Open edge networking

Financial Statements and Management Report

December 31, 2019

CONTENTS

COMBINED MANAGEMENT REPORT

Basis of preparation

This report combines the group management report of ADVA Optical Networking group (“the group”, “ADVA Optical Networking” or “ADVA”), comprising ADVA Optical Networking SE (hereafter also referred to as “the company”, “ADVA Optical Networking SE” or “ADVA SE”) and its consolidated subsidiaries, and the management report of ADVA Optical Networking SE.

The combined management report of ADVA Optical Networking SE was prepared in accordance with sections 289, 315 and 315a of the German Commercial Code (Handelsgesetzbuch, HGB) and German Accounting Standards (Deutsche Rechnungslegungsstandards) No. 17 and 20 (DRS 17 and 20).

All information contained in this report relates to the status on December 31, 2019, or the financial year ending on that date, unless stated otherwise.

Forward-looking statements

The combined management report of ADVA Optical Networking SE contains forward-looking statements using words such as “believes”, “anticipates” and “expects” to describe expected revenues, costs and earnings, anticipated demand for optical networking solutions and anticipated liquidity from which internal estimates may be inferred. These forward-looking statements are based on the beliefs of the Management Board and respective assumptions made, and involve a number of unknown risks, uncertainties and other factors, many of which are beyond ADVA Optical Networking’s control. If one or more of these uncertainties or risks materializes, or if the underlying assumptions of the Management Board prove incorrect, actual results can differ materially from those described in or inferred from forward-looking statements and information. Unknown risks and uncertainties are discussed in the “risk and opportunity report” section further below.

Strategy and control design

ADVA’s strategic goals are focused around growth & profitability, innovation, operational excellence and individual development of our employees. The strategic goals are reviewed by both the management board and the supervisory board on a yearly basis and amended where appropriate. Each of these goals are defined in detail and then broken down into specific departmental and individual targets. The strategic goals are traced to each individual employee so that each employee can focus and be evaluated on his/her individual performance and contribution to ADVA Optical Networking’s overall performance.

ADVA measures the accomplishment of its strategic goals against revenues, pro forma operating income[1], net debt[2] and as a non-financial criterion customer satisfaction as measured by the net promoter score[3]. These metrics represent the group’s key performance indicators. The management board sets target values for all four metrics for the coming year and measures actual values against the target values on a monthly basis for revenues and pro forma operating income, on a quarterly basis for net debt and on a yearly basis for the net promoter score. In case of deviations from plan, corrective action can be taken quickly. This information is summarized and communicated to the management board in monthly, quarterly and yearly reports.

General economic and market conditions

The global economy at the beginning of 2020

In its January 2020 edition of the World Economic Outlook (WEO), the International Monetary Fund (IMF) provided the following view on the state of the global economy:

“Global growth is projected to rise from an estimated 2.9% in 2019 to 3.3% in 2020 and 3.4% for 2021 – a downward revision of 0.1 percentage point for 2019 and 2020 and of 0.2 percentage points for 2021 compared to those in the October WEO. The downward revision primarily reflects negative surprises to economic activity in a few emerging market economies, notably India, which led to a reassessment of growth prospects over the next two years.

[1] Pro forma operating income is calculated prior to non-cash charges related to the stock compensation programs and amortization and impairment of goodwill and acquisition-related intangible assets. Additionally, non-recurring expenses related to restructuring measures are not included.

[2] Net debt is calculated by subtracting cash and cash equivalents from total financial debt comprising of current and non-current financial liabilities and current and non-current lease liabilities. Since Q1 2019, ADVA has been reporting net debt instead of the previous reporting of net liquidity.

[3] The net promoter score is obtained by asking customers a single question on a 0 to 10 rating scale: "How likely is it that you would recommend our company to a friend or colleague?" Based on their responses, customers are categorized into one of three groups: promoters (9-10 rating), passives (7-8 rating) and detractors (0-6 rating). The percentage of detractors is then subtracted from the percentage of promoters to obtain