statements of financial position when there is a legally enforceable right to offset the recognized amounts and there is an intention to settle on a net basis or realize the asset and settle the liability simultaneously.

7.6.7.13.2. Classification

The Group classifies its financial assets according to the following measurement categories:

- Those measured at fair value (either at FVOCI or FVPL);
- Those measured at amortized cost.

Publicly traded equity securities are measured at FVPL while the Group has made the irrevocable election to measure equity securities with no readily determinable fair value at FVOCI, with subsequent changes in fair value not recycled through earnings. Derivative instruments that are not designated as hedging instruments (trading derivatives) are measured at FVPL. Debt instruments, loans and receivables are measured at amortized cost or FVOCI, depending on the Group's business model in managing the assets. When the contractual terms of cash flows do not solely correspond to payments of principal and interest (the "SPPI criterion"), the financial asset is mandatorily measured at FVPL.

7.6.7.13.3. Recognition and measurement

Regular purchases and sales of financial assets are recognized on the trade date — the date on which the Group commits to purchase or sell the asset. Investments are initially recognized at fair value plus transaction costs for all financial assets not carried at fair value through profit or loss. Financial assets carried at fair value through profit or loss are initially recognized at fair value, and transaction costs are expensed in the consolidated income statement. Financial assets are derecognized when the rights to receive cash flows from the investments have expired or have been transferred and the Group has transferred substantially all risks and rewards of ownership.

Debt instruments

Subsequent measurement of debt instruments depends on the Group's business model for managing the asset and its cash flow characteristics. The contractual cash flows related to all debt instruments held by the Group meet the SPPI criterion. There are two measurement categories into which the Group classifies its debt instruments:

- Amortized cost: Assets that are held for collection of contractual cash flows are measured at amortized cost. These assets typically correspond to trade accounts receivable, other receivables, long-term loans and long-term receivables. They are reported as current, except for maturities greater than twelve months after the reporting date, which are classified as non-current.

- FVOCI: Assets that are held for collection of contractual cash flows or for selling are measured at FVOCI. Movements in the carrying amount are taken through OCI, except for the recognition of impairment losses, interest income and foreign exchange gains and losses, which are recognized in the consolidated statement of income. When the financial asset is derecognized, the cumulative gain or loss previously recognized in OCI is recycled from equity to earnings, within “Other income” or “Other expenses” in the consolidated income statement, when the transactions for such instruments are related to the Group’s operating activities. Gains and losses arising from financial assets not related to the operating activities of the Group are presented within “Finance income” and “Finance costs” in the consolidated income statement. Debt instruments measured at FVOCI are included in non-current assets unless management intends to dispose of the investment within twelve months after the reporting date or if they represent investments of funds available for current operations.

Equity securities

The Group subsequently measures all equity securities at fair value, except investments in associates and joint ventures, which corresponding accounting policies are described in Note 7.6.7.2. The Group’s has elected to irrevocably measure equity securities with no readily determinable fair value at FVOCI, with no subsequent reclassification of fair value gains and losses, including impairment, from equity to earnings following the derecognition of the financial assets.

Gains and losses arising from changes in the fair value of publicly traded equity securities, which are measured at FVPL, are presented in the consolidated income statement within “Other income” or “Other expenses” in the period in which they arise, when the transactions for such instruments are related to the Group’s operating activities. Gains and losses arising from changes in fair value of these financial assets not related to the operating activities of the Group were presented within “Finance income” and “Finance costs” in the consolidated income statement.

7.6.7.13.4. Impairment of financial assets

The Group assesses on a forward-looking basis the expected credit losses associated with its debt instruments carried at amortized cost and FVOCI. The impairment methodology applied depends on whether there has been a significant increase in credit risk. The impairment methodology by category of financial assets is further described in Note 7.6.37.

For trade receivables, the Group applies the simplified approach permitted by IFRS 9, which requires expected lifetime losses to be recognized from initial recognition of the receivables, which is further described in Note 7.6.19.

7.6.7.14. Trade accounts receivable

Trade accounts receivable are amounts due from customers for goods sold or services performed in the ordinary course of business. The accounts receivable are recognized initially at transaction price and subsequently measured at amortized cost using the effective interest method, less provision for expected credit losses. The carrying amount of the asset is reduced through the use of a loss allowance, and the amount of the loss is recognized in the consolidated income statement as “Selling, general and administrative” in the consolidated income statement. When a trade receivable is uncollectible, it is written-off against the impairment account for trade receivables. Subsequent recoveries of amounts previously written off are credited against “selling, general and administrative” in the consolidated income statement. The impairment policies on trade receivables are further described in Note 7.6.7.13 and 7.6.37.

In the event of sales of receivables and factoring, the Group derecognizes the receivables and accounts for them as a sale only to the extent that the receivables have been transferred outside the consolidated group and the Group has transferred substantially all the risks and rewards of ownership of the receivables.

7.6.7.15. Derivative financial instruments and hedging activities

Derivative financial instruments are classified as trading financial instruments measured at FVPL unless they are designated as effective hedging instruments. All derivatives are carried as assets when their fair values are positive and as liabilities when their fair values are negative.

Trading derivative financial instruments

The worldwide operations of the Group lead to an exposure to adverse movements in foreign currency exchange rates. The Group enters into foreign currency forward contracts and currency options to reduce its exposure to changes in exchange rates and the associated risk arising from the denomination of certain assets and liabilities in foreign currencies at the Group's subsidiaries. In addition forward contracts and currency options, including collars, are also used by the Group to reduce its exposure to U.S. dollar fluctuations in Euro-denominated forecasted intercompany transactions that cover a large part of research and development expenditures and certain corporate expenses incurred on behalf of STMicroelectronics International N.V. by subsidiaries. These intercompany transactions are not closely linked to ultimate transactions with third parties and consequently, these derivatives do not qualify as hedging instruments under the requirements of IFRS 9.

The trading derivative financial instruments are initially and subsequently recorded at fair value. Fair value adjustments and realized gains and losses are recognized in the consolidated income statement on the line "Other income" or "Other expenses".

Derivative financial instruments designated as hedge

These instruments correspond to forward currency contracts and currency options, including collars, which are entered into by the Group to hedge exposure to foreign currency fluctuations.

For the purpose of hedge accounting, the hedging transactions are classified as cash flow hedge as they hedge exposure to variability in cash flows of highly probable forecasted transactions.

The following criteria must be in place before the Group will use hedge accounting:

- at the inception of the transaction, the Group formally documents the economic relationship between hedging instruments and hedged items, as well as its risk management objectives and strategy for undertaking the hedge;
- the Group also documents its assessment, both at hedge inception and on an ongoing basis, of whether the derivatives that are used in hedging transactions are highly effective in offsetting changes of cash flows of hedged items; and
- the highly probable forecasted transactions designated as hedged items will ultimately affect the consolidated income statement.

Cash flow hedge

To further reduce its exposure to U.S. dollar exchange rate fluctuations, the Group also hedges a portion of its Euro-denominated forecasted intercompany purchases of products whose underlying front-end manufacturing production costs of semi-finished goods are incurred in Euros, since these transactions are considered highly probable to occur and are closely linked to ultimate transactions with third parties. Additionally, the Group hedges certain Singapore dollar-denominated manufacturing forecasted transactions.

Such derivatives financial instruments are initially recognized at fair value. The effective portion of the gain or loss on the hedging instrument is recognized in other comprehensive income, while the ineffective portion, if any, is recognized in the consolidated income statement on the line "Other income" or "Other expenses". The Group has elected to designate the full change in fair value, including the time value of options or combination of options, as the hedging instrument.

If the forecast transaction is no longer expected to occur, amounts previously recognized in other comprehensive income are transferred to the consolidated income statement on the line "Other income" or "Other expenses". If the hedging instrument expires or is sold, terminated or exercised without replacement or roll-over, or if its designation as a hedge is revoked, amounts previously recognized in other comprehensive income are not transferred to the consolidated income statement until the forecasted transaction occurs.

7.6.7.16. Non-current assets held for sale

Non-current assets and disposal groups classified as held for sale are measured at the lower of carrying amount and fair value less costs to sell. Costs to sell include incremental direct costs to transact the sale that would not have been incurred except for the decision to sell. Non-current assets and disposal groups are classified as held for sale if their carrying amounts will be recovered through a sale transaction rather than through continuing use. This condition is regarded as met only when the sale is highly probable and the asset or disposal group is available for immediate sale in its present condition. Management must be committed to the sale, which should be expected to qualify for recognition as a completed sale within one year from the date of classification.

Property, plant and equipment and intangible assets once classified as held for sale are not depreciated or amortized.

7.6.7.17. Employee benefits

The Group operates various post-employment schemes, including both defined benefit and defined contribution pension plans.

Pension obligations

The Group sponsors various pension schemes for its employees. These schemes conform to local regulations and practices of the countries in which the Group operates. Defined benefit pension plans define amounts of pension benefits that employees will receive on retirement, usually dependent on one or more factors such as age, years of service and compensation. The liability recognized on the line "Employee benefits" in the consolidated statement of financial position in respect of defined benefit pension plans is the present value of the defined benefit obligation at the reporting date less the fair value of plan assets. Significant estimates are used in determining the assumptions incorporated in the calculation of the pension obligations, which is supported by input from independent actuaries. The defined benefit obligation is calculated annually using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using interest rates of high-quality corporate bonds that are denominated in the currency in which the benefits will be paid, and that have terms to maturity approximating the terms of the related pension obligation.

Actuarial gains and losses arising from experience adjustments and changes in actuarial assumptions are charged or credited to equity in other comprehensive income in the period in which they arise. Past service costs are recognized immediately in profit or loss.

For defined contribution plans, the Group pays contributions to publicly or privately administered pension insurance plans on a mandatory, contractual or voluntary basis. The Group has no further payment obligations once the contributions have been paid. The contributions are recognized as employee benefit expense when they are due. Prepaid contributions are recognized as an asset to the extent that a cash refund or a reduction in the future payments is available.

Other long-term employee benefits

The Group provides long-term employee benefits such as seniority awards in certain countries. The entitlement to these benefits is usually conditional on the employee completing a minimum service period. The expected costs of these benefits are accrued over the period of employment. Actuarial gains and losses arising from experience adjustments, and changes in actuarial assumptions, are charged or credited to earnings in the period of change. These obligations are valued annually with the assistance of independent qualified actuaries.

Termination benefits

Termination benefits are payable when employment is terminated by the Group before the normal retirement date, or whenever an employee accepts voluntary termination in exchange for these benefits. The Group recognizes termination benefits at the earlier of the following dates: (a) when the Group can no longer withdraw the offer of those benefits; and (b) when the entity recognizes costs for a restructuring that is within the scope of IAS 37 and involves the payment of termination benefits. In the case of an offer made to encourage voluntary leaves, the Group bases the measurement of termination benefits on the number of employees accepting the offer. Benefits falling due more than twelve months after the reporting date are discounted to present value.

Profit-sharing and bonus plans

The Group recognizes a liability and an expense for bonuses and profit-sharing plans when it is contractually obliged or where there is a past practice that has created a constructive obligation.

Share-based compensation

All the share plans of the Group are equity settled.

The fair value of the employee services received in exchange for the grant of share-based awards is recognized as an expense and as a corresponding increase in shareholders' equity. The total amount to be expensed over the vesting period, which is the period over which all of the specified vesting conditions are to be satisfied, is determined by reference to the fair value of the awards granted at the date of grant, reduced by the present value of the dividends expected to be paid on the shares during the requisite service period. Non-market performance and service conditions are included in assumptions about the number of instruments that are expected to vest. Any applicable employee social charges are also expensed pro rata over the same period as the share-based compensation expense.

At the end of each reporting period, the Group revises its estimates of the number of instruments that are expected to vest based on the non-market vesting conditions. It recognizes the impact of the revision to original estimates, if any, in the consolidated income statement, with a corresponding adjustment to equity.

7.6.7.18. Financial Debt

Bank loans

Bank loans are recognized initially at fair value, net of transaction costs incurred, if any. They are subsequently stated at amortized cost; any difference between the proceeds (net of transaction costs) and the redemption value is recognized in the consolidated income statement over the period of the borrowings using the effective interest method within "Finance costs".

Borrowings are classified as current liabilities unless the Group has an unconditional right to defer settlement of the liability for at least twelve months after the reporting date.

Compound financial instruments

The Group issued in 2017 convertible bonds that can be converted to share capital at the option of the holder and that are callable by the Group, in certain events and circumstances, but for which the number of shares to be issued does vary with changes in their fair value.

The issuer's call option and the bondholder's conversion option are embedded non-equity derivative instruments and are recognized separately from the debt host contract. Upon initial recognition, the derivatives are measured at fair value, and the debt is measured as a residual amount. The debt is subsequently measured at amortized cost using the effective interest method. The embedded derivatives are measured at fair value through profit and loss and the changes in fair value are reported on the line "Finance costs" or "Finance income" on the consolidated income statement.

7.6.7.19. Equity

Ordinary share capital

The Company has issued ordinary shares that are classified as equity. Incremental external costs that are directly attributable to the issuance of these shares are recognized in equity, net of tax.

Treasury shares

Own equity instruments which are acquired (treasury shares) are deducted from equity for the consideration paid including any directly attributable incremental costs (net of taxes) and accounted for at weighted average cost. No gain or loss is recognized in the income statement on the purchase, sale, issue or cancellation of the Company's own equity instruments.

Dividends on ordinary share capital

Dividends on ordinary shares are recognized as a liability and deducted from equity when they are approved by the Company's shareholders.

Dividends for the year that are approved after the reporting date are dealt with as an event after the reporting date.

7.6.7.20. Trade payables

Trade accounts payable are obligations to pay for goods or services that have been acquired in the ordinary course of business from suppliers. Trade payables are recognized initially at fair value and subsequently measured at amortized cost using the effective interest method when maturity of the payables exceeds one year.

7.6.7.21. Provisions

Provisions for restructuring costs and legal claims are recognized when: the Group has a present legal or constructive obligation as a result of past events; it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation; and the amount has been reliably estimated. Restructuring provisions primarily comprise provisions for employee termination payments. Provisions are not recognized for future operating losses.

If the effect of time value of money is material, provisions are discounted using a current pre-tax rate that reflects current market assessments of the time value of money and, when appropriate, the risk specific to the obligation. The increase in the provision due to passage of time is recognized as finance cost.

7.6.7.22. Contingencies

The Group is subject to the possibility of loss contingencies arising in the ordinary course of business. These include but are not limited to: warranty cost on the products of the Group, breach of contract claims, claims for unauthorized use of third party intellectual property, tax claims and provisions for specifically identified income tax exposures as well as claims for environmental damages. In determining loss contingencies, the Group considers the likelihood of a loss of an asset or the incurrence of a liability as well as the ability to reasonably estimate the amount of such loss or liability. The Group regularly evaluates claims to determine whether provisions need to be recorded based on the most current information available to the Group. Changes in these evaluations could result in adverse, material impact on the Group's results of operations, cash flows or its financial position for the period in which they occur.

7.6.7.23. Segment reporting

Operating segments are defined as a component of the entity that (i) engages in business activities from which it may earn revenues and incur expenses, (ii) whose operating results are regularly reviewed by the entity's Chief Operating Decision Maker (Sole member of Managing Board), under the extensive oversight of the Company's Supervisory Board, to make decisions about resources to be allocated to the segments and assess its performance and (iii) for which discrete financial information is available.

For the computation of the segments' internal financial measurements, the Group uses certain internal rules of allocation for the costs not directly chargeable to the segments, including cost of sales, selling, general and administrative expenses and part of research and development expenses. In compliance with the Group's internal policies, certain costs are not allocated to the segments, including impairment, restructuring charges and other related closure costs, management reorganization expenses, unused capacity charges, phase-out and start-up costs of certain manufacturing facilities, certain one-time corporate items, strategic and special research and development programs or other corporate-sponsored initiatives, including certain corporate-level operating expenses, patent claims and litigations and certain other miscellaneous charges.

7.6.8. Critical accounting estimates and judgments

Estimates and judgments are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under circumstances.

The Group makes estimates and assumptions concerning the future. The resulting accounting estimates will, by definition, seldom equal the related actual results. Estimates and assumptions that have a significant risk of causing material adjustments to the carrying amounts of assets and liabilities within the next financial year are described below.

7.6.8.1. Right-of-use assets and lease liabilities

Significant assumptions and judgements may be made in applying the requirements of lease accounting, such as the exercise of extension or renewal options and the determination of applicable discount rates.

The Group determines the lease term as the non-cancellable term of the lease, together with any periods covered by an option to extend the lease if it is reasonably certain to be exercised, or any periods covered by an option to terminate the lease, if it is reasonably certain not to be exercised.

The Group has elected not to recognize right-of-use assets and lease liabilities for some leases of low-value and for leases whose term ends within 12 months of the date of initial application (primarily for certain office and IT small equipment). The Group leases land, buildings, cars and certain equipment (including IT equipment) which have remaining lease terms between less than one year and 37 years. Certain lease contracts contain options to extend the leases by up to 30 years. The Group applies judgement in evaluating if and when it is reasonably certain for the Group to exercise that option. In addition, the Group made an accounting policy election for all the asset classes to not account for short-term leases, as described in note 7.6.5 and note 7.6.7.13. The Group considers all relevant factors that create an economic incentive to exercise any existing option to extend or renew a lease arrangement. After the commencement date, the Group reassesses the lease term if there is a significant event or change in circumstances that is within its control and affects its ability to exercise or not exercise the option. In most cases, the Group has included the extension or renewal option as part of the lease term of plants, buildings and equipments when the controlled use of the leased assets is significant and critical to its operations. These leases generally include a non-cancellable period and there will be a significant negative effect on the normal course of the Group's business, should a replacement not be readily available.

In calculating the present value of lease payments, the rate implicit in the lease should be used whenever that rate is readily determinable. In most cases, this rate is not readily determinable and the Group uses its incremental borrowing rate, which is derived from information available at the lease commencement date. The Group gives consideration to its recent debt issuances as well as publicly available data for instruments with similar characteristics when calculating its incremental borrowing rates. Discount rates upon IFRS 16 transition were established as of January 1, 2019. Going forward, due to immateriality of any intra-quarter discount rate changes, the Group will determine the discount rate based on the mid-quarter date.

Operating lease term and discount rate are as follows:

	As at January 1, 2019	As at, December 31, 2019
Weighted average remaining lease term (in years)	9	9
Weighted average discount rate	2.77%	2.79%

7.6.8.2. Income taxes

The Group is required to make estimates and judgments in determining income tax for the period, comprising current and deferred income tax. The Group needs to assess the income tax expected to be paid or the income tax benefit expected to be received related to the current year income (loss) in each individual tax jurisdiction and recognizes deferred income tax for temporary differences arising between the tax bases of assets and liabilities and their carrying amount in the consolidated financial statements, except when the initial recognition applies, as described in note 7.6.7.7. Furthermore, the Group is required to assess all material open income tax positions in all tax jurisdictions to determine any uncertain tax positions, and to record a provision for those, if any.

The Group is also required to assess the likelihood of recovery of its deferred tax assets originated by the net operating losses carried forward. This assessment requires the exercise of judgment with respect to, among other things, benefits that could be realized from available tax strategies and future taxable income, as well as other positive and negative factors. The ultimate realization of deferred tax assets is dependent upon, among other things, the Group's ability to generate future taxable income that is sufficient to utilize loss carry-forwards or tax credits before their expiration or the Group's ability to implement prudent and feasible tax planning strategies.

As of December 31, 2019, the Group reported deferred tax assets of \$387 million (2018: \$367 million) on the consolidated statement of financial position. A significant portion of these deferred tax assets was recorded in relation to net operating losses incurred in certain tax jurisdictions. These net operating losses may not be realizable before their expiration, unless the Group is capable of identifying favorable tax strategies.

The Group could reduce the amount of total deferred tax assets, resulting in a decrease in the total assets and, consequently, in equity, if the estimates of projected future taxable income and benefits from available tax strategies are reduced as a result of a change in the assessment or due to other factors, or if changes in current tax regulations are enacted that impose restrictions on the timing or extent of the Group's ability to utilize net operating losses and tax credit carry-forwards in the future. Likewise, a change in the tax rates applicable in the various jurisdictions or unfavorable outcomes of any ongoing tax audits could have a material impact on the future tax provisions in the periods in which these changes could occur.

The Group operates in many jurisdictions with highly complex and varied tax regimes. Management applies professional judgement in assessing whether relevant tax authorities will accept reported tax treatments under tax law. Those uncertainties may arise when tax laws are not clear or not consistently understood, which generates ambiguity in the tax law interpretations and application. Those uncertainties are particularly present in tax jurisdictions or tax regimes where the expected amount to be paid or the expected tax benefit to be recognized arise from complex, lengthy and technical negotiations or require possible settlements involving a high degree of subjectivity and discretion.

Assumptions and estimates used in the assessment of uncertainties over income tax treatments include, but are not limited to: whether certain income tax treatments are considered jointly or separately when assessing their degree of uncertainty; the assumptions the Group makes about the examination of tax treatments by taxing authorities; how the Group determines taxable profits, deductions taken on tax returns, unused tax losses, unused tax credits, applicable tax rates, the probability of acceptance of these income tax treatments by the relevant taxing authorities or on the contrary to what extent the income tax treatments as applied by the Group may be disallowed, including the outcome of unresolved disputes or settlements on existing tax audits and; consideration of changes in facts and circumstances requiring a reassessment of applied judgments and assumptions.

As at December 31, 2019 and December 31, 2018, the Group reported unrecognized tax benefits for uncertain tax treatments totalling \$48 million and \$38 million, respectively. It is reasonably possible that certain of these uncertainties over tax treatments could increase within the next 12 months due to changes in facts and circumstances, such as ongoing tax audits or taxing authority new decisions. The Group is not able to make an estimate of the range of the reasonably possible change. Accrued interest and penalties amounted to \$6 million and \$5 million as at December 31, 2019 and December 31, 2018, respectively. The tax years that remain open for review in the Group's major tax jurisdictions, including France, Italy, United States and India, are from 1997 to 2019.

7.6.8.3. Impairment of non-financial assets

An impairment exists when the carrying value of an asset or cash generating unit exceeds its recoverable amount, which is the higher of its fair value less costs of disposal and its value in use. The fair value less costs of disposal calculation is based on observable market prices less incremental costs of disposing the asset, in order to measure the price at which the asset could be sold in an orderly transaction between market participants at the measurement date. In case observable market prices are not available, fair value less costs of disposal could be measured based on data from binding sales transactions in arm's length transactions of similar assets. For the current period's annual impairment test, the recoverable amount of the CGUs was determined based on value-in-use calculations. Non-financial assets are tested or reviewed for impairment in accordance with accounting policies stated in Notes 7.6.7.1, 7.6.7.6, 7.6.7.11 and 7.6.7.12. Considerable management judgment is necessary to identify impairment indicators and to estimate future sales and expenses, which underlie the discounted future cash flow projections. Factors such as changes in the planned use of property, plant and equipment, the closure of facilities, the change in the use or in the market acceptance of certain new technologies, could result in shortened useful lives or impairment charges to be recognized in the period in which such determination is made.

7.6.8.4. Pension obligations

The Group sponsors various pension schemes for its employees. The expense incurred under the defined benefit pension plans is based upon statistical and actuarial calculations, and is impacted by assumptions on discount rates used to reach the present value of future pension liabilities, expected return that will be made on existing pension assets, future salary increases as well as future pension increases and statistical-based assumptions covering future withdrawals of participants from the plan and estimates of life expectancy. Refer to note 7.6.24.

The actuarial assumptions used may differ materially from actual results due to changes in market and economic conditions, higher or lower withdrawal rates or longer or shorter life spans of participants and may significantly impact the amount of pension costs and pension liabilities to be recognized in the period in which such determination is made.

7.6.8.5. Capitalized development costs

Development costs are capitalized in accordance with the accounting policy described in notes 7.6.7.6. and 7.6.7.11. Initial capitalization of costs is based on management's judgment that economic profitability and technological feasibility is confirmed, usually when a product or technology has reached a certain maturity level in product life cycle model used by the Group. In determining the amounts to be capitalized, management makes assumptions regarding the expected future cash generation of a project and the expected period of benefits. As at December 31, 2019, the carrying amount of capitalized development costs was \$892 million (2018: \$1,008 million). Refer to note 7.6.14 for disclosure of amounts capitalized, amortized and impaired during the period.

7.6.8.6. Inventory obsolescence reserves and normal manufacturing capacity thresholds

Inventory is stated at the lower of cost or net realizable value. Cost is based on the weighted average cost by adjusting the standard cost to approximate actual manufacturing costs on a periodic basis; therefore, the cost is dependent on the Group's manufacturing performance. In case of underutilization of the manufacturing facilities, the Group estimates the costs associated with the excess capacity. These costs are not included in the valuation of inventory but are charged directly to cost of sales. For the year ended December 31, 2019, the unused capacity charges amounted to \$65 million. For the year ended December 31, 2018, the unused capacity charges were negligible. Market value is the estimated selling price in the ordinary course of business, less applicable selling expenses and cost of completion. Refer to note 7.6.18.

We perform, on a continuous basis, inventory write-offs of products and semi-finished products. The valuation of inventory requires to estimate a reserve for obsolete inventory as well as inventory that is not of saleable quality. Provisions for obsolescence are estimated for excess uncommitted inventories based on the previous quarter's sales, order backlog and production plans. To the extent that future negative market conditions generate order backlog cancellations and declining sales, or if future conditions are less favorable than the projected revenue assumptions, the Group could be required to record additional inventory reserve, which would have a negative impact on its gross margin.

7.6.9. Investments in subsidiaries

The following table lists the Company's consolidated subsidiaries and its percentage ownership as of December 31, 2019:

Legal Seat	Name	Percentage ownership (direct or indirect)
Australia, Sydney	STMicroelectronics PTY Ltd	100
Austria, Vienna	STMicroelectronics Austria GmbH	100
Belgium, Diegem	Proton World International N.V.	100
Brazil, Sao Paulo	Incard do Brazil Ltda	100
Brazil, Sao Paulo	South America Comércio de Cartões Inteligentes Ltda	100
Brazil, Sao Paulo	STMicroelectronics Ltda	100
Canada, Ottawa	STMicroelectronics (Canada), Inc.	100
Canada, St. John, New Brunswick	Genesis Microchip Limited Partnership	100
China, Beijing	STMicroelectronics (Beijing) R&D Co. Ltd	100
China, Shanghai	STMicroelectronics (Shanghai) Co. Ltd	100
China, Shanghai	STMicroelectronics (China) Investment Co. Ltd	100
China, Shenzhen	Shenzhen STS Microelectronics Co. Ltd	60
China, Shenzhen	STMicroelectronics (Shenzhen) R&D Co. Ltd	100
Czech Republic, Prague	STMicroelectronics Design and Application s.r.o.	100
Denmark, Aarhus	STMicroelectronics A/S	100
Finland, Nummela	STMicroelectronics Finland OY	100
France, Crolles	STMicroelectronics (Crolles 2) SAS	100
France, Grenoble	STMicroelectronics (Alps) SAS	100
France, Grenoble	STMicroelectronics (Grenoble 2) SAS	100
France, Le Mans	STMicroelectronics (Grand Ouest) SAS	100
France, Montrouge	STMicroelectronics S.A.	100
France, Rousset	STMicroelectronics (Rousset) SAS	100
France, Tours	STMicroelectronics (Tours) SAS	100
Germany, Aschheim-Dornach	STMicroelectronics GmbH	100
Germany, Aschheim-Dornach	STMicroelectronics Application GmbH	100
Hong Kong	STMicroelectronics Ltd	100
India, New Delhi	ST-Ericsson India Pvt Ltd	100
India, Noida	STMicroelectronics Pvt Ltd	100
Israel, Netanya	STMicroelectronics Ltd	100
Italy, Agrate Brianza	STMicroelectronics S.r.l.	100
Italy, Naples	STMicroelectronics Services S.r.l.	100
Japan, Tokyo	STMicroelectronics KK	100
Malaysia, Kuala Lumpur	STMicroelectronics Marketing SDN BHD	100
Malaysia, Muar	STMicroelectronics SDN BHD	100
Malta, Kirkop	STMicroelectronics (Malta) Ltd	100
Mexico, Guadalajara	STMicroelectronics Marketing, S. de R.L. de C.V.	100
Morocco, Casablanca	Electronic Holding S.A.	100
Morocco, Casablanca	STMicroelectronics S.A.S. (Maroc)	100
The Netherlands, Amsterdam	STMicroelectronics Finance B.V.	100
The Netherlands, Amsterdam	STMicroelectronics Finance II N.V.	100
The Netherlands, Amsterdam	STMicroelectronics International N.V.	100
Philippines, Calamba	STMicroelectronics, Inc.	100
Philippines, Calamba	Mountain Drive Property, Inc.	40
Singapore, Ang Mo Kio	STMicroelectronics Asia Pacific Pte Ltd	100
Singapore, Ang Mo Kio	STMicroelectronics Pte Ltd	100
Slovenia, Ljubljana	STMicroelectronics d.o.o.	100
Spain, Barcelona	STMicroelectronics Iberia S.A.	100
Sweden, Jönköping	STMicroelectronics Software AB	100
Sweden, Kista	STMicroelectronics A.B.	100
Sweden, Norrköping	STMicroelectronics Silicon Carbide A.B.	100
Switzerland, Geneva	STMicroelectronics S.A.	100
Switzerland, Geneva	INCARD S.A., in liquidation	100
Thailand, Bangkok	STMicroelectronics (Thailand) Ltd	100
United Kingdom, Bristol	STMicroelectronics (Research & Development) Limited	100
United Kingdom, Marlow	STMicroelectronics Limited	100
United Kingdom, Marlow	Synad Technologies Limited	100
United States, Coppel	STMicroelectronics Software Inc.	100
United States, Coppel	STMicroelectronics Inc.	100
United States, Coppel	Faroudja Laboratories Inc.	100
United States, Coppel	STMicroelectronics (North America) Holding, Inc.	100

7.6.10. Investments in joint ventures

Investments in joint ventures as at December 31, 2019 and December 31, 2018 were as follows:

In millions of USD	December 31, 2019		December 31, 2018	
	Carrying amount	% of interests	Carrying amount	% of interests
ST-Ericsson SA, in liquidation	—	—	49	50.0%
Total	—		49	

ST-Ericsson SA, in liquidation

On February 3, 2009, the Group announced the closing of a transaction to combine the businesses of Ericsson Mobile Platforms and ST-NXP Wireless into a new venture, named ST-Ericsson. As part of the transaction, the Company received an interest in ST-Ericsson Holding AG in which the Company owned 50% plus a controlling share. In 2010, ST-Ericsson Holding AG was merged in ST-Ericsson SA. The Group used to consolidate ST-Ericsson SA.

On September 9, 2013, the Company sold 1 ST-Ericsson SA share to Ericsson for its nominal value changing the ownership structure of ST-Ericsson SA to bring both partners to an equal ownership proportion. As a result and in combination with the new shareholder agreement, the Company lost the control of ST-Ericsson SA and as such ST-Ericsson SA was deconsolidated from the Group's financial statements. The deconsolidation of ST-Ericsson SA did not result in a gain or loss for the Group. The fair value of the Group's retained non-controlling interest was evaluated at \$55 million. In addition, the Company and its partner signed funding commitment letters, capped at \$149 million each partner, to the residual joint wind-down operations to ensure solvency. These are not drawn as of December 20, 2019.

Before the deconsolidation of ST-Ericsson SA, certain assets and companies of the ST-Ericsson SA group of companies were transferred to both partners for their net book value which were representative of their fair values. These transactions did not result in cash exchange between the partners.

ST-Ericsson SA entered into liquidation on April 15, 2014. For 2019, the line "Share of profit (loss) of joint ventures" in the Group's consolidated statement of income included a profit of \$2 million in relation with ST-Ericsson SA compared to a profit of \$4 million for 2018.

On December 20, 2019, the Group and Ericsson agreed to complete the wind-down of the joint venture. As part of the transaction, the Company acquired from ST-Ericsson SA 100% of the share capital of ST-Ericsson India Pvt Ltd, a wholly owned subsidiary of ST-Ericsson SA, and simultaneously sold its ST-Ericsson SA shares to Ericsson. The transaction did not result in a gain or loss for the Group.

7.6.11. Business Combination

In 2019, the Company acquired the Swedish silicon carbide (SiC) wafer manufacturer Norstel AB ("Norstel"). The purchase consideration, net of \$1 million of cash acquired, was funded with available cash. The full acquisition was executed in two stages. On February 6, 2019, the Company acquired 55% of Norstel's common stock, obtaining control over the entity. The fair value of the business as a whole was estimated at \$138 million, of which \$77 million was paid by the Company for its majority stake, with an option to acquire the remaining 45% at a later date, subject to certain conditions. On December 2, 2019, the Company exercised its option to acquire the remaining 45% stake. The Company paid \$51 million to complete the closing of the full acquisition. As of December 31, 2019, an amount of \$10 million was held in an escrow account as protection for any claims and reported as current restricted cash in the consolidated statement of financial position. The total amount paid in 2019 for 100% of the acquired business, net of cash acquired, was \$127 million, reported as cash flows used in investing activities in the consolidated statement of cash flows for the year ended December 31, 2019.

This acquisition will extend the Group's silicon carbide ecosystem and strengthen the Group's flexibility to serve fast growing automotive and industrial applications.

This transaction has been accounted for as a business combination. The activities of this business are included in the Automotive and Discrete Group (ADG) reportable segment. As of 31 December 2019, completion of the initial accounting for the business combination remains subject to finalization of the tax impact, if any, associated with the acquired technology in process. The preliminary fair value of the identifiable assets and assumed liabilities acquired from Norstel at acquisition date were as follows:

In millions of USD	Fair value recognized at acquisition date
Property, plant and equipment	11
Technology in process	86
Net Working capital	(2)
Goodwill ⁽¹⁾	43
Total net assets at fair value	138
Purchase consideration	138

(1) The primary item that generated goodwill is the value of the future synergies between Norstel technology in silicon carbide and the Group, which do not qualify as an amortizable intangible asset. The goodwill is allocated to the ADG reportable segment as detailed in Note 7.6.15.

7.6.12. Property, plant and equipment

Property, plant and equipment consisted of the following:

In millions of USD	As at December 31, 2019		
	Gross value	Accumulated depreciation	Net value
Land	78	—	78
Buildings	912	(507)	405
Lease right-of-use assets	285	(81)	204
Facilities and leasehold improvements	3,209	(2,761)	448
Machinery and equipment	15,601	(12,863)	2,738
Computer and R&D equipment	383	(336)	47
Other tangible assets	109	(92)	17
Construction in progress	282	—	282
Total	20,859	(16,640)	4,219

In millions of USD	As at December 31, 2018		
	Gross value	Accumulated depreciation	Net value
Land	79	—	79
Buildings	908	(489)	419
PP&E under finance lease	19	(19)	—
Facilities and leasehold improvements	3,183	(2,745)	438
Machinery and equipment	15,112	(12,613)	2,499
Computer and R&D equipment	383	(335)	48
Other tangible assets	123	(93)	30
Construction in progress	202	—	202
Total	20,009	(16,294)	3,715

On January 1, 2019, the Group adopted the new guidance on lease accounting and lease right-of-use assets are included in plant, property and equipment. The impact of the adoption of this new guidance is further described in Note 7.6.13. Prior to the new guidance, the Group only reported as property, plant and equipment arrangements qualifying as finance leases, in application of IAS 17 guidance.

As described in Note 7.6.11, the acquisition of Norstel resulted in the recognition of property, plant and equipment of \$11 million.

Changes in the net carrying amount of property, plant and equipment are detailed as follows:

In millions of USD	Land	Buildings	Lease Right- of-use assets	Facilities and leasehold improvements	Machinery and equipment	Computer and R&D equipment	Other tangible assets	Construction in progress	Total
Balance as at December 31, 2017	81	417	—	296	2,080	47	19	284	3,224
Additions	—	3	—	38	627	20	13	639	1,340
Transfers	—	38	—	186	484	1	1	(710)	—
Disposals	—	—	—	—	—	—	—	(2)	(2)
Depreciation expense	—	(26)	—	(70)	(647)	(19)	(2)	—	(764)
Foreign currency translation	(2)	(13)	—	(12)	(45)	(1)	(1)	(9)	(83)
Balance as at December 31, 2018	79	419	—	438	2,499	48	30	202	3,715
Impact of IFRS 16 adoption	—	—	222	—	—	—	—	—	222
Additions	—	2	45	22	571	19	—	551	1,210
Business combination	—	—	—	2	9	—	—	—	11
Transfers	—	16	—	68	389	—	(2)	(471)	—
Disposals	—	—	—	—	—	—	(7)	—	(7)
Impairment / Write-offs	—	—	—	—	(3)	—	—	—	(3)
Depreciation expense	—	(26)	(62)	(74)	(710)	(19)	(2)	—	(893)
Foreign currency translation	(1)	(6)	(1)	(8)	(17)	(1)	(2)	—	(36)
Balance as at December 31, 2019	78	405	204	448	2,738	47	17	282	4,219

In the year ended December 31, 2019, capital investment funding totaled \$11 million (2018: \$16 million) and were accounted for as a reduction of the gross value of related tangible assets. The impact of capital funding on depreciation expense for the year ended December 31, 2019 is a reduction of \$9 million (2018: \$8 million). In 2019, the Group sold property, plant and equipment for cash proceeds of \$7 million (2018: \$1 million).

7.6.13. Leases

A lease contract is a contract, or part of a contract, that conveys the right to control the use of identified property, plant, or equipment (an identified asset) for a period of time in exchange for consideration. The Group determines if an arrangement is a lease at inception. Leases are included in right-of-use assets within plant, property and equipment. Current lease liabilities are included in current financial liabilities, while non-current lease liabilities are included in non-current financial liabilities in the Group's consolidated statement of financial position.

Right-of-use assets represent the Group's rights to use an underlying asset for the lease term and lease liabilities represent the Group's obligations to make lease payments arising from the lease. Right-of-use assets and liabilities are recognized at the lease commencement date based on the estimated present value of lease payments over the lease term.

The right-of-use asset is a nonmonetary asset while the lease liability is a monetary liability. When accounting for a lease that is denominated in a foreign currency, the lease liability is re-measured using the current exchange rate, while the right-of-use asset is measured using the exchange rate as of the commencement date.

The Group leases land, buildings, cars and certain equipment (including IT equipment) which have remaining lease terms between less than one year and 37 years. Certain lease contracts contain options to extend the leases by up to 30 years, which the Group has included in the lease term when it is reasonably certain for the Group to exercise that option. In addition, the Group made an accounting policy election for all the asset classes to not account for short-term and low-value leases. A short-term lease is defined as a lease that, at the commencement date, has a lease term of 12 months or less and does not include an option to purchase the underlying asset. The short-term lease election can only be made at the commencement date. Expenses related to short-term and low-value leases were not significant and cash outflows for leases totaled \$66 million for the year ended December 31, 2019.

Variable lease payments that depend on an index or a rate are included in the lease payments and are measured using the prevailing index or rate at the measurement date (January 1, 2019 for initial measurement of the leases existing at that date and commencement date for subsequent lease contracts). Potential future increases in variable lease payments based on an index or rate are not included in the lease liability until they take effect. When adjustments to lease payments based on an index or rate take effect, the lease liability is reassessed and adjusted against the right-of-use asset. Changes to index and rate-based variable lease payments are recognized in income statement in the period of the change.

Maturities of lease liabilities are as follows:

In millions of USD	December 31, 2019
2020	60
2021	44
2022	31
2023	23
2024	17
Thereafter	83
Total future undiscounted cash outflows	258
Effect of discounting	(51)
Total lease liabilities	207

A reconciliation of opening and closing right-of-use assets is provided below:

In millions of USD	Land	Buildings	Machinery and equipment	Computer and R&D equipment	Other	Total
Right-of-use assets as of January 1, 2019	38	157	3	10	14	222
Depreciation for the period	—	(45)	(2)	(7)	(8)	(62)
Additions	—	34	—	5	6	45
Foreign currency translation	—	(1)	—	—	—	(1)
Right-of-use assets as of December 31, 2019	38	145	1	8	12	204

Reported amounts related to lease arrangements are described in Notes 7.6.5, 7.6.12, 7.6.16 and 7.6.31.

7.6.14. Intangible assets

Intangible assets consisted of the following:

In millions of USD	As at December 31, 2019		
	Gross value	Accumulated amortization	Net value
Purchased technologies and licenses	699	(578)	121
Purchased software	287	(244)	43
Internally developed software	199	(183)	16
Capitalized development costs	2,719	(1,827)	892
Technologies and software in progress	119	—	119
Other intangible assets	70	(70)	—
Total	4,093	(2,902)	1,191

In millions of USD	As at December 31, 2018		
	Gross value	Accumulated amortization	Net value
Purchased technologies and licenses	705	(592)	113
Purchased software	265	(228)	37
Internally developed software	194	(176)	18
Capitalized development costs	2,592	(1,584)	1,008
Technologies and software in progress	44	—	44
Other intangible assets	69	(69)	—
Total	3,869	(2,649)	1,220

As described in Note 7.6.11, the acquisition of Norstel resulted in the recognition of technology in process for \$86 million in the line “Technologies and software in progress”.

In the year ended December 31, 2019, specific project-related funding totaled \$25 million (2018: \$27 million) and were accounted for as a reduction of the gross value of related capitalized development costs.

Changes in the net carrying amount are detailed as follows:

In millions of USD	Purchased technologies and licenses	Purchased software	Internally developed software	Capitalized development costs	Technologies and software in progress	Total
Balance as at December 31, 2017	102	39	18	983	50	1,192
Additions	35	7	—	286	30	358
Disposals	—	—	—	—	(3)	(3)
Impairment / Write-offs	(2)	—	—	(18)	—	(20)
Transfer	16	10	7	—	(33)	—
Amortization expense	(38)	(19)	(7)	(243)	—	(307)
Balance as at December 31, 2018	113	37	18	1,008	44	1,220
Additions	19	16	—	285	44	364
Business combination	—	—	—	—	86	86
Disposals	—	—	—	—	(5)	(5)
Impairment / Write-offs	(3)	—	—	(142)	(1)	(146)
Transfer	35	7	7	—	(49)	—
Amortization expense	(43)	(19)	(7)	(259)	—	(328)
Balance as at December 31, 2019	121	41	18	892	119	1,191

For the year ended December 31, 2019, additions of intangible assets amounted to \$364 million (2018: \$358 million).

The 2019 amortization expense included \$269 million (2018: \$252 million) in costs of sales, \$39 million (2018: \$34 million) in research and development and \$20 million (2018: \$21 million) in selling, general and administrative.

Development costs capitalized on projects that are still in progress and therefore not yet amortized amounted to \$543 million as at December 2019 (2018: \$580 million). Following the annual impairment test performed in the second half of 2019, no impairment was recorded on intangible assets not ready for use, excluding capitalized development costs as detailed below, for any of the Group CGUs. The key-assumptions used for value-in-use calculations are based on the most recent budget of each CGU tested. Management determined budgeted gross margin based on past performance, and its expectations for the market development.

The impairment and write-offs for 2019 amounted to \$146 million, recorded in costs of sales for \$142 million, resulting from write-offs of capitalized development costs related to certain projects that were cancelled, and in research and development for \$4 million related to acquired licenses and technologies for which it was determined that they had no alternative future use. The impairment and write-offs for 2018 amounted to \$20 million, recorded in costs of sales for \$18 million, resulting from write-offs of capitalized development costs related to certain projects that were cancelled, and in research and development for \$2 million related to acquired technologies for which it was determined that they had no alternative future use.

7.6.15. Goodwill

Goodwill split by operating segment is as follows:

In millions of USD	Automotive and Discrete Group (ADG)	Microcontrollers and Digital ICs Group (MDG)	Analog, MEMS and Sensors Group (AMS)	Total
As at January 1, 2019	—	101	2	103
Business Combination	43	—	—	43
Foreign currency translation	—	(2)	—	(2)
As at December 31, 2019	43	99	2	144

As at December 31, 2019, the gross value of goodwill was \$189 million (2018: \$148 million) and the accumulated impairment was \$45 million (2018: \$45 million).

As described in Note 7.6.11, the acquisition of Norstel resulted in the recognition of \$43 million in goodwill which has been included in the ADG segment to align the goodwill of the acquired Company with the segment under which the related activities will be reported.

Goodwill is allocated to the Group's cash-generating units ("CGUs"). The recoverable amount of a CGU is determined based on value-in-use calculations. These calculations use cash flow projections based on financial budgets and management's best estimates about future developments, as well as market and customer assumptions.

The Group tests whether goodwill has suffered any impairment on an annual basis during the second half of each year. In the 2019 and 2018 reporting periods, no goodwill impairment was recorded for any of the Group's CGUs. For the annual impairment test, the key-assumptions used for value-in-use calculations are based on the most recent five-year plan of each CGU tested. The average perpetuity growth rate was 1.5% and discount rate was 9% pre-tax and inferred from the observable volatility of share prices for comparable companies in the semiconductor industry. These assumptions have been used, as applicable, for the analysis of each CGU within the operating segments. Management determined budgeted gross margin based on past performance, and its expectations for the market development. The average yearly growth rates used are consistent with the forecast included in industry reports. The discount rates used are pre-tax and reflect specific risks relating to the relevant CGUs. No reasonably possible change in key assumptions would lead to a significant impairment loss.

7.6.16. Other financial assets and financial liabilities

7.6.16.1. Other financial assets

In millions of USD	December 31, 2019	December 31, 2018
Other financial assets (including derivatives)		
Other financial assets		
Quoted debt securities at FVOCI	133	330
Unquoted equity securities at FVOCI	12	12
Quoted equity securities at FVPL	12	10
Other trading financial assets at FVPL	11	9
Total other financial assets	168	361
Current	133	330
Non-current	35	31
Derivative financial instruments		
Cash flow hedges		
Foreign exchange forward contracts	3	1
Currency collars	1	—
Derivatives not designated as hedges		
Foreign exchange forward contracts	4	4
Currency collars	—	—
Embedded call option - Tranche A	15	4
Embedded call option - Tranche B	22	8
Total derivatives financial instruments	45	17
Current	23	5
Non-current	22	12
Total other financial assets (including derivatives)	213	378
Total current	156	335
Total non-current	57	43

Risk management policies relating to credit risk exposure to derivatives counterparties is further described in Note 7.6.37.

Movements in other financial assets (excluding derivatives) recorded in 2019 are summarized as follows:

In millions of USD	Jan 1, 2019	Change in fair value included in OCI*	Change in fair value included in income statement	Purchase	Proceeds at maturity	Foreign exchange result recognized in OCI*	Realized gain	Dec 31, 2019
Debt securities issued by the U.S. Treasury	330	3	—	—	(200)	—	—	133
Quoted equity instruments at FVPL	10	—	2	—	—	—	—	12
Sub-total Quoted debt and equity securities	340	3	2	—	(200)	—	—	145
Unquoted equity securities at FVOCI	12	—	—	—	—	—	—	12
Other trading financial assets at FVPL	9	—	2	—	—	—	—	11
Total other financial assets (excluding derivatives)	361	3	4	—	(200)	—	—	168

*OCI: Other comprehensive income

Movements in other financial assets (excluding derivatives) recorded in 2018 are summarized as follows:

In millions of USD	Jan 1, 2018	Change in fair value included in OCI*	Change in fair value included in income statement	Purchase	Proceeds at maturity	Foreign exchange result recognized in OCI*	Realized gain	Dec 31, 2018
Debt securities issued by the U.S. Treasury	431	(1)	—	—	(100)	—	—	330
Quoted equity instruments at FVPL	11	—	(1)	—	—	—	—	10
Sub-total Quoted debt and equity securities	442	(1)	(1)	—	(100)	—	—	340
Unquoted equity securities at FVOCI	12	—	—	—	—	—	—	12
Other trading financial assets at FVPL	9	—	—	—	—	—	—	9
Total other financial assets (excluding derivatives)	463	(1)	(1)	—	(100)	—	—	361

*OCI: Other comprehensive income

Investments held in debt securities

As at December 31, 2019, the Group held \$133 million of U.S. Treasury debt securities, all transferred to a financial institution with high credit quality. These transactions were concluded in compliance with the Group's policy to optimize the return on its short-term interest rate investments, which requires placement with institutions with high credit rating. The Group, acting as the securities lender, does not hold any collateral on the unsecured securities lending transactions. The Group retains effective control on the transferred securities. U.S. Treasury Bonds totaling \$200 million matured in 2019. The amount was reported as proceeds from matured marketable securities in the consolidated statement of cash flows for the period ended December 31, 2019.

The debt securities had an average rating of Aaa/AA+/AAA from Moody's, S&P and Fitch, respectively, with a weighted average maturity of 1.5 years. The debt securities were reported as current assets on the line "Other current financial assets" on the consolidated statement of financial position as at December 31, 2019 since they represented investments of funds available for current operations. The bonds were measured at FVOCI as at December 31, 2019. This fair value measurement corresponds to a Level 1 fair value hierarchy measurement.

The Group applies a forward-looking expected credit loss (ECL) approach on all debt financial assets not held at FVPL. For debt securities at FVOCI, the ECL is based on a 12-month expected credit loss basis. The 12-month ECL is the portion of lifetime ECLs that results from default events on a financial instrument that are possible within 12 months after the reporting date. Since the Group's quoted debt instruments at FVOCI comprise solely U.S. Treasury debt securities, the Group has considered that the ECLs on these investments were insignificant.

Investments held in equity securities

As at December 31, 2019, the Group also had investments in quoted equity securities for an aggregate value of \$12 million, measured at FVPL (December 31, 2018: \$10 million).

As at December 31, 2019, the Group also reported other trading financial assets for an aggregate value of \$11 million (December 31, 2018: \$9 million).

The Group irrevocably elected to measure at FVOCI unquoted equity securities for an aggregate value of \$12 million (December 31, 2018: \$12 million). Since these are strategic investments, the Group considers this classification, which implies that changes in fair value are not subsequently recycled to earnings, to be more relevant.

The changes in fair value reported on the Group's investments held in equity securities for the years ended December 31, 2019 and December 31, 2018 were immaterial.

7.6.16.2. Other financial liabilities

In millions of USD	December 31, 2019	December 31, 2018
Lease financial liabilities	207	—
Derivative financial instruments		
Cash flow hedges		
Foreign exchange forward contracts	2	14
Currency collars	1	6
Derivatives not designated as hedges		
Foreign exchange forward contracts	3	9
Currency collars	1	5
Embedded conversion option - Tranche A	330	66
Embedded conversion option - Tranche B	380	100
Total other financial liabilities (including derivatives)	924	200
Total current	392	34
Total non-current	532	166

Risk management policies relating to credit risk exposure to derivatives counterparties is further described in Note 7.6.37. Lease financial liabilities are further described in Note 7.6.13.

7.6.16.3. Interest-bearing loans and borrowings

In millions of USD	December 31, 2019	December 31, 2018
Funding program loans from European Investment Bank:		
3.05% due 2020, floating interest rate at Libor + 1.099%	13	25
2.84% due 2020, floating interest rate at Libor + 0.956%	28	55
0.41% due 2020, floating interest rate at Euribor + 0.817%	14	29
2.46% due 2021, floating interest rate at Libor + 0.525%	60	90
2.48% due 2021, floating interest rate at Libor + 0.572%	58	86
0.24% due 2028, floating interest rate at Euribor + 0.589%	258	292
0.21% due 2029, floating interest rate at Euribor + 0.564%	275	—
Dual tranche senior unsecured convertible bonds:		
Zero-coupon, due 2022 (Tranche A)	696	674
0.25% due 2024 (Tranche B)	655	636
Other Funding program loans:		
0.31% (weighted average), due 2020-2023, fixed interest rate	12	16
Other long-term loans:		
0.87% (weighted average), due 2020, fixed interest rate	—	1
Total interest-bearing loans and borrowings	2,069	1,904
Total current	869	146
Total non-current	1,200	1,758

Interest-bearing loans and borrowings are denominated in the following currencies:

In millions of USD	December 31, 2019	December 31, 2018
U.S. Dollar	1,510	1,566
Euro	559	338
Total	2,069	1,904

The European Investment Bank's loans denominated in Euros, but drawn in US dollar, are classified as US dollar denominated debt.

Aggregate future maturities of interest-bearing loans and borrowings outstanding, excluding repayments of coupons and interests, are as follows:

In millions of USD	December 31, 2019	December 31, 2018
2019	—	146
2020	173	146
2021	118	91
2022	809	783
2023	59	32
2024	807	896
Thereafter	252	—
Total	2,218	2,094

The difference between the total aggregated future maturities in the preceding table and the total carrying amount of long-term debt is due to the unamortized discount on the dual tranche senior unsecured convertible bonds. The above table reflects the contractual maturity of the convertible bonds (2022 and 2024 for Tranche A and Tranche B respectively), in case bondholders do not exercise their right to convert the bonds starting July 2020 and July 2021 for Tranche A and Tranche B, respectively.

Senior convertible bonds

On July 3, 2017, the Company issued \$1,500 million in principal amount of dual tranche senior unsecured convertible bonds (Tranche A for \$750 million and Tranche B for \$750 million), due 2022 and 2024, respectively. Tranche A bonds were issued at 101.265% as zero-coupon bonds while Tranche B bonds were issued at par and bear a 0.25% per annum nominal interest, payable semi-annually. The conversion price at issuance was \$20.54, equivalent to a 37.5% premium on both tranches, which corresponds to 9,737 equivalent shares per each \$200,000 bond par value. The bonds are convertible by the bondholders or are callable by the issuer upon certain conditions, on a net-share settlement basis, except if the issuer elects a full-cash or full-share conversion as an alternative settlement. The net proceeds from the bond offering were \$1,502 million, after deducting issuance costs payable by the Group.

The issuer's call option and the holder's conversion option have been identified as embedded non-equity derivative instruments, resulting in the recognition of the options separately from the debt host contract. Upon initial recognition, the derivatives were measured at fair value based on an income approach, the debt being determined as a residual amount of the \$1.5 billion total proceeds. The value of the issuer's call option was nil at initial recognition. The value of the holder's conversion option was estimated at \$248 million at issuance date, which determined the initial recognition of the liability component at \$1,261 million before allocation of issuance costs. The fair value measurement of the embedded derivative instruments corresponded to a Level 3 fair value hierarchy measurement. The Group elected to allocate issuance costs, totaling \$7 million, to the debt component. The debt was subsequently measured at amortized cost using the effective interest method and amounted to \$1,351 million as at December 31, 2019.

The embedded derivatives are measured at fair value through profit and loss, with the changes in fair value being immediately reported in earnings. The value of the conversion option was \$710 million as at December 31, 2019, which generated a change in fair value of \$544 million reported on the line “Finance costs” on the consolidated income statement for the year ended December 31, 2019. The value of the issuer’s call option amounted to \$37 million as at December 31, 2019, which generated a change in fair value of \$25 million reported on the line “Finance income” on the consolidated income statement for the year ended December 31, 2019. Starting July 2020 and July 2021 for Tranche A and Tranche B respectively, the bondholders have the right to convert the bonds. Consequently, the non-equity derivative instruments and the liability component of Tranche A convertible debt were reclassified as current financial asset, for an amount of \$15 million, as current financial liability for an amount of \$330 million and as current portion of long-term debt for an amount of \$696 million as at December 31, 2019.

Reconciliation of liabilities arising from financing activities

The reconciliation for the year ended December 31, 2019 is as follows:

In millions of USD	Interest-bearing loans and borrowings	Other non-current financial liabilities	Interest-bearing loans and borrowings – current portion	Other current financial liabilities*	Total
December 31, 2018	1,758	166	146	—	2,070
Cash flows	281	—	(144)	(60)	77
Non-cash changes:					—
IFRS 16 adoption	—	162	—	60	222
New leases	—	45	—	—	45
Accreted finance costs	40	—	—	—	40
Fair value changes	—	544	—	—	544
Reclassification	(869)	(385)	869	385	—
Foreign currency translation	(10)	—	(2)	—	(12)
December 31, 2019	1,200	532	869	385	2,986

* “Other current financial liabilities” reported above correspond to the current portion of the lease liability for an amount of \$55 million and to the \$330 million bondholders’ embedded conversion option on Tranche A of the Company’s convertible debt. Derivatives are not reported in the above table as they relate to operating activities. Lease financial liabilities are further described in Note 7.6.13 and convertible bonds issued in 2017 are further described in Note 7.6.16.3.

The reconciliation for the year ended December 31, 2018 is as follows:

In millions of USD	Interest-bearing loans and borrowings	Other non-current financial liabilities	Interest-bearing loans and borrowings – current portion	Total
December 31, 2017	1,577	571	118	2,266
Cash flows	281	—	(103)	178
Non-cash changes:				
Accreted finance costs	38	—	—	38
Settlement	—	—	—	—
Fair value changes	—	(405)	—	(405)
Reclassification	(131)	—	131	—
Foreign currency translation	(7)	—	—	(7)
December 31, 2018	1,758	166	146	2,070

Credit facilities

The Group had unutilized committed medium-term credit facilities with core relationship banks totaling \$568 million as of December 31, 2019.

The Group also has three long-term amortizing credit facilities with the European Investment Bank as part of R&D funding programs. The first one, signed on September 27, 2010 as a €350 million multi-currency loan for R&D programs in Europe, was drawn mainly in U.S. dollars for an amount of \$321 million and only partially in Euros for an amount of €100 million, of which \$55 million remained outstanding as of December 31, 2019. The second one, signed on March 12, 2013, a €350 million multi-currency loan which also supports R&D programs, was drawn in U.S. dollars for \$471 million, of which \$118 million was outstanding as of December 31, 2019. The third one, signed in August 2017, is a new long-term credit facility with the European Investment Bank for a total of €500 million in relation to R&D and capital expenditure investments in the European Union for the years 2017 and 2018. As of December 31, 2019, the entire amount was fully drawn in Euros corresponding to \$533 million outstanding as of December 31, 2019.

7.6.16.4. Hedging activities and derivatives

Derivative instruments not designated as hedges

The Group conducts its business on a global basis in various major international currencies. As a result, the Group is exposed to adverse movements in foreign currency exchange rates, primarily with respect to the Euro. Foreign exchange risk mainly arises from future commercial transactions and recognized assets and liabilities at the Group's subsidiaries. The Group enters into currency forward contracts to reduce its exposure to changes in exchange rates and the associated risk arising from the denomination of certain assets and liabilities in foreign currencies at the Group's subsidiaries. These instruments do not qualify as hedging instruments and are marked-to-market at each period-end with the associated changes in fair value recognized in "Other income" or "Other expenses" in the consolidated income statement.

To reduce its exposure to U.S. dollar exchange rate fluctuations, the Group also hedges certain Euro-denominated forecasted transactions that cover at reporting date a large part of its research and development, selling, general and administrative expenses through the use of currency forward contracts and currency options, including collars. These instruments do not qualify as hedging instruments and are marked-to-market at each period-end with the associated changes in fair value recognized in "Other income" or "Other expenses" in the consolidated income statement.

The notional amount of these financial instruments amounted to \$1,075 million in 2019 (2018: \$939 million). The principal currencies covered at the end of the year 2019 are the Euro, the Singapore dollar, the Japanese yen, the China Yuan Renminbi, the Indian rupee, the Swiss franc, the Malaysian ringgit, the South Korean won, the Philippines peso and the Taiwan dollar.

Foreign currency forward contracts and currency options, including collars, not designated as cash flow hedge outstanding as of December 31, 2019 have remaining terms of 6 days to 15 months, maturing on average after 78 days.

Foreign currency forward contracts and currency options, including collars, not designated as cash flow hedge outstanding as of December 31, 2018 had remaining terms of 2 days to 18 months, maturing on average after 94 days.

Derivative instruments designated as cash flow hedges

To reduce its exposure to U.S. dollar exchange rate fluctuations, the Group hedges certain Euro-denominated forecasted transactions that cover at reporting date a portion of its front-end manufacturing costs of semi-finished goods through the use of currency forward contracts and currency options, including collars. The Group also hedges certain manufacturing transactions denominated in Singapore dollars.

The principles regulating the hedging strategy for derivatives designated as cash flow hedge is to hedge up to 70% of the total forecasted transactions of the following quarter for these manufacturing costs. In order to follow a dynamic hedge strategy, the Group may change the percentage of the designated hedged item within the limit of 100% of the forecasted transaction. The maximum length of time over which the Group could hedge its exposure to the variability of cash flows for forecasted transactions is 24 months.

These derivative instruments are designated and qualified as cash flow hedges. Hedge effectiveness is determined at the inception of the hedge relationship, and through periodic prospective effectiveness assessments to ensure that an economic relationship exists between the hedged item and the hedging instrument. The Group enters into hedge relationships where the critical terms of the hedging instrument match with the terms of the hedged item, which ensures a 1:1 hedge ratio on a monthly basis. The Group therefore performs a qualitative assessment of effectiveness. If changes in circumstances affect the terms of the hedged item such that the critical terms no longer match with the critical term of the hedging instrument, the Group uses the hypothetical derivative method to assess effectiveness. Ineffectiveness may arise if the timing of the forecast transaction changes from what was originally estimated, which cannot occur as the Group designates as hedged items forecasted intercompany transactions denominated in foreign currency over which the Group has full oversight, control, and visibility. Ineffectiveness may arise only if there are changes in the credit risk of the counterparty.

The derivative instruments designated as cash flow hedges are reflected at fair value in the consolidated statement of financial position. The unrealized gain or loss from the effective portion of the hedge is reported in other comprehensive income and is reclassified into earnings in the same period in which the hedged transaction affects earnings, and within the same consolidated income statement line item as the impact of the hedged transaction.

For the year ended December 31, 2019, the Group recorded an increase in cost of sales of \$51 million (2018: decrease of \$4 million) related to the realized loss (2018: gain) incurred on such hedged transactions. No significant ineffective portion of the hedge was recorded on the lines "Other income" or "Other expenses" for the years ended December 31, 2019 and 2018.

The notional amount of foreign currency forward contracts and currency options, including collars, designated as cash flow hedge amounted to \$827 million (2018: \$1,033 million). The forecasted transactions hedged at December 31, 2019 were determined to be highly probable of occurring.

As at December 31, 2019, the amount of net deferred gains on derivative instruments included in the cash flow hedge reserve in equity was not significant, all of which were expected to be reclassified as earnings during the next 12 months based on the monthly forecasted semi-finished manufacturing costs.

Foreign currency forward contracts and currency options, including collars, designated as cash flow hedge outstanding as of December 31, 2019 have remaining terms of 6 days to 15 months, maturing on average after 121 days.

Foreign currency forward contracts and currency options, including collars, designated as cash flow hedge outstanding as of December 31, 2018 had remaining terms of 3 days to 18 months, maturing on average after 134 days.

As at December 31, 2019, the Group had the following outstanding derivative instruments that were entered into to hedge Euro-denominated and Singapore-dollar-denominated forecasted transactions:

	Notional amount for hedge on forecasted manufacturing costs transactions	
	In millions of Euros	In millions of Singapore Dollars
Forward contracts	333	143
Currency collars	309	—

As at December 31, 2018, the Group had the following outstanding derivative instruments that were entered into to hedge Euro-denominated and Singapore-dollar-denominated forecasted transactions:

	Notional amount for hedge on forecasted manufacturing costs transactions	
	In millions of Euros	In millions of Singapore Dollars
Forward contracts	416	155
Currency collars	387	—

Cash flow and fair value interest rate risk

The Group's interest rate risk arises from long-term borrowings. Borrowings issued at variable rates expose the Group to cash flow interest rate risk. Borrowings issued at fixed rates expose the Group to fair value interest rate risk.

The Group analyzes its interest rate exposure on a dynamic basis. Various scenarios are simulated taking into consideration refinancing, renewal of existing positions, alternative financing and hedging. The Group invests primarily on a short-term basis and as such its liquidity is invested in floating interest rate instruments. As a consequence, the Group is exposed to interest rate risk due to potential mismatch between the return on its short term floating interest rate investments and the portion of its long term debt issued at fixed rate.

Other market risk

As part of its ongoing investing activities, the Group may be exposed to equity security price risk for investments in public entities. In order to hedge the exposure to this market risk, the Group may enter into certain derivative hedging transactions.

Credit risk and the Group's impairment policies on financial assets are further described in Note 7.6.7.13 and Note 7.6.37.

Offsetting financial assets and financial liabilities

The Group entered into currency collars as combinations of two options, which are reported, for accounting purposes, on a net basis. The fair value of these collars represented as at December 31, 2019 assets totalling \$1 million (a gross amount of \$2 million recognized as assets offset with a liability of \$1 million) and liabilities totalling \$2 million (a gross amount of \$2 million recognized as liabilities with a nil asset amount). In addition, the Company entered into other derivative instruments, primarily forward contracts, which are governed by standard International Swaps and Derivatives Association (“ISDA”) agreements, which are not offset in the statement of financial position, and representing total assets of \$7 million and liabilities of \$5 million as at December 31, 2019.

Risk management policies relating to credit risk exposure to derivatives counterparties is further described in Note 7.6.37.

7.6.16.5. Fair values

Set out below is a comparison by class of the carrying amounts and fair value of the Group’s financial instruments that are carried in the financial statements.

In millions of USD	Carrying amount		Fair value	
	December 31, 2019	December 31, 2018	December 31, 2019	December 31, 2018
Financial assets				
Trade accounts receivable	1,380	1,277	1,380	1,277
Other receivables and assets	434	427	434	427
Quoted financial instruments	156	349	156	349
Unquoted equity securities	12	12	12	12
Embedded call option - Tranche A	15	4	15	4
Embedded call option - Tranche B	22	8	22	8
Other financial assets	8	5	8	5
Cash equivalents ⁽¹⁾	1,691	2,138	1,691	2,138
Financial liabilities				
Interest-bearing loans and borrowings (excluding senior unsecured convertible bonds)	718	594	718	594
Senior unsecured convertible bonds ⁽²⁾	1,351	1,310	2,103	1,501
Embedded conversion option - Tranche A	330	66	—	—
Embedded conversion option - Tranche B	380	100	—	—
Lease financial liabilities	207	—	207	—
Trade accounts payable	950	981	950	981
Other payables and accrued liabilities	260	328	260	328
Other financial liabilities	7	34	7	34

(1) Cash equivalents primarily correspond to deposits at call with banks.

(2) The carrying amount of the senior unsecured convertible bonds issued on July 3, 2017 and outstanding at December 31, 2019 and December 31, 2018 corresponds to the liability component only, since, at initial recognition, an amount of \$248 million was separately recognized as embedded derivative financial instruments.

The fair value of financial assets and liabilities are included at the price at which the instrument could be sold in an orderly transaction between market participants at the measurement date. The following methods and assumptions were used to estimate fair value:

- For trade accounts receivable, cash equivalents, trade accounts payable, other payables and accrued liabilities, the carrying amounts reflected in the consolidated financial statements are reasonable estimates of fair value due to the relatively short period of time between the origination of the instruments and their expected realization.
- Other receivables and assets approximate their carrying amounts due either to their short-term maturities or to the fact that they are recorded at their net present value.
- Financial investments (debt and equity securities):
 - The fair value quoted debt and equity securities is determined based upon quoted market prices for identical instruments.
 - The fair value of unquoted equity securities is based on the valuation of the underlying instruments on a new round of third party financing or upon liquidation.
- The fair value of interest-bearing loans and borrowings, including lease liabilities but excluding senior unsecured convertible bonds, is determined by estimating future cash flows on a borrowing-by-borrowing basis and discounting these future cash flows using the Group's incremental borrowing rates for similar types of arrangements.
- The senior unsecured convertible bonds issued on July 3, 2017 and outstanding as at December 31, 2019 and December 31, 2018 have been trading on the open market segment on the Frankfurt Stock Exchange since issuance. The fair value of these instruments is the observable price of the bonds on that market.
- The fair value of derivatives instruments is determined based upon quoted market prices for similar instruments.
- The bondholders' conversion option embedded in the senior unsecured convertible bonds issued on July 3, 2017 amounted to \$710 million and \$166 million as at December 31, 2019 and December 31, 2018, respectively. The issuer's call option of the senior unsecured convertible bonds issued on July 3, 2017 amounted to \$37 million and \$12 million as at December 31, 2019 and December 31, 2018, respectively. These embedded derivative instruments were measured at fair value based on an income approach using Bloomberg's option pricing model, which can be assimilated to a Black & Scholes model for pricing stock options. This model was elected as the best indication of fair value since it maximized the use of observable market-based inputs.

Fair value hierarchy

The Group uses the following hierarchy for determining and disclosing the fair value of financial instruments by valuation technique:

- Level 1: quoted (unadjusted) prices in active markets for identical assets or liabilities.
- Level 2: other techniques for which all inputs which have a significant effect on the recorded fair value are observable, either directly or indirectly.
- Level 3: techniques which use inputs which have a significant effect on the recorded fair value that are not based on observable market data.

As at December 31, 2019, the Group held the following financial instruments measured at fair value:

In millions of USD	December 31, 2019	Level 1	Level 2	Level 3
Assets measured at fair value				
Financial assets at FVPL				
Trading derivatives				
Foreign exchange forward contracts	4	—	4	—
Quoted equity securities at FVPL	12	12	—	—
Other trading financial assets at FVPL	11	11	—	—
Embedded call option	37	—	—	37
Cash flow hedges				
Foreign exchange forward contracts	3	—	3	—
Currency collars	1	—	1	—
Quoted debt securities measured at FVOCI				
Government bonds issued by the U.S. Treasury	133	133	—	—
Unquoted equity securities measured at FVOCI	12	—	—	12
Total assets	213	156	8	49
Liabilities measured at fair value				
Trading derivatives				
Foreign exchange forward contracts	3	—	3	—
Currency collars	1	—	1	—
Cash Flow Hedges				
Foreign exchange forward contracts	2	—	2	—
Currency collars	1	—	1	—
Embedded conversion option	710	—	—	710
Total liabilities	717	—	7	710

During the reporting period ending December 31, 2019, there was no transfer between Level 1 and Level 2 fair value measurements, and no transfer into and out of Level 3 fair value measurements.

As at December 31, 2018, the Group held the following financial instruments measured at fair value:

In millions of USD	December 31, 2018	Level 1	Level 2	Level 3
Assets measured at fair value				
Financial assets at FVPL				
Trading derivatives				
Foreign exchange forward contracts	4	—	4	—
Currency collars	—	—	—	—
Quoted equity securities at FVPL	10	10	—	—
Other trading financial assets at FVPL	9	9	—	—
Embedded call option	12	—	—	12
Cash flow hedges				
Foreign exchange forward contracts	1	—	1	—
Currency collars	—	—	—	—
Quoted debt securities measured at FVOCI				
Government bonds issued by the U.S. Treasury	330	330	—	—
Unquoted equity securities measured at FVOCI	12	—	—	12
Total assets	378	349	5	24
Liabilities measured at fair value				
Trading derivatives				
Foreign exchange forward contracts	9	—	9	—
Currency collars	5	—	5	—
Cash Flow Hedges				
Foreign exchange forward contracts	14	—	14	—
Currency collars	6	—	6	—
Embedded conversion option	166	—	—	166
Total liabilities	200	—	34	166

During the reporting period ending December 31, 2018, there was no transfer between Level 1 and Level 2 fair value measurements, and no transfer into and out of Level 3 fair value measurements.

Financial instruments in Level 1

The fair value of financial instruments traded in active markets is based on quoted market prices at the balance sheet date. A market is regarded as active if quoted prices are readily and regularly available from an exchange, dealer, broker, industry group, pricing service or regulatory agency, and those prices represent actual and regularly occurring market transactions on an arm's length basis. The quoted market price used for financial assets held by the Group is the current bid price. These instruments are included in Level 1.

Financial instruments in Level 2

The fair value of financial instruments that are not traded in active markets (for example over the counter derivatives) is determined by using valuation techniques. These valuation techniques maximize the use of observable market data when available and rely as little as possible on entity's specific estimates. If all significant inputs required to fair value an instrument are observable, the instrument is included in Level 2. If one or more of the significant inputs is not based on observable market data, the instrument is included in Level 3. Specific valuation techniques used to value financial instruments include:

- Quoted market prices or dealer's quotes for similar instruments;
- The fair value of foreign exchange forward contracts when determined using forward exchange rates at the balance sheet date, with the resulting value discounted back to present value.

Financial instruments in Level 3

For financial assets (liabilities) measured at fair value using significant unobservable inputs (Level 3), the reconciliation between January 1, 2019 and December 31, 2019 is presented as follows:

In millions of USD	Fair value measurements using significant unobservable inputs (Level 3)
As at January 1, 2019	(142)
Change in fair value of the embedded conversion option	(544)
Change in fair value of the embedded call option	25
As at December 31, 2019	(661)
Amount of net losses included in the 2019 income statement attributable to assets (liabilities) still held at the reporting date	(519)

The following table shows the impact on the income statement of the valuation of the embedded derivative instruments outstanding as at December 31, 2019:

In millions of USD	
Asset (liability) value as at December 31, 2018	(154)
Gains (losses) recognized in the consolidated income statement	(519)
Asset (liability) value as at December 31, 2019	(673)

The change in fair value amounting to \$544 million on the embedded bondholders' conversion option was reported as "Finance costs" in the consolidated income statement ended December 31, 2019. The change in fair value amounting to \$25 million on the embedded issuer's call option was reported as "Finance income" in the consolidated income statement ended December 31, 2019.

The model used to price the derivative instruments embedded in the senior unsecured convertible bonds issued on July 3, 2017 included the following inputs:

- The risk-free interest rate for comparable maturities;
- The reference price for the Company's ordinary shares as traded on the New York Stock Exchange;
- The exercise price;
- The dividend expected to be paid on the Company's ordinary shares over the life of the option;
- The volatility of the Company's ordinary shares; and
- The duration of the option.

Sensitivity to the share price variations is further described in Note 7.6.37. Implied volatility should be considered an unobservable input due to the lack of market data (stock exchange listing of the bond option) for a time horizon equal to the duration of the option. The figure is, therefore, an assumption based on the volatility implied by the price of the financial instrument, as negotiated at the issue stage, and market volatility for the nearest time horizon.

The prices of the bondholders' conversion option are sensitive to implied volatility. The table below shows a sensitivity analysis of the net carrying amount of the embedded conversion option in relation to a series of changes expressed in percentage point terms of volatility.

Change in volatility of the Company's ordinary shares	-10 p.p.	- 8 p.p.	-5 p.p.	+5 p.p.	+8 p.p.	+10 p.p.
Change in the net carrying amount of the bondholders' conversion option	(101)	(82)	(51)	53	84	105
Net carrying amount of the embedded conversion option	609	628	659	763	794	815

For financial assets (liabilities) measured at fair value using significant unobservable inputs (Level 3), the reconciliation between January 1, 2018 and December 31, 2018 is presented as follows:

In millions of USD	Fair value measurements using significant unobservable inputs (Level 3)
As at January 1, 2018	(559)
Change in fair value of the contingent consideration	12
Change in fair value of the bondholders' conversion option	405
Change in fair value of the issuer's call option	—
As at December 31, 2018	(142)
Amount of net losses included in the 2018 income statement attributable to assets (liabilities) still held at the reporting date	—

The following table shows the impact on the income statement of the valuation of the embedded derivative instruments outstanding as at December 31, 2018:

In millions of USD	
Asset (liability) value as at December 31, 2017	(559)
Gains (losses) recognized in the consolidated income statement	405
Asset (liability) value as at December 31, 2018	(154)

No significant change in fair value was reported on the embedded call option in the consolidated income statement for the year ended December 31, 2018. The change in fair value amounting to \$405 million on the embedded conversion option was reported as "Finance income" in the consolidated income statement for the year ended December 31, 2018.

7.6.17. Other non-current assets

Other non-current assets consisted of the following:

In millions of USD	December 31, 2019	December 31, 2018
Long-term state receivables	358	391
Deposits and other non-current assets	56	43
Total	414	434

Long-term state receivables include receivables related to funding and receivables related to tax refund. Funding are mainly public grants to be received from governmental agencies in Italy and France as part of long-term research and development, industrialization and capital investment projects. Long-term receivables related to tax refund correspond to tax benefits claimed by the Group in certain of its local tax jurisdictions. These non-current receivables are all due within 5 years from the balance sheet date.

The Group holds long-term receivables related to funding and tax refund with the objective to collect the contractual cash flows and therefore, these receivables are measured subsequently at amortized cost using the effective interest method.

The carrying amounts of the Group's non-current assets are denominated in the following currencies:

In millions of USD	December 31, 2019	December 31, 2018
US dollar	18	7
Euro	387	422
Japanese Yen	3	3
Other currencies	6	2
Total	414	434

The Group applies a forward-looking expected credit loss (ECL) approach on all debt financial assets not held at FVPL. For receivables and other financial assets carried at amortized cost, the ECL is based on a 12-month expected credit loss basis. The 12-month ECL is the portion of lifetime ECLs that results from default events on a financial instrument that are possible within 12 months after the reporting date. The major portion of other long-term receivables to which this impairment model applies corresponds to receivables from governmental agencies. Due to the existing history of zero-default on receivables originated by governments, the expected credit loss is assumed to be not material. Deposits and other non-current assets include amounts that are individually not material.

The maximum exposure to credit risk at the reporting date was the carrying amount of other non-current assets, which were individually not material.

7.6.18. Inventories

Inventories consisted of the following:

In millions of USD	December 31, 2019	December 31, 2018
Raw materials	137	132
Work-in-process	1,106	1,010
Finished products	450	425
Total	1,693	1,567

Write-offs of inventories were recognized in cost of sales as an expense and amounted to \$65 million in 2019 (2018: \$80 million). Further impact related to inventories on the Consolidated Income Statement is provided in Note 7.6.29.

The carrying amount of inventories is presented net of a reserve for obsolescence items of \$84 million as at December 31, 2019 (2018: \$86 million).

7.6.19. Trade accounts receivable

Trade accounts receivable consisted of the following:

In millions of USD	December 31, 2019	December 31, 2018
Trade accounts receivable	1,396	1,292
Provision for impairment of trade receivables	(16)	(15)
Total	1,380	1,277

Trade receivables are amounts due from customers for goods sold or services performed in the ordinary course of business. Trade receivables are non-interest bearing and are generally on 30-90 day terms. They are therefore all classified as current. The Group holds the trade receivables with the objective to collect the contractual cash flows and therefore, trade receivables are measured subsequently at amortized cost using the effective interest method. The Group does not expect to have any contracts where the period between the transfer of the promised goods or services to the customer and payment by the customer exceeds one year. As a consequence, the Group does not

adjust any of the transaction prices for the time value of money and no significant transaction with customers includes significant financing component. Due to the short-term nature of trade receivables, their carrying amount is considered to be the same as their fair value.

In 2019, the Group's largest customer, Apple, represented 17.6% (2018: 13.1%) of consolidated net revenues, reported in the ADG, AMS and MDG segments.

As described in Note 7.6.37, the Group monitors the creditworthiness of its customers to which it grants credit terms in the normal course of business. If certain customers are independently rated, these ratings are used. Otherwise, if there is no independent rating, risk control assesses the credit quality of the customer, considering its financial position, past experience and other factors. Individual risk limits are set based on internal and external ratings in accordance with limits set by management. The utilization of credit limits is regularly monitored. Sales to customers are primarily settled in cash. At December 31, 2019 and 2018, no customer represented more than 10% of trade accounts receivable, net. Any remaining concentrations of credit risk with respect to trade receivables are limited due to the large number of customers and their dispersion across many geographic areas.

The Group applies the simplified approach to measure expected credit losses, which uses a lifetime expected loss allowance for all trade receivables. To measure the expected credit losses, trade receivables are grouped within six credit risk categories, according to their credit limits and in line with credit risk classes determined by independent credit agencies. The Group has therefore concluded that the expected loss rates for trade receivables reasonably approximate failure rates as determined by these independent agencies. The historical loss rates are adjusted to reflect current and forward-looking information on macroeconomic factors affecting the ability of the customers to settle the receivables. In addition to the factors already embedded in the failure rates as determined by independent credit agencies, the Group has identified the forward looking estimates and factors of cyclical and uncertainties around continued growth for the semiconductor industry and its serviceable available market to be the most relevant factors, and accordingly may adjust external sources of failure rates based on expected changes in these factors.

On that basis, the loss allowance as at December 31, 2019 and December 31, 2018 was determined as follows:

In millions of USD	Total	No past-due	Past due		
			Less than a month	Between 1 and 6 months	Over 6 months
December 31, 2019					
Expected loss rate		1%	1%	10%	100%
Trade receivables – Gross carrying amount	1,396	1,367	16	8	5
Loss allowance	(16)	(11)	—	—	(5)
Trade receivables – Net carrying amount	1,380	1,356	16	8	—
December 31, 2018					
Expected loss rate		1%	1%	10%	100%
Trade receivables – Gross carrying amount	1,292	1,229	48	9	6
Loss allowance	(15)	(12)	—	—	(3)
Trade receivables – Net carrying amount	1,277	1,217	48	9	3

The loss allowance for trade account receivables as at December 31, 2019 and December 31, 2018 reconcile to the opening loss allowance as follows:

In millions of USD	December 31, 2019	December 31, 2018
As at December 31, 2018	15	15
Additions (reversals)	1	—
As at December 31, 2019	16	15

The carrying amounts of the Group's trade receivables are denominated in the following currencies:

In millions of USD	December 31, 2019	December 31, 2018
US dollar	1,131	1,122
Euro	260	162
Japanese Yen	4	3
Other currencies	1	5
Total	1,396	1,292

The maximum exposure to credit risk was the fair value of trade accounts receivable, net of expected credit losses as at December 31, 2019 and December 31, 2018.

During 2019, \$75 million of trade accounts receivable were sold without recourse (nil in 2018).

7.6.20. Other receivables and assets

Other receivables and assets consisted of the following:

In millions of USD	December 31, 2019	December 31, 2018
Receivables from government agencies	216	114
Advances	47	126
Prepayments	56	44
Other indirect tax receivable	71	98
Other current assets	44	45
Total	434	427

Receivables from government agencies relate to research and development contracts, research tax credits, industrialization contracts and capital investment projects.

The Group applies a forward-looking expected credit loss (ECL) approach on all debt financial assets not held at FVPL. For receivables and other financial assets carried at amortized cost, excluding Trade account receivables, the ECL is based on a 12-month expected credit loss basis. The 12-month ECL is the portion of lifetime ECLs that results from default events on a financial instrument that are possible within 12 months after the reporting date. The major portion of other receivables and assets to which this impairment model applies corresponds to receivables from governmental agencies. Due to the short maturity of these receivables and the existing history of zero-default on receivables originated by governments, the expected credit loss is assumed to be not material. Other receivables, excluding receivables from government agencies, are composed of individually insignificant amounts at exposure of default. Consequently, no significant loss allowance was reported on other receivables and assets as at December 31, 2019 and December 31, 2018.

The carrying amounts of the Group's other receivables are denominated in the following currencies:

In millions of USD	December 31, 2019	December 31, 2018
US dollar	71	179
Euro	323	215
Other currencies	40	33
Total	434	427

The maximum exposure to credit risk was the fair value of other receivables and assets, net of expected credit losses, as at December 31, 2019 and December 31, 2018.

7.6.21. Cash and cash equivalents

Cash and cash equivalents consisted of the following:

In millions of USD	December 31, 2019	December 31, 2018
Cash at bank and in hand	906	128
Money market deposits with banks	1,691	2,138
Total	2,597	2,266

7.6.22. Equity

7.6.22.1. *Outstanding shares*

The authorized share capital of the Company is €1,810 million consisting of 1,200,000,000 common shares and 540,000,000 preference shares, each with a nominal value of €1.04. As at December 31, 2019, the number of common shares issued was 911,186,920 shares (December 31, 2018: 911,156,920 shares).

As of December 31, 2019, the number of common shares outstanding was 891,434,489 shares (December 31, 2018: 898,305,080 shares).

7.6.22.2. *Preference shares*

The 540,000,000 preference shares, when issued, will entitle a holder to full voting rights and to a preferential right to dividends and distributions upon liquidation.

The Company is a party to an option agreement regarding the preference shares with Stichting Continuïteit ST (the "Stichting"), entered into on January 22, 2007, with a duration of ten years, which agreement was extended for another ten years in October 2016. The Managing Board and the Supervisory Board, along with the board of the Stichting, have declared that they are jointly of the opinion that the Stichting is independent of the Company. The option agreement provides for the issuance of up to a maximum 540,000,000 preference shares. Any such shares would be issued to the Stichting upon its request and in its sole discretion and upon payment of at least 25% of the par value of the preference shares to be issued. The shares would be issuable in the event of actions which the board of the Stichting determines would be contrary to the Company's interests, shareholders and other stakeholders and which in the event of a creeping acquisition or offer for the Company's common shares are not supported by the Company's Managing Board and Supervisory Board. The preference shares may remain outstanding for no longer than two years. No preference shares have been issued to date. The effect of the preference shares may be to deter potential acquirers from effecting an unsolicited acquisition resulting in a change of control as well as to create a level-playing field in the event actions which are considered to be hostile by the Managing Board and the Supervisory Board, as described above, occur and which the board of the Stichting determines to be contrary to Company's interests, shareholders and other stakeholders.

There were no preference shares issued as of December 31, 2019 and December 31, 2018 respectively.

7.6.22.3. *Treasury shares*

In 2014 and 2017, the Company announced share buy-back programs following the issuance of new convertible bonds. Pursuant to a resolution passed at the shareholders' meeting held on June 13, 2014, the Company repurchased 20.0 million shares of its common stock in 2014, reflected at cost, as a reduction of the parent company stockholders' equity. Pursuant to a resolution passed at the shareholders' meeting held on June 20, 2017 and announced on June 22, 2017, the Company repurchased 18.6 million shares of its common stock in 2017 for a total of \$297 million, reflected at cost, as a reduction of the parent company stockholders' equity.

On November 5, 2018, the Company announced a three-year buy-back program of up to \$750 million. As of December 31, 2019, the Company repurchased 18.3 million shares of its common stock for a total of \$312 million under the share buy-back program, reflected at cost, as a reduction of the stockholders' equity.

The treasury shares have been designated for allocation under the Group's share-based remuneration programs of unvested shares. As of December 31, 2019, 53,224,112 of these treasury shares were transferred to employees under the Group's share-based remuneration programs, of which 7,014,570 in the year ended December 31, 2019.

As of December 31, 2019, the Company owned 19,752,431 treasury shares compared to 12,851,840 shares as of December 31, 2018.

7.6.22.4. Unvested share awards for the Supervisory Board

On an annual basis and until the year 2012, the Compensation Committee (on behalf of the Supervisory Board and with its approval) used to grant stock-based awards (the options to acquire common shares in the share capital of the Company) to the members and professionals of the Supervisory Board ("The Supervisory Board Plan"). The awards were granted at the nominal value of the share of €1.04 (exercise price of the option). The options granted under the Supervisory Board Plan vest and become exercisable immediately, while the shares resulting from these awards vest and therefore become available for trade evenly over three years (one third every year), with no market, performance or service conditions.

The table below summarizes grants under the outstanding stock award plans as authorized by the Compensation Committee:

Year of Grant	Options granted and vested	Options waived at grant
2008	165,000	(22,500)
2009	165,000	(7,500)
2010	172,500	(7,500)
2011	172,500	(30,000)
2012	180,000	(22,500)
2013 to 2019	No options granted	

A summary of the options' activity by plan for the years ended December 31, 2019 and December 31, 2018 is presented below:

Year of grant	Outstanding as of 31.12.2017		Outstanding as of 31.12.2018		Outstanding as of 31.12.2019
		Exercised		Exercised	
2008	16,500	(16,500)	—	—	—
2009	22,500	(22,500)	—	—	—
2010	30,000	(7,500)	22,500	(22,500)	—
2011	52,500	—	52,500	(7,500)	45,000
2012	65,000	—	65,000	—	65,000

The total intrinsic value of options exercised during the year 2019 and 2018 amounted to \$1 million in each year. The total intrinsic value of options outstanding as of December 31, 2019 and December 31, 2018 amounted to \$3 million and \$2 million, respectively.

At the Company's Annual General Meeting of Shareholders held on June 21, 2013, it was resolved to abolish and terminate the stock-based compensation for the Supervisory Board members and professionals.

7.6.22.5. Unvested share awards for the Employees

On an annual basis, the Compensation Committee (on behalf of the Supervisory Board and with its approval) grants stock-based awards to the senior executives along with selected employees (the "Employee Plan"). The awards are granted for services under the Employee Plan. There are two types of unvested shares: (1) shares granted to employees, which are subject only to service conditions and vest over the requisite service period, and (2) shares granted to senior executives, whose vesting is subject to performance conditions. For the plans 2017, 2018 and 2019, the performance conditions consisted of two external targets (sales evolution and operating income compared to a basket of competitors) weighting for two thirds of the total number of awards granted and of one internal target (return on net assets compared to the previous period), weighting for one third of the total number of awards granted. For the plan 2016, the performance conditions consisted of two external targets (sales evolution and operating income compared to a basket of competitors) weighting for 80% of the total number of awards granted and of two internal targets (days of sales outstanding compared to the budget and return on net assets compared to budget), weighting for 20% of the total number of awards granted. All the awards vest over a three-year service period (32% as of the first anniversary of the grant, 32% as of the second anniversary of the grant and 36% as of the third anniversary of the grant). In addition, in 2016, 2017 and 2019 there was a Special Bonus granted to the Group's CEO.

The table below summarizes grants under the outstanding stock award plans as authorized by the Compensation Committee:

Date of Grant	Allocations under	Number of shares granted	Number of shares waived	Number of shares lost on performance conditions
July 26, 2016	2016 Employee Plan	6,621,100	—	(1,628,376)
December 19, 2016	2016 Employee Plan	376,800	—	(53,900)
July 25, 2017	2017 Employee Plan	7,634,475	—	—
December 22, 2017	2017 Employee Plan	347,160	—	—
July 24, 2018	2018 Employee Plan	7,552,410	—	—
December 20, 2018	2018 Employee Plan	443,200	—	—
May 23, 2019	2019 CEO Special Bonus	34,960	—	—
July 24, 2019	2019 Employee Plan	7,752,940	—	(1,161,966)
December 26, 2019	2019 Employee Plan	246,750	—	(17,013)

A summary of the unvested share activity for the year December 31, 2019 is presented below:

Allocation under	Unvested as at December 31, 2018	Granted	Forfeited / waived	Cancelled on failed vesting conditions	Vested	Unvested as at December 31, 2019
2016 Employee Plan	1,804,140	—	(9,706)	—	(1,794,434)	—
2017 Employee Plan	5,268,975	—	(64,290)	—	(2,556,306)	2,648,379
2018 Employee Plan	7,973,580	—	(111,826)	—	(2,663,830)	5,197,924
2019 CEO Special Bonus	—	34,960	—	—	—	34,960
2019 Employee Plan	—	7,999,690	(22,320)	—	—	7,977,370
Total	15,046,695	8,034,650	(208,142)	—	(7,014,570)	15,858,633

The grant date weighted average fair value of unvested shares granted to employees under the 2016 Employee Plan was \$6.37. On March 28, 2017, the Compensation Committee approved the statement that with respect to the shares subject to performance conditions, two performance conditions were fully met. Consequently, the compensation expense recorded on the 2016 Employee Plan reflects the statement that — for the portion of shares subject to performance conditions — 45% of the awards granted, representing the weight of the two performance conditions met, will fully vest, as far as the service condition is met.

The grant date weighted average fair value of unvested shares granted to employees under the 2017 Employee Plan was \$16.52. On March 27, 2018, the Compensation Committee approved the statement that with respect to the shares subject to performance conditions, all three performance conditions were fully met. Consequently, the compensation expense recorded on the 2017 Employee Plan reflects the statement that — for the portion of the shares subject to performance conditions — 100% of the awards granted will fully vest, as far as the service condition is met.

The grant date weighted average fair value of unvested shares granted to employees under the 2018 Employee Plan was \$22.78. On March 27, 2019, the Compensation Committee approved the statement that with respect to the shares subject to performance conditions, all three performance conditions were fully met. Consequently, the compensation expense recorded on the 2018 Employee Plan reflects the statement that — for the portion of the shares subject to performance conditions — 100% of the awards granted will fully vest, as far as the service condition is met.

The grant date fair value of unvested shares granted to the CEO under the 2019 CEO Special Bonus Plan was \$14.97. On the 2019 CEO Special Bonus Plan, the fair value of the unvested shares granted reflected the market price of the shares at the date of the grant.

The grant date weighted average fair value of unvested shares granted to employees under the 2019 Employee Plan was \$19.28. On March 25, 2020, the Compensation Committee approved the statement that with respect to the shares subject to performance conditions, two performance conditions were fully met. Consequently, the compensation expense recorded on the 2019 Employee Plan reflects the statement that — for the portion of the shares subject to performance conditions — two thirds of the awards granted will fully vest, as far as the service condition is met.

The following table illustrates the classification of pre-payroll tax and social contribution stock-based compensation expense included in the consolidated income statement for the year ended December 31, 2019 and 2018:

In millions of USD	December 31, 2019	December 31, 2018
Cost of sales	22	23
Selling, general and administrative	46	67
Research and development	77	35
Total pre-payroll tax and social contribution compensation	145	125

The fair value of the shares vested in 2019 was \$114 million compared to \$68 million for 2018.

Compensation cost, excluding payroll tax and social contribution, capitalized as part of inventory was \$6 million as of December 31, 2019 and 2018, respectively. As of December 31, 2019, there was \$138 million of total unrecognized compensation cost related to the grant of unvested shares, which is expected to be recognized over a weighted average period of approximately 9 months.

The total deferred income tax benefit recognized in the consolidated statements of income related to unvested share-based compensation expense amounted to \$9 million for the year ended December 31, 2019 compared to \$7 million for the year ended December 31, 2018. The excess tax benefit on unvested share-based compensation totaled \$4 million as at December 31, 2019 and was recorded in “other reserves”. The amount was not significant as at December 31, 2018.

7.6.22.6. Other reserves

Other reserves include the following components as at December 31, 2019:

In millions of USD	Share-based compensation reserve	Fair value reserve of financial assets at FVOCI	Cash Flow Hedge (CFH) reserve	Foreign currency translation reserve	Employee benefit plan reserve	Total other reserves
As at December 31, 2017	713	(2)	29	685	(156)	1,269
Employee share award scheme	125	—	—	—	—	125
Net movement recognized in the statement of comprehensive income	—	(1)	(55)	(86)	(35)	(177)
Transfer of cash flow hedge reserve to inventories	—	—	4	—	—	4
As at December 31, 2018	838	(3)	(22)	599	(191)	1,221
Employee share award scheme	149	—	—	—	—	149
Net movement recognized in the statement of comprehensive income	—	2	19	(35)	(40)	(54)
Transfer of cash flow hedge reserve to inventories	—	—	1	—	—	1
As at December 31, 2019	987	(1)	(2)	564	(231)	1,317

Share-based compensation reserve: The share-based compensation reserve is used to recognize the value of equity-settled share-based payment transactions provided to employees, including key management personnel, as part of their remuneration. Refer to Notes 7.6.22.4 and 7.6.22.5 for further details on these share-based compensation programs.

Fair value reserve of financial assets at FVOCI: This reserve records fair value changes on debt instruments measured at FVOCI. Changes in fair value of equity instruments measured at FVOCI are not material.

Cash Flow hedge reserve: The cash flow hedge reserve contains the effective portion of the cash flow hedge relationship outstanding as at the reporting date.

Foreign currency translation reserve: The foreign currency translation reserve is used to record exchange differences arising from the translation of the financial statements of foreign subsidiaries.

Employee benefit plan reserve: The employee benefit plan reserve is used to recognize the actuarial gains and losses and past service cost of post-employment pension plans.

7.6.22.7. Dividends

The 2019 AGM held on May 31, 2019 authorized the distribution of a cash dividend of \$0.24 per outstanding share of the Company's common stock, to be distributed in quarterly installments of \$0.06 in each of the second, third and fourth quarters of 2019 and first quarter of 2020. The amount of \$53 million corresponding to the first installment, \$53 million corresponding to the second installment and \$48 million corresponding to the third installment were paid as at December 31, 2019. The remaining portion of the third installment amounting to \$5 million and the last installment of \$53 million are presented in the line "Other payables and accrued liabilities" in the consolidated statement of financial position as at December 31, 2019.

The 2018 AGM held on May 31, 2018 authorized the distribution of a cash dividend of \$0.24 per outstanding share of the Company's common stock, to be distributed in quarterly installments of \$0.06 in each of the second, third and fourth quarters of 2018 and first quarter of 2019. The amount of \$54 million corresponding to the first installment, \$54 million corresponding to the second installment and \$48 million corresponding to the third installment were paid as of December 31, 2018. The remaining portion of the third installment amounting to \$6 million and the last installment of \$54 million were paid in the first half of 2019.

The 2017 AGM held on June 20, 2017, authorized the distribution of a cash dividend of \$0.24 per outstanding share of the Company's common stock, to be distributed in quarterly installments of \$0.06 in each of the second, third and fourth quarters of 2017 and first quarter of 2018. The amount of \$53 million corresponding to the first installment, \$53 million corresponding to the second installment and \$47 million corresponding to the third installment were paid as of December 31, 2017. The remaining portion of the third installment amounting to \$7 million and the last installment of \$53 million were paid in the first half of 2018.

7.6.22.8. Legal reserves

Refer to Note 8.3.12 for composition of Company's legal reserves.

7.6.23. Provisions

Movements in provisions during the year ended December 31, 2019 are detailed as follows:

In millions of USD	Restructuring	Warranty and product Guarantee	Tax	Total
As at December 31, 2018	34	3	38	75
Unused provisions	(2)	—	—	(2)
Amounts paid	(21)	—	—	(21)
Impact of IFRIC 23 adoption	—	—	(38)	(38)
Currency translation effect	—	—	—	—
As at December 31, 2019	11	3	—	14
Current 2019	10	3	—	13
Non-current 2019	1	—	—	1
As at December 31, 2018	34	3	38	75
Current 2018	22	3	—	25
Non-current 2018	12	—	38	50

Restructuring provisions

- Set-top Box restructuring plan

In 2016, the Group announced its decision to cease the development of new platforms and standard products for set-top-box and home gateway products. This decision resulted in a global workforce review affecting approximately 1,400 employees worldwide, which included about 430 employees in France through a voluntary departure plan, about 670 employees in Asia and about 120 employees in the United States of America. The Group recorded \$19 million of restructuring charges for this plan in 2018, primarily related to employee termination benefits on a voluntary leave plan in France. The Group reported in 2019 a \$2 million reversal on this plan as a total adjustment on unused provisions.

Warranty and product guarantee

The Group's customers occasionally return the Group's products for technical reasons. The Group's standard terms and conditions of sale provide that if the Group determines that products do not conform, the Group will repair or replace the non-conforming products, or issue a credit or rebate of the purchase price. Quality returns are identified shortly after sale in customer quality control testing. Quality returns are usually associated with end-user customers, not with distribution channels.

Tax provisions

Uncertain tax positions amounted to \$48 million as at December 31, 2019.

The Group adopted IFRIC 23 on January 1, 2019. Prior to IFRIC 23 adoption, the Group reported \$38 million of uncertain tax positions on the line "Non-current provisions" on the consolidated statement of financial position as at December 31, 2018. The Group reported \$31 million of uncertain tax positions on the line "Other non-current liabilities" since the uncertainty related to the amount of income tax payable in respect of taxable profit. The Group also reported \$17 million of uncertain tax positions as a reduction of deferred tax assets since the uncertainty related to the amounts of income taxes payable or recoverable in future periods in respect of temporary differences and the carryforward of unused tax losses and credits, as detailed in Note 7.6.33.

7.6.24. Employee benefits

Employee benefits liabilities are detailed as follows:

In millions of USD	December 31, 2019	December 31, 2018
Retirement benefit obligation liability	471	415
Other long-term employee benefits	96	86
Other employee benefits liabilities	32	26
Salaries and wages	375	359
Social charges on salaries and wages	160	160
Total employee benefits liabilities	1,134	1,046
Non-current assets	(4)	(4)
Current liabilities	566	554
Non-current liabilities	572	496

Pensions

The Group has a number of defined benefit pension plans covering employees in various countries. The defined benefit plans provide pension benefits based on years of service and employee compensation levels. The Group uses December 31 as measurement date for all its plans. Eligibility is generally determined in accordance with local statutory requirements. In 2019 and 2018, the major defined benefit pension plans and long-term employee benefit plans were in the USA (retirement plan closed to new entrants and future accrual), France (retirement indemnities), Switzerland (retirement pension system), UK (retirement benefit scheme closed to new entrants and future accrual) and Italy (termination indemnity plan ("TFR") generated before July 1, 2007).

The amounts recognized in the statement of financial position are determined as follows:

In millions of USD	December 31, 2019	December 31, 2018
Benefit obligations wholly or partially funded	(737)	(641)
Fair value of plan assets	597	527
Benefit obligations wholly unfunded	(315)	(277)
Asset ceiling	(16)	(24)
Total pension liabilities	(471)	(415)

The movements in the pension liability are as follows:

In millions of USD	2019	2018
Beginning of the year	415	392
Exchange difference	(1)	(14)
Pension expense	36	36
Contributions paid	(31)	(37)
Remeasurement (gain) / loss recognized in OCI	52	38
End of the year	471	415

Changes in defined benefit obligations are as follows:

In millions of USD	2019	2018
Beginning of the year	918	943
Service cost	26	27
Interest cost	25	24
Employee contributions	3	3
Plan amendment – past service cost – non vested benefits	1	1
Actuarial (gain) loss – Experience	—	11
Actuarial (gain) loss – Demographic assumptions	3	2
Actuarial (gain) loss – Financial assumptions	123	(42)
Effect of curtailment	—	(1)
Benefits paid	(51)	(25)
Effect of foreign exchange translation	4	(25)
End of the year	1,052	918

Defined benefit obligations by main geographical locations are as follows:

In millions of USD	2019	2018
France	223	193
Italy	111	106
Switzerland	127	133
United Kingdom	180	154
United States	356	284
Other countries	55	48
End of the year	1,052	918

Changes in plan assets are as follows:

In millions of USD	2019	2018
Beginning of the year	527	552
Interest income	16	15
Employer contribution	21	26
Employee contribution	3	3
Benefits paid	(41)	(14)
Actuarial gain (loss)	65	(43)
Effect of foreign exchange translation	6	(12)
End of the year	597	527

The actual return on plan assets in 2019 was a gain of \$81 million (2018: loss of \$28 million). In 2019, the theoretical interest income on plan assets was a gain of \$16 million (2018: gain of \$15 million) resulting in an actuarial gain on plan assets of \$65 million (2018: loss of \$43 million).

Plan assets by main geographical locations are as follows:

In millions of USD	2019	2018
France	3	3
Switzerland	89	105
United Kingdom	171	149
United States	297	238
Other countries	37	32
End of the year	597	527

The effects of the asset ceiling are as follows:

In millions of USD	2019	2018
Beginning of the year	(24)	(1)
Effect of asset ceiling recognized during the year	9	(24)
Effect of foreign exchange translation	(1)	1
End of the year	(16)	(24)

The amounts recognized in the income statement related to pensions are as follows:

In millions of USD	2019	2018
Service cost	27	27
Current service cost	26	27
Prior service cost	1	1
Curtailment	—	(1)
Net interest cost	9	9
Interest cost	25	24
Interest income	(16)	(15)
Total pension costs	36	36

The Group's detailed pension plan asset allocation including the fair-value measurements of those plan assets as at December 31, 2019 is as follows:

In millions of USD	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Cash and cash equivalents	5	5	—	—
Equity securities	144	1	143	—
Government debt securities	74	—	74	—
Corporate debt securities	95	—	83	12
Investment funds	127	1	126	—
Real estate	10	—	10	—
Other (mainly insurance assets)	142	—	41	101
Total	597	7	477	113

The Group's detailed pension plan asset allocation including the fair-value measurements of those plan assets as at December 31, 2018 is as follows:

In millions of USD	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Cash and cash equivalents	11	11	—	—
Equity securities	145	1	144	—
Government debt securities	16	—	16	—
Corporate debt securities	134	—	134	—
Investment funds	90	4	86	—
Real estate	14	—	14	—
Other (mainly insurance assets)	117	—	—	117
Total	527	16	394	117

The majority of plans (in the United Kingdom, United States and Switzerland) are governed by an independent board of trustees which include employer representatives.

The Group's investment strategy for its pension plans is to optimize the long-term investment return on plan assets in relation to the liability structure to maintain an acceptable level of risk while minimizing the cost of providing pension benefits and maintaining adequate funding levels in accordance with applicable rules in each jurisdiction.

The Group's practice is to periodically conduct a review in each subsidiary of its asset allocation strategy, in such a way that the asset allocation is in line with the targeted asset allocation with reasonable boundaries. The Group's asset portfolios are managed in such a way as to achieve adapted diversity and in certain jurisdictions they are entirely managed by the multi-employer funds. The Group does not manage any assets internally.

After considering the funded status of the Group's defined benefit plans, movements in the discount rate, investment performance and related tax consequences, the Group may choose to make contributions to its pension plans in any given year in excess of required amounts. In 2019, the Group's contributions to plan assets were \$21 million (2018: \$26 million) and it expects to contribute cash of \$23 million in 2020.

Other long-term employee benefits

Other long-term employee benefits include seniority and loyalty award programs. The movements in the other long-term employee benefits liability are as follows:

In millions of USD	2019	2018
Beginning of the year	86	86
Service cost	6	6
Interest cost	2	1
Plan amendment – past service cost – non vested benefits	—	—
Actuarial (gain) loss – Experience	(1)	—
Actuarial (gain) loss – Demographic assumptions	1	1
Actuarial (gain) loss – Financial assumptions	7	—
Benefits paid	(4)	(3)
Effect of curtailment	—	—
Effect of foreign exchange translation	(1)	(5)
End of the year	96	86

The amounts recognized in the income statement related to other long-term benefits are as follows:

In millions of USD	2019	2018
Service cost	6	6
Current service cost	6	6
Past service cost	—	—
Curtailment	—	—
Net interest cost	9	2
Interest cost	2	1
Immediate recognition of (gains) losses	7	1
Total other long-term benefits costs	15	8

Assumptions

The weighted average assumptions used in the determination of pension and other long-term obligations are as follows:

	2019	2018
Discount rate	1.94%	2.74%
Inflation rate	1.79%	1.78%
Future salary increase	2.60%	2.47%

The discount rate was determined by reference to high quality corporate bond rates applicable to the respective country of each plan and estimated terms of the defined benefit obligation. As required by IAS 19, and for pension plans with plan assets, the interest income on plan assets is set equal to the corresponding discount rate.

The average duration of Defined Benefit Obligations is 15 years in 2019 (2018: 14 years).

At December 31, 2019, an increase of the discount rate of 0.50% would have resulted in a reduction of the Defined Benefit Obligations of \$81 million and a decrease of the discount rate of 0.50% would have resulted in an increase of the Defined Benefit Obligations by \$88 million. An increase of the inflation rate of 0.50% would have resulted in an increase of the Defined Benefit Obligations of \$17 million and a decrease of the inflation rate of 0.50% would have resulted in a decrease of the Defined Benefit Obligations of \$15 million. An increase of the life expectancy of one year would have resulted in an increase of the Defined Benefit Obligations of \$18 million and a decrease of the life expectancy of one year would have resulted in a decrease of the Defined Benefit Obligations of \$17 million. These sensitivity analyses are based on a change in an assumption while holding all other assumptions constant. When calculating the sensitivity of the defined benefit obligation to significant actuarial assumptions the same method has been applied as when calculating the pension liability recognized within the statement of financial position.

Assumptions regarding future mortality experience are set based on advice from published statistics and experience in each territory.

Defined contribution plans

The Group has certain defined contribution plans, which accrue benefits for employees on a pro-rata basis during their employment period based on their individual salaries. In 2019, the annual cost of these plans amounted to approximately \$86 million (2018: \$84 million).

7.6.25. Trade accounts payable, other payables and accrued liabilities

In millions of USD	December 31, 2019	December 31, 2018
Trade accounts payable	950	981
Dividends due to shareholders	58	60
Taxes other than income taxes	53	60
Advances	63	77
Accounts payable to joint ventures	—	49
Royalties	21	26
Deferred consideration for business combinations	10	—
Other accrued liabilities	55	56
Total other payables and accrued liabilities	260	328

7.6.26. Significant categories of income

In millions of USD	December 31, 2019	December 31, 2018
Sales of goods	9,529	9,612
License revenue and patent royalty income	27	52
Research tax credits recognized as a reduction of Research & Development expenses	101	111
Research and development funding recognized in Other income	132	52
Finance income	81	453
Total	9,870	10,280

7.6.27. Revenues

7.6.27.1. Nature of goods and services

The Group designs, develops, manufactures and markets a broad range of products, including discrete and standard commodity components, application-specific integrated circuits (“ASICs”), full-custom devices and semi-custom devices and application specific standard products (“ASSPs”) for analog, digital and mixed-signal applications. In addition, the Group participates in the manufacturing value chain of Smartcard products, which includes the production and sale of both silicon chips and Smartcards.

The principal activities — separated by reportable segments — from which the Group generates its revenues are described in Note 7.6.28.

Other revenues consist of license revenue, service revenue related to transferring licenses, patent royalty income, sale of scrap materials and manufacturing by-products.

While the majority of the Group’s sales agreements contain standard terms and conditions, the Group may, from time to time, enter into agreements that contain multiple performance obligations or terms and conditions. Those agreements concern principally the revenues from services, where the performance obligation is satisfied over time. The objective when allocating the transaction price is to allocate the transaction price to each performance obligation (or distinct good or service) in an amount that depicts the amount of consideration to which the Group expects to be entitled in exchange for transferring the promised goods or services to the customer.

7.6.27.2. Revenue recognition and disaggregation

The Group recognizes revenue from products sold to a customer, including distributors, when it satisfies a performance obligation at a point in time by transferring control over a product to the customer. This usually occurs at the time of shipment. The performance obligations linked to the sale of goods contracts have the original expected length of less than one year. The transaction price is determined based on the contract terms, adjusted for price protection if applicable. The revenues from services are usually linked to performance obligations transferred over time and are recognized in line with the contract terms.

The payment terms range between 30 and 90 days.

The Group’s consolidated net revenues disaggregated by product group are presented in Note 7.6.28. The following table presents the Group’s consolidated net revenues disaggregated by geographical region of shipment, nature and market channel.

In millions of USD	December 31, 2019	December 31, 2018
Net revenues by geographical region of shipment⁽¹⁾		
EMEA	2,265	2,478
Americas	1,351	1,264
Asia Pacific	5,940	5,922
Total revenues	9,556	9,664
Net revenues by nature		
Revenues from sale of products	9,381	9,461
Revenues from sale of services	148	151
Other revenues	27	52
Total revenues	9,556	9,664
Net revenues by market channel⁽²⁾		
Original Equipment Manufacturers (“OEM”)	6,720	6,325
Distribution	2,836	3,339
Total revenues	9,556	9,664

(1) Net revenues by geographical region of shipment are classified by location of customer invoiced or reclassified by shipment destination in line with customer demand. For example, products ordered by U.S.-based companies to be invoiced to Asia Pacific affiliates are classified as Asia Pacific revenues.

(2) OEM are the end-customers to which the Group provides direct marketing application engineering support, while Distribution customers refers to the distributors and representatives that the Group engages to distribute its products around the world.

The Group does not disclose the value of unsatisfied performance obligations for (i) contracts with an original expected length of one year or less and (ii) contracts for which the Group recognizes revenue at the amount to which the Group has the right to invoice for services performed.

7.6.28. Segment information

The Group designs, develops, manufactures and markets a broad range of products, including discrete and standard commodity components, ASICs, full custom devices and semi-custom devices and ASSPs for analog, digital, and mixed-signal applications. In addition, the Group further participates in the manufacturing value chain of Smartcard products, which includes the production and sale of both silicon chips and Smartcards.

The Group's operating segments are as follows:

- Automotive and Discrete Group (ADG), comprised of dedicated automotive ICs (both digital and analog), and discrete and power transistor products for all market segments.
- Analog, MEMS and Sensors Group (AMS), comprised of low-power high-end analog ICs (both custom and general purpose) for all markets, smart power products for Industrial, Computer and personal electronics markets, Touch Screen Controllers, Low Power Connectivity solutions (both wireline and wireless) for IoT, power conversion products, metering solutions for Smart Grid, specialized imaging sensors and modules, and all MEMS products for sensors or Actuators.
- Microcontrollers and Digital ICs Group (MDG), comprised of general purpose and secure microcontrollers, EEPROM memories, Digital ASICs, Aerospace & Defense products including components for microwave and millimeter wave.

For the computation of the segments' internal financial measurements, the Group uses certain internal rules of allocation for the costs not directly chargeable to the segments, including cost of sales, selling, general and administrative expenses and a part of research and development expenses. In compliance with the Group's internal policies, certain costs are not allocated to the segments, but reported in "Others". Those include impairment, restructuring charges and other related closure costs, management reorganization expenses, unused capacity charges, phase-out and start-up costs of certain manufacturing facilities, certain one-time corporate items, strategic and special research and development programs or other corporate-sponsored initiatives, including certain corporate-level operating expenses, patent claims and litigations and certain other miscellaneous charges. In addition, depreciation and amortization expense is part of the manufacturing costs allocated to the segments and is neither identified as part of the inventory variation nor as part of the unused capacity charges; therefore, it cannot be isolated in the costs of goods sold. Finally, R&D grants are allocated to the Group's segments proportionally to the incurred R&D expenses on the sponsored projects.

Wafer costs are allocated to the segments based on actual cost. From time to time, with respect to specific technologies, wafer costs are allocated to segments based on market price.

The following tables present the Group's consolidated net revenues and consolidated operating income by reportable segment.

Net revenues by reportable segment:

In millions of USD	December 31, 2019	December 31, 2018
ADG	3,606	3,556
AMS	3,299	3,154
MDG	2,638	2,940
Total net revenues of operating segments	9,543	9,650
Others	13	14
Total consolidated net revenues	9,556	9,664

Operating profit by reportable segment:

In millions of USD	December 31, 2019	December 31, 2018
ADG	352	429
AMS	592	486
MDG	349	544
Sub-total operating profit of operating segments	1,293	1,459
Impairment, restructuring charges and other related closure costs	(5)	(21)
Unallocated manufacturing results	(90)	1
Strategic and other research and development programs and other non-allocated provisions ⁽¹⁾	(11)	(50)
IFRS/US GAAP Adjustments:		
Net impact of capitalized development costs	(116)	25
Employee benefits adjustments	(6)	5
Asset acquisition tax incentives	(46)	(36)
IFRS 16 adjustment on lease expenses	4	—
Derivative instruments not designated as hedge instruments under IFRS	12	(28)
Operating profit	1,035	1,355

(1) Includes unallocated income and expenses such as certain corporate-level operating expenses and other costs/income that are not allocated to the product segments.

The following is a summary of operations by entities located within the indicated geographic areas for 2019 and 2018. Net revenues represent sales to third parties from the country in which each entity is located. A significant portion of property, plant and equipment expenditures is attributable to front-end and back-end facilities, located in the different countries in which the Group operates. As such, the Group mainly allocates capital spending resources according to geographic areas rather than along product segment areas.

Net revenues by geographical area:

In millions of USD	December 31, 2019	December 31, 2018
Netherlands	2,842	2,917
France	108	127
Italy	59	64
USA	1,157	1,132
Singapore	4,857	4,873
Japan	520	534
Other countries	13	17
Total	9,556	9,664

Non-current assets other than other non-current financial assets and deferred tax assets:

In millions of USD	December 31, 2019	December 31, 2018
Netherlands	2,174	2,045
France	1,113	1,115
Italy	1,159	1,031
USA	35	16
Singapore	674	496
Other countries	813	816
Total	5,968	5,519

7.6.29. Expenses by nature

Expenses recorded as cost of sales, research and development and selling, general and administrative are detailed as follows:

In millions of USD	December 31, 2019	December 31, 2018
Depreciation and amortization	1,221	1,071
Employee benefit expenses	2,957	2,992
Purchase of materials	2,396	2,345
Purchase of subcontracting services	1,287	1,373
Changes in inventories	(142)	(254)
Transportation	92	87
Impairment charge	149	20
Royalties and patents	73	75
Advertising costs	17	15
Other expenses	557	608
Total cost of sales, research and development, and selling, general and administrative	8,607	8,332

Employee benefit expenses are detailed as follows:

In millions of USD	December 31, 2019	December 31, 2018
Wages and salaries	2,174	2,206
Payroll taxes and other social contribution charges	501	539
Share-based compensation expense	145	125
Pensions and other long-term benefits costs	137	122
Total employee benefit expenses	2,957	2,992
Of which included in:		
Cost of sales	1,344	1,377
Selling, general and administrative	761	767
Research and development	852	848

7.6.30. Other income / expenses

Other income consisted of the following:

In millions of USD	December 31, 2019	December 31, 2018
Research and development funding	132	52
Net foreign exchange gain	—	4
Gain on sale of businesses and non-current assets	7	8
Other income	3	—
Total other income	142	64

Other expenses consisted of the following:

In millions of USD	December 31, 2019	December 31, 2018
Start-up / Phase out costs	38	1
Foreign exchange forward contracts and other currency derivatives	16	31
Patent litigation costs	1	8
Other expense	1	1
Total other expenses	56	41

The Group receives significant public funding from governmental agencies in several jurisdictions. Public funding for research and development is recognized ratably as the related costs are incurred once the agreement with the respective governmental agency has been signed and all applicable conditions have been met. R&D funding received in the year ended December 31, 2017 from the Nano2017 program with the French government is subject to a financial return in the year 2024 and depends on the future cumulative sales of a certain product group from 2019 to 2024. As such, an accrual amounting to \$47 million was posted in other non-current liabilities as of December 31, 2019 compared to \$42 million as of December 31, 2018.

Phase-out costs are costs incurred during the closing stage of a Group's manufacturing facility. They are treated in the same manner as start-up costs. Start-up costs represent costs incurred in the start-up and testing of the Group's new manufacturing facilities, before reaching the earlier of a minimum level of production or six months after the fabrication line's quality certification.

Foreign exchange gains (losses), net of forward contracts and other currency derivatives, represent the portion of exchange rate changes on transactions denominated in currencies other than an entity's functional currency and the changes in fair value of trading derivative instruments which are not designated as hedge, as described in Note 7.6.16.4.

Patent costs include legal and attorney fees and payment for claims, patent pre-litigation consultancy and legal fees. They are reported net of settlements, if any, which primarily include reimbursements of prior patent litigation costs.

In 2019, gain on sale of businesses and non-current assets was related to the sale of one of the Group's non-strategic assets. In 2018, it was related to the sale of one of the Group's non-strategic investments.

7.6.31. Finance income / costs

Total finance income consisted of the following:

In millions of USD	December 31, 2019	December 31, 2018
2017 Embedded call option adjustment	25	—
2017 Embedded conversion option adjustment	—	405
Interest income on quoted debt securities	6	6
Other finance income	50	42
Total finance income	81	453

Total finance costs consisted of the following:

In millions of USD	December 31, 2019	December 31, 2018
Interest on Senior Bonds	42	40
2017 Embedded conversion option adjustment	544	—
Interests on lease liabilities	6	—
Interests on long-term loans and borrowings	11	12
Bank charges and commissions	4	4
Total finance costs	607	56

No borrowing costs were capitalized in 2019 and 2018.

As described in Note 7.6.16.3, the change in fair value of the non-equity derivative instrument corresponding to the bondholders' conversion option embedded in the unsecured senior convertible bonds issued on July 3, 2017 generated a cost of \$544 million for the year ended December 31, 2019 compared to an income of \$405 million for the year ended December 31, 2018.

Leases are further described in Note 7.6.13.

7.6.32. Components of other comprehensive income

In millions of USD	December 31, 2019	December 31, 2018
Cash flow hedges:		
Gains / (losses) arising during the year	(27)	(52)
Reclassification adjustments for (gains) / losses included in the income statement	46	(4)
	19	(56)

7.6.33. Income tax

The major components of income tax benefit (expense) for the years ended December 31, 2019 and 2018 are:

Consolidated income statement

In millions of USD	December 31, 2019	December 31, 2018
The Netherlands taxes – current	—	—
Foreign taxes – current	(131)	(114)
Current taxes	(131)	(114)
The Netherlands taxes – deferred	—	—
Foreign deferred taxes	9	(11)
Deferred taxes	9	(11)
Income tax benefit / (expense)	(122)	(125)

Consolidated statement of other comprehensive income (deferred tax related to items charged or credited directly to equity during the year)

In millions of USD	December 31, 2019	December 31, 2018
Re-measurements of employee benefit obligations	12	3
Income tax credited (charged) directly to equity	12	3

A reconciliation between income tax benefit and the product of income before tax multiplied by The Netherlands' statutory tax rate for the years ended December 31, 2019 and 2018 is as follows:

In millions of USD	December 31, 2019	December 31, 2018
Gain (loss) before income tax	510	1,760
Income tax benefit (expense) at The Netherlands' statutory tax rate of 25% (2018: 25%)	(127)	(440)
Non-deductible, non-taxable items	(127)	146
Impairment of deferred tax assets and tax losses with no deferred tax asset recognized	2	81
Effect on deferred tax rates of changes in enacted tax rates	14	(62)
Current year credits	50	43
Other taxes and credits	(51)	(20)
Benefits from tax holidays	129	135
Current year tax risk	(5)	(16)
Earnings (losses) of subsidiaries taxed at different rates	(7)	8
Income tax benefit / (expense)	(122)	(125)

During the year ended December 31, 2019, the Group did not recognize deferred tax assets on net operating losses for an approximate amount of \$3 million (2018: \$138 million).

The changes in enacted tax rates resulted in an increase of tax expense of \$14 million in 2019 (decrease of \$62 million in 2018).

The tax holidays represent a tax exemption period aimed at attracting foreign technological investment in certain tax jurisdictions. The effect of the tax benefits on basic earnings per share was \$0.14 per share in 2019 (2018: \$0.15 per share). These agreements are present in various countries and include programs that reduce up to 100% of taxes in years affected by the agreements. The Group's tax holidays expire at various dates through the year ending December 31, 2028.

In May 2019, Switzerland voted a tax reform which cancelled all favourable tax regimes and introduced a single tax rate for all companies, which triggered the revaluation of all deferred tax assets and liabilities. Enactment of this law occurred in the third quarter of 2019, which resulted in a tax benefit of \$20 million.

Deferred tax assets and liabilities consisted of the following:

In millions of USD	December 31, 2019	December 31, 2018
Tax loss carry forwards and investment credits	207	207
Inventory valuation	28	28
Impairment charges and restructuring	6	14
Fixed assets depreciation in arrears	44	35
Receivables for government funding	14	11
Pension service costs	85	68
Share awards	16	9
Commercial accruals	15	12
Other temporary differences	21	25
Deferred tax assets	436	409
Accelerated fixed assets depreciation	20	16
Acquired intangible assets	16	13
Advances of government funding	31	12
Other temporary differences	13	16
Deferred tax liabilities	80	57
Net deferred income tax asset	356	352

For a particular tax-paying component of the Group and within a particular tax jurisdiction, all deferred tax assets and liabilities are offset and presented as a single amount. The Group does not offset deferred tax assets and liabilities attributable to different tax-paying components or to different tax jurisdictions.

In millions of USD	December 31, 2017	Exchange differences	Income tax charged directly to equity	Income statement benefit (expense)	December 31, 2018	IFRIC 23 adoption	Exchange differences	Income tax charged directly to equity	Income statement benefit (expense)	December 31, 2019
Deferred tax assets										
Tax losses	459	(20)	—	(232)	207	—	(2)	—	2	207
Impairment charge and restructuring	16	—	—	(2)	14	—	—	—	(8)	6
Fixed asset depreciation	29	(3)	—	9	35	—	(4)	—	14	45
Other	244	(3)	3	(91)	153	(17)	(2)	12	32	178
Total deferred tax assets	748	(26)	3	(316)	409	(17)	(8)	12	40	436
Deferred tax liabilities										
Accelerated tax depreciation	(13)	—	—	(3)	(16)	—	—	—	(4)	(20)
Acquired intangible assets	(10)	—	—	(3)	(13)	—	—	—	(3)	(16)
Other	(28)	—	—	—	(28)	—	—	—	(16)	(44)
Total deferred tax liabilities	(51)	—	—	(6)	(57)	—	—	—	(23)	(80)
Net deferred tax	697	(26)	3	(322)	352	(17)	(8)	12	17	356

As at December 31, 2019, the Group has deferred tax assets on tax loss carry forwards and investment credits that expire starting 2020, as follows:

Year	In millions of USD
2020	3
2021	1
2022	2
2023	—
2024	—
Thereafter	223
Total	229

As at December 31, 2018, the Group has deferred tax assets on tax loss carry forwards and investment credits that expire starting 2019, as follows:

Year	In millions of USD
2019	13
2020	2
2021	1
2022	—
2023	3
Thereafter	188
Total	207

As at December 31, 2019, deferred tax assets not recognized in the statement of financial position amounted to \$1,535 million (2018: \$1,548 million) and are mainly composed of the followings:

- \$1,151 million (2018: \$1,155 million) relating to an agreement granting the Group certain tax credits for capital investments purchased through the year ended December 31, 2006. Any unused tax credits granted under the agreement will continue to increase yearly by a legal inflationary index of -0.18% (2018: -0.18%). The credits may be utilized through 2020 or later depending on the Group meeting certain program criteria. In addition to this agreement, from 2007 onwards, the Group has continued and will continue to receive tax credits on the yearly capital investments, which may be used to offset that year's tax liabilities and increases by the legal inflationary rate. However, pursuant to the inability to use these credits currently and in future years, the Group did not recognize in 2019 and in 2018 these deferred tax assets in the statement of financial position.
- \$384 million (2018: \$393 million) of tax loss carry forwards generated in on-going operations, or corresponding to net operating losses acquired in business combinations, whose recovery was not considered probable. The majority of these unrecognized tax loss carry forwards has an expiry date, if any, after 2023.

7.6.34. Earnings per share

For the year ended December 31, 2019 and December 31, 2018, earnings per share ("EPS") were calculated as follows:

In millions of USD except earnings per share data	December 31, 2019	December 31, 2018
Basic EPS		
Net result attributable to the equity holder of the parent	387	1,629
Weighted average shares outstanding	894,297,697	899,363,170
Basic EPS	0.43	1.81
Diluted EPS		
Net result attributable to the equity holder of the parent	387	1,629
Weighted average shares outstanding	894,297,697	899,363,170
Dilutive effect of stock awards	7,662,535	7,420,292
Dilutive effect of convertible debt	—	—
Number of shares used for diluted EPS	901,960,232	906,783,462
Diluted EPS	0.43	1.80

The convertible bonds issued on July 3, 2017, as detailed in Note 7.6.16.3, had no impact on the diluted EPS computation in 2019 and 2018 since they were non-dilutive as of December 31, 2019 and 2018.

7.6.35. Related party

Transactions with significant shareholders, their affiliates and other related parties were as follows:

In millions of USD	December 31, 2019	December 31, 2018
Sales of goods and services to joint ventures	—	—
Sales of goods and services to entities controlled by key management personnel	2	—
Purchases of goods and services from joint ventures	—	—
Purchases of goods and services from entities controlled by key management personnel	18	15
Accounts receivable from joint ventures	—	2
Accounts receivable from entities controlled by key management personnel	—	—
Accounts payable to joint ventures	—	52

For the years ended December 31, 2019 and 2018, the related party transactions were primarily with significant shareholders of the Group, or their subsidiaries and companies in which management of the Group perform similar policymaking functions. These include, but are not limited to: Orange, MicroOLED and Telecom Italia. The related party transactions presented in the table above for the year ended December 31, 2018 also include transactions between the Group and its investments in joint ventures as listed in Note 7.6.10. Each of the aforementioned arrangements and transactions is negotiated without the personal involvement of the Supervisory Board members and are made in line with market practices and conditions.

The Group made a contribution of \$0.4 million for the year ended December 31, 2019 and \$0.5 million for the year ended December 31, 2018 to the ST Foundation, a non-profit organization established to deliver and coordinate independent programs in line with its mission. Certain members of the Foundation's Board are senior members of the Group's management.

In 2019 and 2018, the total remuneration paid to the sole member of the Managing Board and to the other executive officers was as follows:

For the year ended December 31, 2019, in USD	Short-term benefits			Social security contributions ⁽¹⁾	Post- employment benefits Pensions ⁽²⁾	Termination benefits	Share- based Payments Unvested stock awards	Total
	Base Salary	Bonus	Benefits					
Sole member of the Managing Board	896,297	1,280,173	3,426,808	584,915	476,216	—	1,130,443	7,794,852 ⁽³⁾
Executive officers (excluding sole member of the Managing Board)	12,134,536	6,959,244	1,371,250	5,835,521	508,697	398,679	13,003,487	40,211,414 ⁽⁴⁾
Senior Management total remuneration	13,030,833	8,239,417	4,798,058	6,420,436	984,913	398,679	14,133,930	48,006,266

For the year ended December 31, 2018, in USD	Short-term benefits			Social security contributions ⁽¹⁾	Post- employment benefits Pensions ⁽²⁾	Termination benefits	Share- based payments Unvested stock awards	Total
	Base Salary	Bonus	Benefits					
Jean-Marc Chery	535,762	—	53,309	269,142	475,575	—	—	1,333,788
Carlo Bozotti	392,058	3,214,578	39,376	705,259	—	—	5,429,285	9,780,556
Sole member of the Managing Board	927,820	3,214,578	92,685	974,401	475,575	—	5,429,285	11,114,344
Executive officers (excluding sole member of the Managing Board)	9,739,656	6,967,367	2,259,501	5,325,217	398,660	318,776	12,291,586	37,300,763
Senior Management total remuneration	10,667,476	10,181,945	2,352,186	6,299,618	874,235	318,776	17,720,871	48,415,107

(1) Include compulsory contribution to pension plans

(2) Complementary pension plan for Executive Management

(3) Total Managing Board remuneration for 2019 includes one-off contractually obligated deferred compensation paid to Mr. Bozotti.

(4) Including amounts paid in 2019 to the Group's former President, Human Resources and Corporate Social Responsibility, Mr. Brun

The Group's 22 executive officers, including the sole member of the Managing Board, were granted in 2019 for free 1,335,000 unvested shares subject to the achievement of performance objectives and service conditions being met. The weighted average grant date fair value of unvested shares granted to employees under the 2019 Employee Plan was \$19.28.

The Group's 22 executive officers, including the sole member of the Managing Board, were granted in 2018 for free 1,143,200 unvested shares subject to the achievement of performance objectives and service conditions being met. The weighted average grant date fair value of unvested shares granted to employees under the 2018 Employee Plan was \$22.78.

The bonus paid to the executive officers corresponds to a Corporate Executive Incentive Program (the "EIP") that entitles selected executives to a yearly bonus based upon the assessment of the achievement of individual, organizational and company objectives that are set on an annual basis and focused, inter alia, on return on net assets, customer service, profit, cash flow and market share. The maximum bonus awarded under the EIP is based upon a percentage of the executives' salary and the overall achievement of the above objectives on an annual basis.

The executive officers and the Managing Board were covered in 2019 and 2018 under certain Group life and medical insurance programs, pension, state-run retirement and other similar benefit programs and other miscellaneous allowances.

At the end of the year 2005, the Compensation Committee recommended and the Supervisory Board decided to grant an additional pension benefit plan to the Group's sole member of the Managing Board and a limited number of senior executives that have made key contributions to the Group's success. Pursuant to this plan, in 2019 the Group made a contribution of \$0.5 million to the plan of the sole member of the Managing Board, and \$0.5 million to the plan for all other beneficiaries. The amount of pension plan payments made for other beneficiaries, such as former employees retired in 2019 and/or no longer salaried in 2019 were \$1.1 million.

The Group did not extend any loans or overdrafts to the sole member of the Managing Board, President and CEO, nor to any other member of Senior Management. Furthermore, the Group has not guaranteed any debts or concluded any leases with the sole member of the Managing Board, nor with any other member of Senior Management or their families.

The members of Senior Management, including the sole member of the Managing Board, President and CEO, were covered in 2019 under certain group life and medical insurance programs provided by the Group. The aggregate additional amount set aside in 2019 to provide pension, retirement or similar benefits for Senior Management, including the sole member of the Managing Board, President and CEO, as a group is in addition to the amounts allocated to the complementary pension plan described above and is estimated to have been approximately \$5.1 million, which includes statutory employer contributions for state run retirement, similar benefit programs and other miscellaneous allowances.

Individual remuneration paid to Supervisory Board Members in 2019 and 2018 was recorded as follows:

In Euros	2019 ⁽¹⁾	2018 ⁽¹⁾
Nicolas Dufourcq ⁽²⁾	—	—
Maurizio Tamagnini	166,000	165,500
Janet Davidson	106,000	101,000
Heleen Kersten	117,000	110,500
Jean-Georges Malcor	99,500	98,500
Lucia Morselli ⁽³⁾	92,500	—
Alessandro Rivera	92,000	103,500
Frédéric Sanchez	108,000	105,500
Martine Verluyten	151,500	149,000
Salvatore Manzi ⁽⁴⁾	4,500	94,500
	937,000	928,000

(1) These amounts include a fixed annual compensation for the directors' mandate, together with attendance fees from January 1 until December 31.

(2) Mr. Dufourcq would have been entitled to receive €167,500 in 2019, but he waived his right to receive any compensation from the Company in relation to his mandate as a member of the Supervisory Board.

(3) Ms. Morselli was appointed on May 23, 2019.

(4) Since May 23, 2019 Mr. Manzi has not been a member of the Supervisory Board.

No share awards were granted to Supervisory Board Members and Professionals in 2019 and 2018.

7.6.36. Commitments, contingencies, claims and legal proceedings

Commitments

The Group's commitments as at December 31, 2019 were as follows:

In millions of USD	Total	2020	2021	2022	2023	2024	Thereafter
Purchase obligations	1,576	1,003	202	165	72	69	65
Of which:							
<i>Equipment purchase</i>	514	514	—	—	—	—	—
<i>Foundry purchase</i>	905	372	165	162	72	69	65
<i>Software, technology licenses and design</i>	157	117	37	3	—	—	—
Other obligations	436	338	45	25	17	8	3
Total	2,012	1,341	247	190	89	77	68

The Group's commitments as at December 31, 2018 were as follows:

In millions of USD	Total	2019	2020	2021	2022	2023	Thereafter
Operating leases	214	56	44	29	19	14	52
Purchase obligations	1,323	989	146	101	87	—	—
Of which:							
<i>Equipment purchase</i>	628	628	—	—	—	—	—
<i>Foundry purchase</i>	525	234	114	90	87	—	—
<i>Software, technology licenses and design</i>	170	127	32	11	—	—	—
Other obligations	563	263	120	68	47	31	34
Total	2,100	1,308	310	198	153	45	86

Operating leases as disclosed above for the year ended December 31, 2018 are mainly related to building and equipment leases. The amount disclosed is composed of minimum payments for future leases from 2019 to 2023 and thereafter. The Group leases land, buildings, plants and equipment under operating leases that expire at various dates under non-cancellable lease agreements.

A reconciliation between operating lease commitments as at December 31, 2018 as disclosed in the Group's consolidated financial statements prior to IFRS 16 transition and lease liabilities recognized as at January 1, 2019 upon IFRS 16 adoption is presented in note 7.6.5.

Purchase obligations are primarily comprised of purchase commitments for equipment, for outsourced foundry wafers and for software licenses.

Other obligations primarily relate to firm contractual commitments with respect to partnership and cooperation agreements and other service agreements.

Contingencies

The Group is subject to possible loss contingencies arising in the ordinary course of business. These include but are not limited to: product liability claims and/or warranty cost on the products of the Group, contractual disputes, indemnification claims, claims for unauthorized use of third-party intellectual property, employee grievances, tax claims beyond assessed uncertain tax positions as well as claims for environmental damages. In determining loss

contingencies, the Group considers the likelihood of impairing an asset or the incurrence of a liability at the date of the consolidated financial statements as well as the ability to reasonably estimate the amount of such loss. The Group records a provision for a loss contingency when information available before the consolidated financial statements are issued or are available to be issued indicates that it is probable that an asset has been impaired or a liability has been incurred at the date of the consolidated financial statements and when the amount of loss can be reasonably estimated. The Group regularly re-evaluates claims to determine whether provisions need to be readjusted based on the most current information available to the Group. Changes in these evaluations could result in an adverse material impact on the Group's results of operations, cash flows or its financial position for the period in which they occur.

Claims and legal proceedings

The Group has received and may in the future receive communications alleging possible infringements of third party patents or other third party intellectual property rights. Furthermore, the Group from time to time enters into discussions regarding a broad patent cross license arrangement with other industry participants. There is no assurance that such discussions may be brought to a successful conclusion and result in the intended agreement. The Group may become involved in costly litigation brought against the Group regarding patents, mask works, copyrights, trademarks or trade secrets. In the event that the outcome of any litigation would be unfavorable to the Group, the Group may be required to take a license to third party patents and/or other intellectual property rights at economically unfavorable terms and conditions, and possibly pay damages for prior use and/or face an injunction, all of which individually or in the aggregate could have a material adverse effect on the Group's results of operations, cash flows, financial position and/or ability to compete. The Group is otherwise also involved in various lawsuits, claims, inquiries, inspections, investigations and/or proceedings incidental to its business and operations. Such matters, even if not meritorious, could result in the expenditure of significant financial or managerial resources. Any of the foregoing could have a material adverse effect on the Group's results of operations, cash flows or its financial position.

Other Contingencies

The Group regularly evaluates claims and legal proceedings together with their related probable losses to determine whether they need to be adjusted based on the current information available to the Group. There can be no assurance that its recorded reserves will be sufficient to cover the extent of its potential liabilities. Legal costs associated with claims are expensed as incurred. In the event of litigation which is adversely determined with respect to the Group's interests, or in the event the Group needs to change its evaluation of a potential third-party claim, based on new evidence or communications, a material adverse effect could impact its operations or financial condition at the time it were to materialize.

As of December 31, 2019, provisions for estimated probable losses with respect to claims and legal proceedings were not considered material.

7.6.37. Financial risk management objectives and policies

The Group is exposed to changes in financial market conditions in the normal course of business due to its operations in different foreign currencies and its on-going investing and financing activities. The Group's activities expose it to a variety of financial risks: market risk (including foreign exchange risk, fair value interest rate risk, cash flow interest rate risk and price risk), credit risk and liquidity risk. The Group's overall risk management program focuses on the unpredictability of financial markets and seeks to minimize potential adverse effects on the Group's financial performance. The Group uses derivative financial instruments to hedge certain risk exposures.

Financial risk management is carried out by a central treasury department (Corporate Treasury). Additionally, a Treasury Committee, chaired by the CFO, steers treasury activities and ensures compliance with corporate policies. Treasury activities are thus regulated by the Group's policies, which define procedures, objectives and controls. The policies focus on the management of financial risk in terms of exposure to market risk, credit risk and liquidity risk. Treasury controls are subject to internal audits. Most treasury activities are centralized, with any local treasury activities subject to oversight from Corporate Treasury. Corporate Treasury identifies, evaluates and hedges financial risks in close cooperation with the Group's operating units. It provides written principles for overall risk management, as well as written policies covering specific areas, such as foreign exchange risk, interest rate risk, price risk, credit risk, use of derivative financial instruments, and investments of excess liquidity. The majority of cash and

cash equivalents is held in U.S. dollars and Euros and is placed with financial institutions rated at least a single “A” long term rating from two of the major rating agencies, meaning at least A3 from Moody’s Investors Service (“Moody’s”) and A- from Standard & Poor’s (“S&P”) or Fitch (“Fitch”) Ratings, or better. These ratings are closely and continuously monitored in order to manage exposure to the counterparty’s risk. Hedging transactions are performed only to hedge exposures deriving from operating, investing and financing activities conducted in the normal course of business.

Market risk

Foreign exchange risk

The Group conducts its business on a global basis in various major international currencies. As a result, the Group is exposed to adverse movements in foreign currency exchange rates, primarily with respect to the Euro. Foreign exchange risk mainly arises from future commercial transactions and recognized assets and liabilities at the Company’s subsidiaries and future commercial transactions.

Management has set up a policy to require subsidiaries to hedge their entire foreign exchange risk exposure with the Group through financial instruments transacted or overseen by Corporate Treasury. To manage their foreign exchange risk arising from foreign-currency-denominated assets and liabilities, subsidiaries use forward contracts and purchased currency options. Foreign exchange risk arises when recognized assets and liabilities are denominated in a currency that is not the entity’s functional currency. These instruments do not qualify as hedging instruments for accounting purposes. Forward contracts and currency options, including collars, are also used by the Group to reduce its exposure to U.S. dollar fluctuations in Euro-denominated forecasted intercompany transactions that cover a large part of its research and development, selling general and administrative expenses as well as a portion of its front-end manufacturing production costs of semi-finished goods. The Group also hedges using currency forward contracts certain Singapore dollar-denominated manufacturing forecasted transactions. The derivative instruments used to hedge the forecasted transactions relating to front-end manufacturing production costs meet the criteria for designation as cash flow hedge. The hedged forecasted transactions have a high probability of occurring for hedge accounting purposes.

It is the Group’s policy to keep the foreign exchange exposures in all the currencies hedged month by month against the monthly standard rate. At each month end, the forecasted flows for the coming month are hedged together with the fixing of the new standard rate. For this reason, the hedging transactions will have an exchange rate very close to the standard rate at which the forecasted flows will be recorded on the following month. As such, the foreign exchange exposure of the Group, which consists in the balance sheet positions and other contractually agreed transactions, is always close to zero and any movement in the foreign exchange rates will not therefore influence the exchange effect on items of the consolidated income statement. Any discrepancy from the forecasted values and the actual results is constantly monitored and prompt actions are taken, if needed.

The hedging activity of the Group and the impact on the financial statements is described in detail in note 7.6.16.4.

The following sensitivity analysis was based on recognized assets and liabilities, including non-monetary items, of the Company and its subsidiaries. Equity would have been approximately \$39 million higher/lower (2018: \$39 million higher/lower) if the Euro strengthened/weakened by 300 basis points against the U.S. dollar, arising mainly from translation of net assets from subsidiaries whose functional currency is the Euro.

At December 31, 2019 if the Euro/U.S. dollar exchange rate had strengthened by 300 basis points with all other variables held constant, net result for the year would have been \$25 million higher (2018: \$33 million higher), mainly as a result of foreign exchange gains on outstanding derivative instruments. If the Euro/U.S. dollar exchange rate had weakened by 300 basis points with all other variables held constant, impact in net income would have been \$27 million lower (2018: \$35 million lower), mainly due to foreign exchange losses on outstanding derivative instruments.

Cash flow and fair value interest rate risk

The Group's interest rate risk arises from long-term borrowings. Borrowings issued at variable rates expose the Group to cash flow interest rate risk. Borrowings issued at fixed rates expose the Group to fair value interest rate risk.

The Group analyzes its interest rate exposure on a dynamic basis. Various scenarios are simulated taking into consideration refinancing, renewal of existing positions, alternative financing and hedging. The Group invests primarily on a short-term basis and as such its liquidity is invested in floating interest rate instruments. As a consequence, the Group is exposed to interest rate risk due to potential mismatch between the return on its short-term floating interest rate investments and the portion of its long-term debt issued at fixed rate.

At December 31, 2019 and 2018, if interest rates had been 20 basis points higher/lower with all other variables held constant, net income for the year would have been \$1 million higher/lower respectively, mainly as a result of a high level of liquid assets in relation to debt, with no material impact on equity.

During 2019 and 2018, the Group's borrowings at variable rate were denominated in Euros and in U.S. dollars.

Price risk

As part of its on-going investing activities, the Group may be exposed to quoted security price risk for investments measured at fair value, as described in Note 7.6.16.1. The Group did not hold as at December 31, 2019 and 2018 any significant investments in quoted equity securities.

The measurement for accounting purposes of the embedded derivative instruments of the senior unsecured convertible bonds issued on July 3, 2017 is dependent on various factors including the performance of STMicroelectronics ordinary shares. With respect to the valuation of the embedded issuer's call option as at December 31, 2019, if the price of the Company's ordinary shares, as measured on the New York stock exchange, with other valuation inputs remaining equal, increases by 10%, the value of the embedded call option would increase by \$1 million (2018: increase of \$2 million), whereas for a decrease of 10% in the share price, the value of the embedded call option would decrease by \$4 million (2018: decrease of \$2 million). With respect to the valuation of the embedded bondholders' conversion option as at December 31, 2019, if the price of the Company's ordinary shares, as measured on the New York stock exchange, with other valuation inputs remaining equal, increases by 10%, the value of the embedded conversion option would increase by \$159 million (2018: increase of \$49 million), whereas for a decrease of 10% in the share price, the value of the embedded bondholders' conversion option would decrease by \$150 million (2018: decrease of \$43 million). Details of the sensitivity of the other valuation factors, more specifically implied volatility, are presented in Note 7.6.16.5.

Credit risk

Credit risk is the risk that a counterparty will not meet its obligations under a financial instrument or customer contract leading to a financial loss. Credit risk typically arises from cash and cash equivalents, contractual cash flows of debt investments carried at amortized cost, measured at FVOCI and at FVPL, the counterparty of derivative financial instruments and deposits with banks and financial institutions, as well as credit exposure to customers, including outstanding receivables.

The Group is exposed to credit risk from its operating activities (primarily for trade receivables) and from its financing activities, including deposits with banks and financial institutions, foreign exchange transactions and other financial instruments.

Credit risk is managed on the Group basis. The Group selects banks and/or financial institutions that operate with the Group based on the criteria of long-term rating from at least two major Rating Agencies and keeping a maximum outstanding amount per instrument with each bank not to exceed 20% of the total. For derivative financial instruments, management has established limits so that, at any time, the fair value of contracts outstanding is not concentrated with any individual counterparty.

The Group monitors the creditworthiness of its customers to which it grants credit terms in the normal course of business. If certain customers are independently rated, these ratings are used. Otherwise, if there is no independent rating, risk control assesses the credit quality of the customer, considering its financial position, past experience and other factors. Individual risk limits are set based on internal and external ratings in accordance with limits set by management. The utilization of credit limits is regularly monitored. Sales to customers are primarily settled in cash, which mitigates credit risk. There is no major concentration of credit risk, whether through exposure to individual customers, specific industry sectors or regions. At December 31, 2019 and 2018, no customer represented more than 10% of total trade accounts receivable. Any remaining concentrations of credit risk with respect to trade receivables are limited due to the large number of customers and their dispersion across many geographic areas.

The Group's investments in debt instruments primarily include U.S. Treasury Bonds and long-term receivables towards government bodies. As such, they are investments with immaterial credit loss. Any remaining receivable is of low credit risk and are individually not significant. The credit ratings of the investments are monitored for credit deterioration.

The Group has three types of financial assets that are subject to the expected credit loss model:

- Trade receivables for sales of goods and services, as described in Note 7.6.19;
- Debt securities measured at FVOCI, as described in Note 7.6.16.1;
- Debt investments, primarily long-term receivables, carried at amortized cost, as described in Note 7.6.20 and Note 7.6.17.

The impairment methodology by category of financial assets is further described in each respective note. While cash and cash equivalents are also subject to the impairment requirements of IFRS 9, the identified impairment loss is deemed to be immaterial. The maximum exposure for all financial assets is their carrying amount.

Liquidity risk

Prudent liquidity risk management includes maintaining enough cash and cash equivalents and marketable securities, the availability of funding from committed credit facilities and the ability to close out market positions. The Group's objective is to maintain a significant cash position and a low debt-to-equity ratio, which ensure adequate financial flexibility. Liquidity management policy is to finance the Group's investments with net cash provided from operating activities.

Management monitors rolling forecasts of the Group's liquidity reserve based on expected cash flows.

A maturity analysis of interest-bearing loans and borrowings is shown in note 7.6.16.3.

Capital risk management

The Group's objectives when managing capital are to safeguard the Group's ability to continue as a going concern in order to create value for shareholders and benefits and returns for other stakeholders, as to maintain an optimal capital structure. In order to maintain or adjust the capital structure, the Group may review the amount of dividends paid to shareholders, return capital to shareholders, or issue new shares.

8. Company's financial statements

8.1. Company's statement of financial position

In millions of USD (Before proposed appropriation of result)	Notes	December 31, 2019	December 31, 2018
Assets			
Non-current assets			
Lease right-of-use assets	8.3.4	23	—
Goodwill	8.3.6	43	—
Intangible assets	8.3.5	19	21
Investments in subsidiaries	8.3.6	5,600	4,805
Investments in joint ventures	8.3.7	—	49
Other non-current financial assets	8.3.8.1	33	23
Other non-current assets		1	—
Total non-current assets		5,719	4,898
Current assets			
Group companies interest-bearing short-term loans	8.3.10	813	700
Other group companies receivables	8.3.11	447	903
Other current financial assets	8.3.8.1	148	330
Other receivables and assets		16	13
Restricted cash	8.3.6	10	—
Cash and cash equivalents	8.3.9	2,353	2,150
Total current assets		3,787	4,096
Total assets		9,506	8,994
Equity and liabilities			
Equity			
	8.3.12		
Issued and paid-in capital		1,064	1,085
Additional paid-in capital		2,189	2,185
Retained earnings		2,036	419
Treasury shares		(328)	(141)
Legal reserves		1,738	1,885
Result for the year		387	1,629
Total equity		7,086	7,062
Non-current liabilities			
Interest-bearing loans and borrowings	8.3.14	713	1,468
Other non-current financial liabilities	8.3.8.2	399	166
Other non-current liabilities	8.3.15	4	7
Total non-current liabilities		1,116	1,641
Current liabilities			
Interest-bearing loans and borrowings – current portion	8.3.14	795	99
Other financial liabilities	8.3.8.2	334	—
Group companies short-term notes payable	8.3.11	66	61
Other group companies payable	8.3.11	33	12
Other payables and accrued liabilities	8.3.13	76	117
Income tax payable		—	2
Total current liabilities		1,304	291
Total equity and liabilities		9,506	8,994

The accompanying notes are an integral part of these Company's financial statements

8.2. Company's income statement

In millions of USD	Notes	Year ended	
		December 31, 2019	December 31, 2018
Selling expenses		(1)	(1)
General and administrative expenses	8.3.17	(15)	(15)
Other income (expenses)	8.3.19	(1)	17
Income (loss) from operations		(17)	1
Financial income	8.3.18	97	465
Financial expenses	8.3.18	(597)	(52)
Income (loss) before taxes		(517)	414
Income tax benefit (expense)		—	(4)
Income (loss) after tax		(517)	410
Results relating to investments in joint ventures	8.3.7	—	10
Net income from affiliated companies	8.3.6	904	1,209
Net income		387	1,629

The accompanying notes are an integral part of these Company's financial statements

8.3. Notes to Company's financial statements

8.3.1. General

A description of the Company, its activities and group structure are included in the consolidated financial statements, prepared on the basis of accounting policies that conform to International Financial Reporting Standards ("IFRS") as endorsed by the European Union. The Company holds investments in subsidiaries operating in the semiconductor manufacturing industry.

8.3.2. Basis of Presentation

The Company's financial statements have been prepared in accordance with art 9 of Book 2 of the Dutch Civil Code. In accordance with the provisions of Section 362-8 of Book 2 of the Dutch Civil code the accounting policies used are the same as those used in the notes to the consolidated financial statements prepared under IFRS as adopted by the European Union, unless otherwise stated. The financial statements were prepared on March 25, 2020.

In accordance with article 2:362 par. 8 of the Dutch Civil Code, the Company has prepared its financial statements in accordance with accounting principles generally accepted in The Netherlands applying the accounting principles as adopted in the consolidated financial statements and further described in details in the consolidated financial statements note 7.6.7.

The functional and presentation currency of the Company is the U.S. dollar.

All balances and values are in millions of U.S. dollars, except as otherwise noted.

The accounting policies adopted are consistent with those of the previous financial year except for IFRS 16 Leases adopted as of January 1, 2019. IFRS 16 was adopted based on the modified retrospective approach, with a nil cumulative effect of initial application to be recognized in retained earnings as at January 1, 2019. Accordingly, the comparative information presented for 2018 has not been restated and is presented, as previously reported, under IAS 17 and related interpretations. Further details on changes in accounting policies are provided in note 7.6.5.

8.3.3. Summary of significant accounting policies

8.3.3.1. Subsidiaries

Subsidiaries are all entities over which the Company has control. The Company controls an entity when the Company is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity.

Valuation of Subsidiaries

Investments in subsidiaries are stated at net asset value as the Company effectively controls the operational and financial activities of these investments. The net asset value is determined on the basis of the IFRS accounting principles applied by the Company in its consolidated financial statements.

Amounts due from group companies are stated initially at fair value and subsequently at amortized cost. Amortized cost is determined using the effective interest rate. The Company recognizes a credit loss for financial assets (such as a loan) based on an expected credit loss (ECL) which will occur in the coming twelve months or — after a significant decrease in credit quality or when the simplified model can be used — based on the entire remaining loan term. For intercompany receivables the ECL would be applicable as well, however this could cause differences between equity in the consolidated and separate financial statements. For this reason, the Company elected to eliminate these differences through the respective receivable account in the separate financial statements.

For intercompany financial guarantees issued by the Company, there is no expected default and therefore the financial guarantees are not recognized. Guarantees given by the Company to its subsidiaries are further described in Note 8.3.15.

8.3.3.2. Joint ventures

The Company's investment in its joint ventures is accounted for using the equity method. A joint venture is an entity whereby the partners have a contractual arrangement that establishes joint control over the economic activities of the entity. The agreement requires unanimous agreement for financial and operating decisions among the partners.

The Company's share in its joint ventures profit and losses is recognized in the income statement and in the statement of financial position as an adjustment against the carrying amount of the investment, and its share of post-acquisition movement in equity is recognized in equity. The cumulative post acquisition movements are adjusted against the carrying amount of the investment. When the Company's share of losses in a joint venture equals or exceeds its interest in the joint venture, including any unsecured receivable, the Company does not recognize further losses, unless it has incurred obligations or made payments on behalf of the joint venture.

Unrealized gains on transactions between the Company and its joint ventures are eliminated to the extent of the Company's interest in the joint ventures. Unrealized losses are also eliminated unless the transaction provides evidence of an impairment of the asset transferred. Accounting policies of joint ventures are consistent with the policies adopted by the Company.

8.3.4. Lease right-of-use assets

On January 1, 2019, the Company adopted the new guidance on lease accounting and lease right-of-use assets are included in plant, property and equipment. The impact of this is described below. Prior to the new guidance, the Company only reported as property, plant and equipment arrangements qualifying as finance leases, in application of IAS 17 guidance.

A lease contract is a contract, or part of a contract, that conveys the right to control the use of identified property, plant, or equipment (an identified asset) for a period of time in exchange for consideration. The Company determines if an arrangement is a lease at inception. Leases are included in right-of-use assets within plant, property and equipment. Current lease liabilities are included in current financial liabilities, while non-current lease liabilities are included in non-current financial liabilities in the Company's statement of financial position.

Right-of-use assets represent the Company's rights to use an underlying asset for the lease term and lease liabilities represent the Company's obligations to make lease payments arising from the lease. Right-of-use assets and liabilities are recognized at the lease commencement date based on the estimated present value of lease payments over the lease term.

The right-of-use asset is a nonmonetary asset while the lease liability is a monetary liability. When accounting for a lease that is denominated in a foreign currency, the lease liability is re-measured using the current exchange rate, while the right-of-use asset is measured using the exchange rate as of the commencement date.

The Company leases buildings, cars and certain equipment (including IT equipment) which have remaining lease terms between less than one year and 7 years. Certain lease contracts contain options to extend the leases by up to 5 years, which the Company has included in the lease term when it is reasonably certain for the Company to exercise that option. In addition, the Company made an accounting policy election for all the asset classes to not account for short-term and low-value leases. A short-term lease is defined as a lease that, at the commencement date, has a lease term of 12 months or less and does not include an option to purchase the underlying asset. The short-term lease election can only be made at the commencement date.

Variable lease payments that depend on an index or a rate are included in the lease payments and are measured using the prevailing index or rate at the measurement date (January 1, 2019 for initial measurement of the leases existing at that date and commencement date for subsequent lease contracts). Changes to index and rate-based variable lease payments are recognized in income statement in the period of the change.

Maturities of operating lease liabilities are as follows:

In millions of USD	December 31, 2019
2020	4
2021	4
2022	4
2023	4
2024	4
Thereafter	4
Total future undiscounted cash outflows	24
Effect of discounting	(1)
Total operating lease liabilities	23

A reconciliation of opening and closing right-of-use assets is provided below:

In millions of USD	December 31, 2019
Right-of-use assets as of January 1, 2019	26
Depreciation for the period	(4)
Additions	1
Right-of-use assets as of December 31, 2019	23

8.3.5. Intangible assets

In millions of USD	Internally developed software
Acquisition and production cost:	
Balance at January 1, 2019	196
Additions	5
Balance at December 31, 2019	201
Accumulated amortization:	
Balance at January 1, 2019	(175)
Amortization expense	(7)
Balance at December 31, 2019	(182)
Net book value	
At December 31, 2019	19
At December 31, 2018	21

8.3.6. Investments in subsidiaries and goodwill

In millions of USD	2019	2018
Beginning of the year	4,805	3,970
Result from subsidiaries	904	1,209
Changes in other reserves of subsidiaries	25	(97)
Dividends paid	(221)	(225)
Capital increase (decrease)	26	27
Acquisition	96	7
Translation effect of exchange rates of subsidiaries	(35)	(86)
End of the year	5,600	4,805

The following table lists the Company's consolidated subsidiaries and percentage of ownership as of December 31, 2019:

Legal Seat	Name	Percentage ownership (direct or indirect)
Australia, Sydney	STMicroelectronics PTY Ltd	100
Austria, Vienna	STMicroelectronics Austria GmbH	100
Belgium, Diegem	Proton World International N.V.	100
Brazil, Sao Paulo	Incard do Brazil Ltda	100
Brazil, Sao Paulo	South America Comércio de Cartões Inteligentes Ltda	100
Brazil, Sao Paulo	STMicroelectronics Ltda	100
Canada, Ottawa	STMicroelectronics (Canada), Inc.	100
Canada, St. John, New Brunswick	Genesis Microchip Limited Partnership	100
China, Beijing	STMicroelectronics (Beijing) R&D Co. Ltd	100
China, Shanghai	STMicroelectronics (Shanghai) Co. Ltd	100
China, Shanghai	STMicroelectronics (China) Investment Co. Ltd	100
China, Shenzhen	Shenzhen STS Microelectronics Co. Ltd	60
China, Shenzhen	STMicroelectronics (Shenzhen) R&D Co. Ltd	100
Czech Republic, Prague	STMicroelectronics Design and Application s.r.o.	100
Denmark, Aarhus	STMicroelectronics A/S	100
Finland, Nummela	STMicroelectronics Finland OY	100
France, Crolles	STMicroelectronics (Crolles 2) SAS	100
France, Grenoble	STMicroelectronics (Alps) SAS	100
France, Grenoble	STMicroelectronics (Grenoble 2) SAS	100
France, Le Mans	STMicroelectronics (Grand Ouest) SAS	100
France, Montrouge	STMicroelectronics S.A.	100
France, Rousset	STMicroelectronics (Rousset) SAS	100
France, Tours	STMicroelectronics (Tours) SAS	100
Germany, Aschheim-Dornach	STMicroelectronics GmbH	100
Germany, Aschheim-Dornach	STMicroelectronics Application GmbH	100
Hong Kong	STMicroelectronics Ltd	100
India, New Delhi	ST-Ericsson India Pvt Ltd	100
India, Noida	STMicroelectronics Pvt Ltd	100
Israel, Netanya	STMicroelectronics Ltd	100
Italy, Agrate Brianza	STMicroelectronics S.r.l.	100
Italy, Naples	STMicroelectronics Services S.r.l.	100
Japan, Tokyo	STMicroelectronics KK	100
Malaysia, Kuala Lumpur	STMicroelectronics Marketing SDN BHD	100
Malaysia, Muar	STMicroelectronics SDN BHD	100
Malta, Kirkop	STMicroelectronics (Malta) Ltd	100
Mexico, Guadalajara	STMicroelectronics Marketing, S. de R.L. de C.V.	100
Morocco, Casablanca	Electronic Holding S.A.	100
Morocco, Casablanca	STMicroelectronics S.A.S. (Maroc)	100
The Netherlands, Amsterdam	STMicroelectronics Finance B.V.	100
The Netherlands, Amsterdam	STMicroelectronics Finance II N.V.	100
The Netherlands, Amsterdam	STMicroelectronics International N.V.	100
Philippines, Calamba	STMicroelectronics, Inc.	100
Philippines, Calamba	Mountain Drive Property, Inc.	40
Singapore, Ang Mo Kio	STMicroelectronics Asia Pacific Pte Ltd	100
Singapore, Ang Mo Kio	STMicroelectronics Pte Ltd	100
Slovenia, Ljubljana	STMicroelectronics d.o.o.	100
Spain, Barcelona	STMicroelectronics Iberia S.A.	100
Sweden, Jönköping	STMicroelectronics Software AB	100
Sweden, Kista	STMicroelectronics A.B.	100
Sweden, Norrköping	STMicroelectronics Silicon Carbide A.B.	100
Switzerland, Geneva	STMicroelectronics S.A.	100
Switzerland, Geneva	INCARD S.A., in liquidation	100
Thailand, Bangkok	STMicroelectronics (Thailand) Ltd	100
United Kingdom, Bristol	STMicroelectronics (Research & Development) Limited	100
United Kingdom, Marlow	STMicroelectronics Limited	100
United Kingdom, Marlow	Synad Technologies Limited	100
United States, Coppel	STMicroelectronics Software Inc.	100
United States, Coppel	STMicroelectronics Inc.	100
United States, Coppel	Faroudja Laboratories Inc.	100
United States, Coppel	STMicroelectronics (North America) Holding, Inc.	100

Norstel acquisition

In 2019, the Company acquired the Swedish silicon carbide (SiC) wafer manufacturer Norstel AB (“Norstel”). The purchase consideration, net of \$1 million of cash acquired, was funded with available cash. The full acquisition was executed in two stages. On February 6, 2019, the Company acquired 55% of Norstel’s common stock, obtaining control over the entity. The fair value of the business as a whole was estimated at \$138 million, of which \$77 million was paid by the Company for its majority stake, with an option to acquire the remaining 45% at a later date, subject to certain conditions. On December 2, 2019, the Company exercised its option to acquire the remaining 45% stake. The Company paid \$51 million to complete the closing of the full acquisition. As of December 31, 2019, an amount of \$10 million was held in an escrow account as protection for any claims and reported as Restricted cash in the Company’s statement of financial position as at December 31, 2019.

Goodwill

The acquisition of Norstel resulted in the recognition of \$43 million in goodwill which has been included in the ADG segment to align the goodwill of the acquired Company with the segment under which the related activities will be reported.

In millions of USD	Automotive and Discrete Group (ADG)	Total
As at January 1, 2019	—	—
Acquisition	43	43
As at December 31, 2019	43	43

As at December 31, 2019, the gross value of goodwill was \$43 million (nil in 2018) and nil impairment was recorded.

8.3.7. Investments in joint ventures

In millions of USD	2019	2018
Beginning of the year	49	45
Result from joint ventures	2	4
Disposals	(51)	—
End of the year	—	49

Investments in joint ventures as at December 31, 2019 and December 31, 2018 were as follows:

In millions of USD	December 31, 2019		December 31, 2018	
	Carrying amount	% of interests	Carrying amount	% of interests
ST-Ericsson SA, in liquidation	—	—	49	50%
Total	—		49	

ST-Ericsson SA, in liquidation

On February 3, 2009, the Company announced the closing of a transaction to combine the businesses of Ericsson Mobile Platforms and ST-NXP Wireless into a new venture, named ST-Ericsson. As part of the transaction, the Company received an interest in ST-Ericsson Holding AG in which the Company owned 50% plus a controlling share. In 2010, ST-Ericsson Holding AG was merged in ST-Ericsson SA. The Company used to consolidate ST-Ericsson SA.

On September 9, 2013, the Company sold 1 ST-Ericsson SA share to Ericsson for its nominal value changing the ownership structure of ST-Ericsson SA to bring both partners to an equal ownership proportion. As a result and in combination with the new shareholder agreement, the Company lost the control of ST-Ericsson SA and as such ST-Ericsson SA was deconsolidated from the Group's financial statements as of September 1, 2013. The deconsolidation of ST-Ericsson SA did not result in a gain or loss for the Company. The fair value of the Company's retained non-controlling interest was evaluated at \$55 million. In addition, the Company and its partner signed funding commitment letters, capped at \$149 million each partner, to the residual joint wind-down operations to ensure solvency. These are not drawn as of December 20, 2019.

Before the deconsolidation of ST-Ericsson SA, certain assets and companies of the ST-Ericsson SA group of companies were transferred to both partners for their net book value which was representative of their fair value. The transactions did not result in cash exchange between the partners.

ST-Ericsson SA entered into liquidation on April 15, 2014. For 2019, the line "Results relating to investments in joint ventures" in the Company's income statement included a profit of \$2 million in relation with ST-Ericsson SA compared to a profit of \$4 million for 2018.

On December 20, 2019, the Company and Ericsson agreed to complete the wind-down of the joint venture. As part of the transaction, the Company acquired from ST-Ericsson SA 100% of the share capital of ST-Ericsson India Pvt Ltd, a wholly owned subsidiary of ST-Ericsson SA, and simultaneously sold its ST-Ericsson SA shares to Ericsson. The transaction did not result in a gain or loss for the Company.

8.3.8. Other financial assets and financial liabilities

8.3.8.1. Other financial assets

Movements on other financial assets are presented as follows:

In millions of USD	December 31, 2019	December 31, 2018
Beginning of the year	353	454
Change in fair value of government bonds issued by the U.S. Treasury	3	(1)
Change in fair value of the embedded call option	25	-
Proceeds from matured government bonds issued by the U.S. Treasury	(200)	(100)
End of the year	181	353
Less: non-current portion	(33)	(23)
Current portion	148	330

Investments held in debt securities

As at December 31, 2019, the Company held \$133 million of U.S. Treasury debt securities, all transferred to a financial institution with high credit quality. These transactions were concluded in compliance with the Company's policy to optimize the return on its short-term interest rate investments, which requires placement with institutions with high credit rating. The Company, acting as the securities lender, does not hold any collateral on the unsecured securities lending transactions. The Company retains effective control on the transferred securities. U.S. Treasury Bonds totaling \$200 million matured in 2019.

The debt securities have an average rating of Aaa/AA+/AAA from Moody's, S&P and Fitch, respectively, with a weighted average maturity of 1.5 years. The debt securities were reported as current assets on the line "Other current financial assets" on the Company's statement of financial position as at December 31, 2019, since they represented investments of funds available for current operations. The bonds were measured at FVOCI as at December 31, 2019. This fair value measurement corresponds to a Level 1 fair value hierarchy measurement.

The Company applies a forward-looking expected credit loss (ECL) approach on all debt financial assets not held at FVPL. For debt securities at FVOCI, the ECL is based on the 12-month expected credit loss basis. The 12-month ECL is the portion of lifetime ECLs that results from default events on a financial instrument that are possible within 12 months after the reporting date. Since the Company's quoted debt instruments at FVOCI comprise solely U.S. Treasury debt securities, the Company has considered that the ECLs on these investments are insignificant.

Investments held in equity securities

The Company irrevocably elected to measure at FVOCI unquoted equity securities for an aggregate value of \$11 million. Since these are strategic investments, the Company considers this classification, which implies that changes in fair value are not subsequently recycled to earnings, to be more relevant.

Financial assets include the following:

In millions of USD	December 31, 2019	December 31, 2018
Quoted securities:		
Debt securities issued by the U.S. Treasury	133	330
Unquoted equity securities:		
Unquoted equity securities	11	11
Senior convertible bonds – Embedded call option	37	12
Total	181	353

Financial assets are denominated in the following currencies:

In millions of USD	December 31, 2019	December 31, 2018
Euro	11	11
US dollar	170	342
Total	181	353

For further details on Group's financial assets, see note 7.6.16.1 of the consolidated financial statements of the Group.

8.3.8.2. Other financial liabilities

Movements on other financial liabilities are presented as follows:

In millions of USD	December 31, 2019	December 31, 2018
Beginning of the year	166	571
Change in fair value of the embedded conversion option of the convertible bonds	544	(405)
IFRS 16 adoption	26	—
New leases	1	—
Lease payments	(4)	—
End of the year	733	166
Less current portion	(334)	—
Non-current portion	399	166

Other non-current financial liabilities include the following:

In millions of USD	December 31, 2019	December 31, 2018
Senior convertible bonds – conversion option - Tranche A	—	66
Senior convertible bonds – conversion option - Tranche B	380	100
Lease financial liabilities	19	—
Total	399	166

Starting July 2020 and July 2021 for Tranche A and Tranche B respectively, the bondholders have the right to convert the bonds. Consequently, the bondholders' conversion option for tranche A was reclassified as a current financial liability for an amount of \$330 million.

8.3.9. Cash and cash equivalents

Cash and cash equivalents consisted of the following:

In millions of USD	December 31, 2019	December 31, 2018
Cash at bank and in hand	673	15
Money market deposits with banks	1,680	2,135
Total	2,353	2,150

8.3.10. Group companies interest-bearing short-term loans

Group companies short-term loans consisted of the following:

In millions of USD	December 31, 2019	December 31, 2018
STMicroelectronics Ltd. (Israel)		
Loan due 2020 bearing interest at 3-month LIBOR	4	4
STMicroelectronics A/S (Denmark)		
Loan due 2020 bearing interest at 3-month CIBOR + 0.50%	1	1
STMicroelectronics Finance II N.V. (Netherlands)		
Loan due 2020 bearing interest at 1-month LIBOR + 0.25%	806	692
STMicroelectronics Austria GmbH (Austria)		
Loan due 2020 bearing interest at 12-month EURIBOR + 0.50%	1	1
STMicroelectronics semiconductors development LLC (Slovenia)		
Loan due 2020 bearing interest at 12-month EURIBOR + 0.50%	1	1
STMicroelectronics Software AB (Sweden)		
Loan due 2019 bearing interest at 3-month STIBOR + 0.75%	—	1
Total short-term intercompany loans	813	700

Fair value of Group companies short-term loans is similar to net book value.

8.3.11. Other Group companies receivables and payables

In millions of USD	December 31, 2019	December 31, 2018
Other receivables (advances)	447	903
Total group companies receivables	447	903
Other payables	33	12
Other group companies payables	33	12
Short-term notes payable	66	61
Total group companies payables	99	73

Group companies short-term notes payable consisted of the following:

In millions of USD	December 31, 2019	December 31, 2018
STMicroelectronics Ltd. (United Kingdom)		
Note due 2020 bearing interest at 3-month LIBOR + 0.25%	19	22
STMicroelectronics Software AB (Sweden)		
Note due 2020 bearing interest at 3-month STIBOR + 0.75%	2	2
STMicroelectronics R&D Ltd (United Kingdom)		
Note due 2020 bearing interest at 6-month LIBOR + 0.25%	39	32
STMicroelectronics Finance B.V. (Netherlands)		
Note due 2020 bearing interest at 3-month EURIBOR + 0.50%	5	5
STMicroelectronics Software AB (Sweden)		
Note due 2020 bearing interest at 3-month STIBOR + 0.75%	1	—
Total short-term intercompany notes payable	66	61

8.3.12. Equity

In millions of USD	Issued and paid-in capital	Additional paid-in capital	Retained earnings	Treasury shares	Legal reserves	Result for the year	Total
Balance January 1, 2019	1,085	2,185	419	(141)	1,885	1,629	7,062
Net Result	—	—	1,629	—	—	(1,629)	—
Transfer to (from) legal reserve	—	—	112	—	(112)	—	—
Repurchase of common stock	—	—	—	(250)	—	—	(250)
Repurchase of non-controlling interests	—	4	—	—	—	—	4
Stock-based compensation	—	—	86	—	—	—	86
Rights acquired on vested stock awards	—	—	—	63	—	—	63
AOCI – Pension plan	—	—	(40)	—	—	—	(40)
Changes in fair value of financial assets measured at FVOCI	—	—	2	—	—	—	2
Dividends paid	—	—	(213)	—	—	—	(213)
Net result	—	—	—	—	—	387	387
Cash flow hedge reserve, net of tax	—	—	20	—	—	—	20
Translation adjustment*	(21)	—	21	—	(35)	—	(35)
Balance December 31, 2019	1,064	2,189	2,036	(328)	1,738	387	7,086

* The share capital of STMicroelectronics is denominated in Euros and the period-end balance is translated into U.S. dollars at the year-end exchange rate (Euro/USD 1.12295). The translation differences are taken to retained earnings.

In millions of USD	Issued and paid-in capital	Additional paid-in capital	Retained earnings	Treasury shares	Legal reserves	Result for the year	Total
Balance January 1, 2018	1,136	2,185	375	(132)	1,977	218	5,759
Net Result	—	—	218	—	—	(218)	—
Transfer to (from) legal reserve	—	—	6	—	(6)	—	—
Repurchase of common stock	—	—	—	(62)	—	—	(62)
Stock-based compensation	—	—	72	—	—	—	72
Rights acquired on vested stock awards	—	—	—	53	—	—	53
AOCI – Pension plan	—	—	(35)	—	—	—	(35)
Changes in fair value of financial assets measured at FVOCI	—	—	(1)	—	—	—	(1)
Dividends paid	—	—	(216)	—	—	—	(216)
Net result	—	—	—	—	—	1,629	1,629
Cash flow hedge reserve, net of tax	—	—	(55)	—	—	—	(55)
Transfer of cash flow hedge reserve to inventories	—	—	4	—	—	—	4
Translation adjustment*	(51)	—	51	—	(86)	—	(86)
Balance December 31, 2018	1,085	2,185	419	(141)	1,885	1,629	7,062

* The share capital of STMicroelectronics is denominated in Euros and the period-end balance is translated into U.S. dollars at the year-end exchange rate (Euro/USD 1.14535). The translation differences are taken to retained earnings.

The authorized share capital of the Company is €1,810 million consisting of 1,200,000,000 common shares and 540,000,000 preference shares, each with a nominal value of €1.04. As at December 31, 2019 the number of shares of common stock issued was 911,186,920 shares (911,156,920 at December 31, 2018).

As of December 31, 2019, the number of shares of common stock outstanding was 891,434,489 (898,305,080 at December 31, 2018).

The Euros equivalent of the issued share capital at December 31, 2019 amounts to €947,634,397 (2018: €947,603,197). For the changes in issued and paid in capital, additional paid in capital and retained earnings, see the Group's consolidated financial statements.

The cumulative amount of legal reserves at December 31, 2019 is split as follows: \$19 million of capitalized internally developed software expenditures, \$1,155 million of subsidiaries non distributable reserves and \$564 million of translation adjustment gain.

The cumulative amount of legal reserves at December 31, 2018 is split as follows: \$21 million of capitalized internally developed software expenditures, \$1,265 million of subsidiaries non distributable reserves and \$599 million of translation adjustment gain.

Treasury shares

In 2014 and 2017, the Company announced share buy-back programs following the issuance of new convertible bonds. Pursuant to a resolution passed at the shareholders' meeting held on June 13, 2014, the Company repurchased 20.0 million shares of its common stock in 2014, reflected at cost, as a reduction of the parent company stockholders' equity. Pursuant to a resolution passed at the shareholders' meeting held on June 20, 2017 and announced on June 22, 2017, the Company repurchased 18.6 million shares of its common stock in 2017 for a total of \$297 million, reflected at cost, as a reduction of the parent company stockholders' equity.

On November 5, 2018, the Company announced a three years buy-back program of up to \$750 million. As of December 31, 2019, the Company repurchased 18.3 million shares of its common stock for a total of \$312 million under the share buy-back program, reflected at cost, as a reduction of the stockholders' equity.

The treasury shares have been designated for allocation under the Group's share-based remuneration programs of unvested shares. As of December 31, 2019, 53,224,112 of these treasury shares were transferred to employees under the Group's share-based remuneration programs, of which 7,014,570 in the year ended December 31, 2019.

As of December 31, 2019, the Company owned 19,752,431 treasury shares compared to 12,851,840 as of December 31, 2018.

Non Distributable Reserve

The amount of the non-distributable reserve was \$2,802 million and \$2,970 million in the year 2019 and 2018, respectively and it represents the amount of issued and paid-in capital and legal reserve of the Company.

8.3.13. Other payables and accrued liabilities

Other payables and accrued liabilities consisted of:

In millions of USD	December 31, 2019	December 31, 2018
Dividends payable to Shareholders	58	60
Deferred consideration to ST-Ericsson SA	—	49
Deferred consideration to Norstel	10	—
Other liabilities	8	8
Total other payables and accrued liabilities	76	117

8.3.14. Interest-bearing loans and borrowings

Interest-bearing loans and borrowings consisted of the following:

In millions of USD	December 31, 2019	December 31, 2018
Senior convertible bonds - Tranche A	—	674
Senior convertible bonds - Tranche B	655	636
Long-term credit facilities	58	158
Total long-term debt	713	1,468
Current portion of credit facilities	99	99
Senior convertible bonds - Tranche A	696	99
Total current portion of long-term debt	795	99

Senior convertible bonds

In millions of USD	December 31, 2019	December 31, 2018
Balance at beginning of the year	1,310	1,272
Allocation of issuance costs	1	1
Amortization of discounted value	40	37
Balance at end of the year	1,351	1,310
Out of which long-term	655	1,310

On July 3, 2017, the Company issued \$1,500 million in principal amount of dual tranche senior unsecured convertible bonds (Tranche A for \$750 million and Tranche B for \$750 million), due 2022 and 2024, respectively. Tranche A bonds were issued at 101.265% as zero-coupon bonds while Tranche B bonds were issued at par and bear a 0.25% per annum nominal interest, payable semi-annually. The conversion price at issuance was \$20.54, equivalent to a 37.5% premium on both tranches, which corresponds to 9,737 equivalent shares per each \$200,000 bond par value. The bonds are convertible by the bondholders or are callable by the issuer upon certain conditions, on a net-share settlement basis, except if the issuer elects a full-cash or full-share conversion as an alternative settlement. The net proceeds from the bond offering were \$1,502 million, after deducting issuance costs payable by the Group.

The issuer's call option and the holder's conversion option have been identified as embedded non-equity derivative instruments, resulting in the recognition of the options separately from the debt host contract. Upon initial recognition, the derivatives were measured at fair value based on an income approach, the debt being determined as a residual amount of the \$1.5 billion total proceeds. The value of the issuer's call option was nil at initial recognition. The value of the holder's conversion option was estimated at \$248 million at issuance date, which determined the initial recognition of the liability component at \$1,261 million before allocation of issuance costs. The fair value measurement of the embedded derivative instruments corresponded to a Level 3 fair value hierarchy measurement. The Group elected to allocate issuance costs, totaling \$7 million, to the debt component. The debt was subsequently measured at amortized cost using the effective interest method and amounted to \$1,351 million as at December 31, 2019.

The embedded derivatives are measured at fair value through profit and loss, with the changes in fair value being immediately reported in earnings. The value of the conversion option was \$710 million as at December 31, 2019, which generated a change in fair value of \$544 million reported on the line "Financial expenses" on the Company's income statement for the year ended December 31, 2019. The value of the issuer's call option amounted to \$37 million as at December 31, 2019, which generated a change in fair value of \$25 million reported on the line "Finance income" on the Company's income statement for the year ended December 31, 2019. Starting July 2020 and July 2021 for Tranche A and Tranche B respectively, the bondholders have the right to convert the bonds. Consequently, the non-equity derivative instruments and the liability component of Tranche A convertible debt were reclassified as current financial asset, for an amount of \$15 million, as current financial liability for an amount of \$330 million and as current portion of long-term debt for an amount of \$696 million as at December 31, 2019.

Credit facilities

In millions of USD	December 31, 2019	December 31, 2018
Balance at beginning of the year	257	355
Credit facilities repayment	(100)	(98)
Balance at end of the year	157	257
Out of which short-term	99	99
Out of which long-term	58	158

The Company had unutilized committed medium-term credit facilities with core relationship banks totaling \$568 million as of December 31, 2019.

The Company also has three long-term amortizing credit facilities with the European Investment Bank as part of R&D funding programs. The first one, signed on September 27, 2010 as a €350 million multi-currency loan for R&D programs in Europe, was drawn mainly in U.S. dollars for an amount of \$321 million and only partially in Euros for an amount of €100 million, of which \$55 million remained outstanding as of December 31, 2019. The second one, signed on March 12, 2013, a €350 million multi-currency loan which also supports R&D programs, was drawn in U.S. dollars for \$471 million, of which \$118 million was outstanding as of December 31, 2019. The third one, signed in August 2017, is a new long-term credit facility with the European Investment Bank for a total of €500 million in relation to R&D and capital expenditure investments in the European Union for the years 2017 and 2018. As of December 31, 2019, the entire amount was fully drawn in Euros corresponding to \$533 million outstanding as of December 31, 2019.

Fair values

In millions of USD	Carrying amount		Fair value	
	December 31, 2019	December 31, 2018	December 31, 2019	December 31, 2018
Financial assets				
Other receivables and assets	16	13	16	13
Quoted financial instruments	133	330	133	330
Unquoted equity securities	11	11	11	11
Embedded call option	37	12	37	12
Cash equivalents ⁽¹⁾	1,680	2,135	1,680	2,135
Financial liabilities				
Lease liabilities	23	—	23	—
Other payables and accrued liabilities	76	117	76	117
Interest-bearing loans and borrowings (excluding senior unsecured convertible bonds)	157	257	157	257
Senior unsecured convertible bonds ⁽²⁾	1,351	1,310	2,103	1,501
Bondholders' embedded conversion option	710	166	710	166

(1) Cash equivalents primarily correspond to deposits at call with banks.

(2) The carrying amount of the senior unsecured convertible bonds issued on July 3, 2017 and outstanding at December 31, 2019 and December 31, 2018 corresponds to the liability component only, since, at initial recognition, an amount of \$248 million was separately recognized as embedded derivative financial instruments.

8.3.15. Other non-current liabilities

Other non-current liabilities consisted of the following:

In millions of USD	December 31, 2019	December 31, 2018
Pension liability against former employees	3	6
Other non-current liabilities	1	1
Total	4	7

8.3.16. Guarantees and contingencies

Guarantees given by the Company to its affiliates for the benefit of third parties amounted to approximately \$869 million at December 31, 2019 (2018: \$876 million).

Out of this, €13 million related to STMicroelectronics Finance B.V.'s obligation under the €350 million EIB credit facilities and €475 million related to STMicroelectronics Finance B.V.'s obligation under the €500 million EIB credit facilities.

As from August 22, 2013, the Company assumes joint and several liabilities for all debts arising from legal acts for STMicroelectronics International N.V., STMicroelectronics Finance II N.V. and STMicroelectronics Finance B.V., all in accordance with section 2:403 Dutch Civil Code.

There is no other type of contingencies as of December 31, 2019 and 2018.

8.3.17. General and administrative expenses

General and administrative expenses are the administrative costs related to the operations of the holding company.

Employees benefits consisted of the following:

In millions of USD	December 31, 2019	December 31, 2018
Employees benefits	(5)	(4)
Total	(5)	(4)

The average number of persons employed by the Company during the year ended December 31, 2019 was 15 out of which 8 outside The Netherlands (2018: 16 out of which 9 outside The Netherlands).

8.3.18. Financial income and expenses

In millions of USD	December 31, 2019	December 31, 2018
2017 Embedded call option adjustment	25	—
2017 Embedded conversion option adjustment	—	405
Interest income on quoted debt securities	6	6
Other finance income	66	54
Total finance income	97	465
Interest on Senior Bonds	(42)	(40)
2017 Embedded conversion option adjustment	(544)	—
Interest on long-term loans and borrowings	(8)	(9)
Lease interest expense	(1)	—
Bank charges and commissions	(2)	(3)
Total finance costs	(597)	(52)

8.3.19. Other income (expenses)

Other income (expenses) consisted of the following:

In millions of USD	December 31, 2019	December 31, 2018
Exchange differences	(2)	12
Other income (expenses)	1	5
Total	(1)	17

8.3.20. Contractual obligations

The Company's contractual obligations as of December 31, 2019 were as follows:

In millions of USD	Total	2020	2021	2022	2023	2024	There- after
Long term debt obligations (including current portion) ⁽¹⁾	1,658	99	59	750	—	750	—
Pension obligations	3	—	—	—	—	—	3
Other liabilities	1	1	—	—	—	—	—
Total	1,662	100	59	750	—	750	3

(1) The difference between the total aggregated future maturities and the total carrying amount of Interest-bearing loans and borrowings is due to the unamortized discount on the dual tranche senior unsecured convertible bonds.

8.3.21. Related party transactions

There were no material transactions with significant shareholders, their affiliates and other related parties during the years ended December 31, 2019 and 2018.

Remuneration to managing board and supervisory board members

For details on the remuneration to the Managing Board and Supervisory Board members, see the consolidated financial statements of the Company (Note 7.6.35).

8.3.22. Auditors' fees

The following audit fees were allocated to the period:

In USD	December 31, 2019	December 31, 2018
Statutory audit, certification, audit of individual and consolidated financial statements	4,105,000	4,556,500
Audit-related fees	209,005	173,934
Tax fees	—	—
All other fees	—	—
Total	4,314,005	4,730,434

The fees listed above relate only to the procedures applied to the Company and its consolidated group entities by Ernst & Young. The procedures were applied by audit firm's member of the EY network. In 2019, the fees related to services provided by Ernst & Young Accountants LLP for the audit of the statutory annual accounts totaled \$105,000 (\$105,000 in 2018).

8.3.23. Proposed cash dividend

Upon the proposal of the Managing Board, the Supervisory Board will propose to the 2020 Annual General Meeting of Shareholders in line with our Dividend Policy, to declare a cash dividend of US\$0.24 per outstanding share of the Company's common stock, to be distributed in quarterly instalments of US\$0.06 in each of the second, third and fourth quarter of 2020 and first quarter of 2021 to shareholders of record in the month of each quarterly payment, as further described in the General Meeting of Shareholders agenda and explanatory notes thereto.

March 25, 2020

THE MANAGING BOARD

Jean-Marc Chery (President and Chief Executive Officer)

THE SUPERVISORY BOARD

Nicolas Dufourcq (Chairman)

Maurizio Tamagnini (Vice-Chairman)

Janet G. Davidson

Heleen Kersten

Jean-Georges Malcor

Lucia Morselli

Alessandro Rivera

Frédéric Sanchez

Martine Verluyten

9. Other information

9.1. Auditors' report

The report of the auditors, Ernst & Young Accountants LLP, is presented on the following pages in this annual report.

9.2. Appropriation of results – provisions in Company's articles of association

The Supervisory Board, upon the proposal of the Managing Board, is allowed to allocate net profit to a reserve fund. The Articles of Association provide that the net result for the year, after deduction of (i) any amount to set up and maintain reserves required by Dutch Law and the Articles of Association, (ii) if any of our preference shares are issued and outstanding, the dividend to be paid to the holders of preference shares and (iii) the aforementioned allocation to the reserve fund, is subject to the disposition by the General Meeting of Shareholders.

In the case that a net loss for the year exceeds retained earnings, no dividend payments are allowed until the loss has been recovered from net profit(s) in future years.

9.3. Branches

The Company has a branch in Switzerland, located at 39 Chemin du Champ des Filles, 1228 Plan-les-Ouates, Geneva.

Independent auditor's report

To: the shareholders and supervisory board of STMicroelectronics N.V.

Report on the audit of the financial statements 2019 included in the Annual Report

Our opinion

We have audited the financial statements 2019 of STMicroelectronics N.V., based in (hereinafter also referred to as "the Company"), based in Amsterdam. The financial statements include the consolidated financial statements and the company's financial statements.

In our opinion:

- the accompanying consolidated financial statements give a true and fair view of the financial position of STMicroelectronics N.V. as at 31 December 2019, and of its result and its cash flows for 2019 in accordance with International Financial Reporting Standards as adopted by the European Union (EU-IFRS) and with Part 9 of Book 2 of the Dutch Civil Code.
- the accompanying company's financial statements give a true and fair view of the financial position of STMicroelectronics N.V. as at 31 December 2019, and of its result for 2019 in accordance with Part 9 of Book 2 of the Dutch Civil Code.

The consolidated financial statements comprise:

- the consolidated statement of financial position as at 31 December 2019;
- the following statements for 2019: the consolidated income statement, the consolidated statements of comprehensive income, changes in equity and cash flows;
- the notes comprising a summary of the significant accounting policies and other explanatory information.

The company's financial statements comprise:

- the company's statement of financial position as at 31 December 2019;
- the company's income statement for 2019;
- the notes comprising a summary of accounting policies and other explanatory information.

Basis for our opinion

We conducted our audit in accordance with Dutch law, including the Dutch Standards on Auditing. Our responsibilities under those standards are further described in the Our responsibilities for the audit of the financial statements section of our report.

We are independent of STMicroelectronics N.V. in accordance with the EU Regulation on specific requirements regarding statutory audit of public-interest entities, the "Wet toezicht accountantsorganisaties" (Wta, Audit firms supervision act), the "Verordening inzake de onafhankelijkheid van accountants bij assurance-opdrachten" (ViO, Code of Ethics for Professional Accountants, a regulation with respect to independence) and other relevant independence regulations in the Netherlands. Furthermore we have complied with the "Verordening gedrags- en beroepsregels accountants" (VGBA, Dutch Code of Ethics).

We believe the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Our audit approach

Our understanding of the business

STMicroelectronics N.V. is a global semiconductor manufacturer operating in a broad range of markets. The group is structured in components and we tailored our group audit approach accordingly. We paid specific attention in our audit to a number of areas driven by the operations of the group and our risk assessment.

We start by determining materiality and identifying and assessing the risks of material misstatement of the financial statements, whether due to fraud, non-compliance with laws and regulations or error in order to design audit procedures responsive to those risks, and to obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

Materiality

Materiality	USD 43.0 million (2018: USD 50.0 million)
Benchmark applied	5.0% of normalized profit before tax for 2019 (2018: 5.0%)
Explanation	Based on our professional judgment we have considered earnings-based measures as the appropriate basis to determine materiality. We consider profit before tax, normalized for the volatility derived from the accounting of the convertible bonds to be the most relevant measure given the nature of the business, the characteristics of the Company and the expected focus of the users of the financial statements.

We have also taken into account misstatements and/or possible misstatements that in our opinion are material for the users of the financial statements for qualitative reasons.

We agreed with the supervisory board that misstatements in excess of USD 2.2 million, which are identified during the audit, would be reported to them, as well as smaller misstatements that in our view must be reported on qualitative grounds.

Our focus on fraud and non-compliance with laws and regulations

Our responsibility

Although we are not responsible for preventing fraud or non-compliance and cannot be expected to detect non-compliance with all laws and regulations, it is our responsibility to obtain reasonable assurance that the financial statements, taken as a whole, are free from material misstatement, whether caused by fraud or error.

Non-compliance with laws and regulations may result in fines, litigation or other consequences for the company that may have a material effect on the financial statements.

Our audit response related to fraud risks

In order to identify and assess the risks of material misstatements of the financial statements due to fraud, we obtained an understanding of the entity and its environment, including the entity's internal control relevant to the audit and in order to design audit procedures that are appropriate in the circumstances. As in all of our audits, we addressed the risk of management override of internal control. We do not audit internal control per se for the purpose of expressing an opinion on the effectiveness of the company's internal control.

We considered available information and made enquiries of relevant executives, directors (including internal audit, legal, compliance, human resources and regional directors) and the supervisory board. As part of our process of identifying fraud risks, we evaluated fraud risk factors with respect to financial reporting fraud, misappropriation of assets and bribery and corruption.

In our risk assessment we considered the potential impact of performance based bonus schemes which the company has in place at certain components. Furthermore, as STMicroelectronics N.V. is a global company, operating in multiple jurisdictions, we considered the risk of bribery and corruption.

We evaluated the design and the implementation and, where considered appropriate, tested the operating effectiveness, of internal controls that mitigate fraud risks. In addition, we performed procedures to evaluate key accounting estimates for management bias in particular relating to important judgment areas and significant accounting estimates as disclosed in Note 7.6.8 to the consolidated financial statements. We have also used data analysis to identify and address high-risk journal entries.

We incorporated elements of unpredictability in our audit. We considered the outcome of our other audit procedures and evaluated whether any findings were indicative of fraud or non-compliance. If so, we reevaluate our assessment of fraud risk and its resulting impact on our audit procedures.

Our audit response related to risks of non-compliance with laws and regulations

We assessed factors related to the risks of non-compliance with laws and regulations that could reasonably be expected to have a material effect on the financial statements from our general industry experience, through discussions with the Managing Board, reading minutes, inspection of internal audit and compliance reports and performing substantive tests of details of classes of transactions, account balances or disclosures.

We also inspected lawyers' letters and correspondence with regulatory authorities and remained alert to any indication of (suspected) non-compliance throughout the audit. Finally we obtained written representations that all known instances of non-compliance with laws and regulations have been disclosed to us.

Going concern

In order to identify and assess the risks of going concern and to conclude on the appropriateness of management's use of the going concern basis of accounting, we consider based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion.

Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause a company to cease to continue as a going concern.

Scope of the group audit

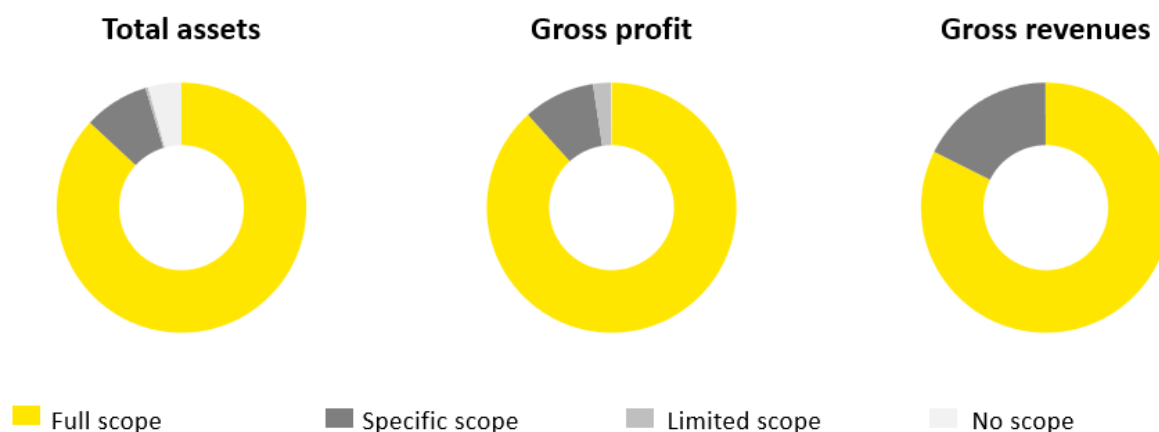
STMicroelectronics N.V. is at the head of a group of entities. The financial information of this group is included in the consolidated financial statements of STMicroelectronics N.V.

Because we are ultimately responsible for the opinion, we are also responsible for directing, supervising and performing the group audit. In this respect we have determined the nature and extent of the audit procedures to be carried out for group entities. Decisive were the size and/or the risk profile of the group entities or operations. On this basis, we selected group entities for which an audit or review had to be carried out on the complete set of financial information or specific items.

Our group audit mainly focused on significant group entities based on significance in activities and risk assessment. Considering the audit procedures which have been performed at head office level by the corporate audit team, we have:

- performed audit procedures at parent entity STMicroelectronics N.V., located in the Netherlands which was assigned a full scope;
- used the work of other EY auditors when auditing entities in Switzerland, France, Singapore and Italy which were assigned a full scope;
- performed specific audit procedures at other group entities.

These procedures represent 95% of the group's total assets, 98% of gross profit and 99.9% of gross revenues.



By performing the procedures mentioned above at group entities, together with additional procedures at group level, we have been able to obtain sufficient and appropriate audit evidence about the group's financial information to provide an opinion about the consolidated financial statements.

Teaming, use of specialists and internal audit

We ensured that the audit teams both at group and at component levels included the appropriate skills and competences which are needed for the audit of a listed client in the Semiconductor industry. We included specialists in the areas of IT audit and income tax and have made use of our own experts in the areas of valuations and actuaries.

General audit procedures

Our audit further included among others:

- Performing audit procedures responsive to the risks identified, and obtaining audit evidence that is sufficient and appropriate to provide a basis for our opinion
- Evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management
- Evaluating the overall presentation, structure and content of the financial statements, including the disclosures
- Evaluating whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation

Our key audit matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the financial statements. We have communicated the key audit matters to the supervisory board. The key audit matters are not a comprehensive reflection of all matters discussed.

These matters were addressed in the context of our audit of the financial statements as a whole and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

Revenue recognition (notes 7.6.7.4 and 7.6.27)		
Risk	Our audit approach	Key observations
<p>As described in Note 7.6.27 to the consolidated financial statements, the Company recognized net revenues of \$9,556 million as of 31 December 2019. The Company recognizes revenue from products sold to customers, which includes Original Equipment Manufacturers (OEMs) and distributors, amounting to \$6,720 million, and \$2,836 million, respectively.</p> <p>Auditing the Company's revenue requires significant focus for the audit team since it is a key financial metric, with a large volume of transactions and multiple market channels. We considered the risk of improper revenue recognition as a key audit matter specifically relating to the risk of side arrangements not appropriately accounted for, to induce product sales with OEMs and distributors.</p>	<p>We obtained an understanding, evaluated the control design, and tested the operating effectiveness of controls over the Company's revenue recognition process, which includes the processes to detect side arrangements. We also performed procedures to evaluate the design and operation of IT processes, including testing of application controls and the data and reports used in the execution of certain controls.</p> <p>Our audit procedures included, among others, analytical review procedures around disaggregated revenue data, review of contracts and confirmations of contract terms and conditions with customers. Furthermore, we evaluated the results of the Company's internal process to identify side arrangements, which included inspection and evaluation of management's assessment of non-standard terms and conditions, and certifications completed by the Company's sales organization.</p> <p>We also assessed the adequacy of the Company's revenue disclosure in the financial statements</p>	<p>We consider that the Company's revenue recognition accounting policies were appropriately applied, and we did not identify any improper or unaccounted significant side arrangement not appropriately reflected in the accounting records of the Company.</p>

Recoverability of deferred tax assets (notes 7.6.7.7, 7.6.23 and 7.6.33)

Risk	Our audit approach	Key observations
<p>As discussed in Note 7.6.33 to the consolidated financial statements, the Company operates in a complex multinational tax environment and is subject to tax treaty arrangements and transfer pricing guidelines for intercompany transactions.</p> <p>As of 31 December 2019, the Company recognized deferred tax assets of \$356 million. As explained in note 7.6.33 to the consolidated financial statements, the Company performs an evaluation of the likelihood that future taxable income will be generated in an amount sufficient to utilize such deferred tax assets prior to their expiration, and, after having considered positive and negative available evidence, recognize an allowance for any deferred tax assets not deemed recoverable.</p> <p>Assessing the recognition of and recoverability of deferred tax assets involves significant judgement and estimates, including, among others: the prospective financial information used by management in order to assess future taxable income, transfer pricing policies and the timing of reversal of temporary differences. These assumptions have a high degree of uncertainty and subjectivity, since they are dependent on the outcome of future events.</p>	<p>We obtained an understanding, evaluated the control design, and tested the operating effectiveness of controls over the Company's process to calculate the gross amount of deferred tax assets recorded, prepare the prospective financial information used to determine the Company's future taxable income and determine any valuation allowance needed for deferred tax assets not deemed recoverable.</p> <p>Together with tax professionals, we evaluated the timing of the reversal of the temporary differences and management's prospective financial information used to determine future taxable income and its consistency with current transfer pricing policies. We compared the projections of future taxable income with the actual results of prior periods, as well as management's consideration of current and expected industry and economic trends. We also assessed the historical accuracy of management's projections.</p> <p>We also evaluated the Company's income tax disclosures included in Note 7.6.33 to the consolidated financial statements in relation to these matters.</p>	<p>We consider the Company's accounting policies acceptable, and we did not identify any evidence of material misstatement of the deferred tax assets included within the financial statements.</p>

Recognition and valuation of capitalized development costs (note 7.6.7.11, 7.6.8.4 and 7.6.14)		
Risk	Our audit approach	Key observations
<p>As discussed in notes 7.6.7.11, 7.6.8.4 and 7.6.14, development costs are capitalized based on management's judgment that technological feasibility and economic profitability is probable, as required under IAS 38.</p> <p>In determining the amounts to be capitalized, the Company makes assumptions regarding the expected future economic benefits generated by a project. Capitalized development costs at 31 December 2019 amount to \$892 million, of which \$543 million are in progress and therefore not yet amortized. Intangible assets, including capitalized development costs, are assessed for impairment by the Company.</p> <p>Auditing the capitalized development costs requires significant focus for the audit team given the inherent uncertainty around the forecasting process supporting the initial recognition and subsequent valuation of capitalized development costs. Given the inherent uncertainty of forecasting future economic benefits, we consider the risk of overstatement and incorrect valuation of capitalized development costs a key audit matter.</p>	<p>We obtained an understanding and evaluated the control design over the Company's process, which includes the Company's assessment of the eligibility of the development costs based on the relevant capitalization criteria.</p> <p>Our audit procedures included, amongst others, assessment of the eligibility of the development costs for capitalization, based on a representative sample.</p> <p>In relation to the impairment test for capitalized development costs we have evaluated the indicators and methodology used by management.</p> <p>We also assessed the adequacy of the Company's disclosure in the financial statements.</p>	<p>We consider the Company's accounting policies appropriate and management's assumptions and estimates to be within a reasonable range.</p> <p>Furthermore, we did not identify any material misstatement in the capitalized development costs reported within the financial statements.</p>

Emphasis of matter relating to uncertainty about Corona

The developments surrounding the Corona (Covid-19) virus have a profound impact on people's health and on our society as a whole, as well as on the operational and financial performance of organizations and the assessment of the ability to continue as a going concern. The financial statements and our auditor's report thereon are snapshots. The situation changes on a daily basis giving rise to inherent uncertainty. STMicroelectronics N.V. is confronted with this uncertainty as well, that is disclosed in sections 3.2.4 and 3.3.1.2 of the Report of the Managing Board. We draw attention to these disclosures. Our opinion is not modified in respect of this matter.

Report on other information included in the Annual Report

In addition to the financial statements and our auditor's report thereon, the annual report contains other information that consists of:

- The report of the Managing Board;
- The report of the Supervisory Board, including the remuneration report;
- The Corporate Governance report
- Other information, as required by Part 9 of Book 2 of the Dutch Civil Code.

Based on the following procedures performed, we conclude that the other information:

- Is consistent with the financial statements and does not contain material misstatements
- Contains the information as required by Part 9 of Book 2 and Section 2:135b of the Dutch Civil Code

We have read the Other information. Based on our knowledge and understanding obtained through our audit of the financial statements or otherwise, we have considered whether the other information contains material misstatements. By performing these procedures, we comply with the requirements of Part 9 of Book 2 and Section 2:135b sub-Section 7 of the Dutch Civil Code and the Dutch Standard 720. The scope of the procedures performed is substantially less than the scope of those performed in our audit of the financial statements.

Management is responsible for the preparation of the other information, including the report of the Managing Board in accordance with Part 9 of Book 2 of the Dutch Civil Code, Other information required by Part 9 of Book 2 of the Dutch Civil Code and the remuneration report in accordance with Section 2:135b of the Dutch Civil Code.

Report on other legal and regulatory requirements

Engagement

We were engaged by the Supervisory Board as auditor of STMicroelectronics N.V. at the annual meeting held on 27 May 2015 for the years 2016-2019, and have operated as statutory auditor since the financial year 2016.

No prohibited non-audit services

We have not provided prohibited non-audit services as referred to in Article 5(1) of the EU Regulation on specific requirements regarding statutory audit of public-interest entities.

Description of responsibilities for the financial statements

Responsibilities of the Managing Board and the Supervisory Board for the financial statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with EU-IFRS and Part 9 of Book 2 of the Dutch Civil Code. Furthermore, management is responsible for such internal control as management determines is necessary to enable the preparation of the financial statements that are free from material misstatement, whether due to fraud or error.

As part of the preparation of the financial statements, management is responsible for assessing the company's ability to continue as a going concern. Based on the financial reporting frameworks mentioned, management should prepare the financial statements using the going concern basis of accounting unless management either intends to liquidate the company or to cease operations, or has no realistic alternative but to do so. Management should disclose events and circumstances that may cast significant doubt on the company's ability to continue as a going concern in the financial statements.

The supervisory board is responsible for overseeing the company's financial reporting process.

Our responsibilities for the audit of the financial statements

Our objective is to plan and perform the audit engagement in a manner that allows us to obtain sufficient and appropriate audit evidence for our opinion.

Our audit has been performed with a high, but not absolute, level of assurance, which means we may not detect all material errors and fraud during our audit.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements. The materiality affects the nature, timing and extent of our audit procedures and the evaluation of the effect of identified misstatements on our opinion.

We have exercised professional judgment and have maintained professional skepticism throughout the audit, in accordance with Dutch Standards on Auditing, ethical requirements and independence requirements. The Our audit approach section above includes an informative summary of our responsibilities and the work performed as the basis for our opinion.

Communication

We communicate with the supervisory board regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant findings in internal control that we identify during our audit. In this respect we also submit an additional report to the audit committee in accordance with Article 11 of the EU Regulation on specific requirements regarding statutory audit of public-interest entities. The information included in this additional report is consistent with our audit opinion in this auditor's report.

We provide the supervisory board with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with the supervisory board, we determine the key audit matters: those matters that were of most significance in the audit of the financial statements. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, not communicating the matter is in the public interest.

Eindhoven, 25 March 2020

Ernst & Young Accountants LLP

Signed by M. Moolenaar

10. Important dates

May 28, 2020: General Meeting of Shareholders

Please consult our website www.st.com for the latest important dates.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Date: March 25, 2020

STMicroelectronics N.V.

By: /s/ Lorenzo Grandi

Name: **Lorenzo Grandi**

Title: **Chief Financial Officer**

President, Finance

Infrastructure and Services

life.augmented

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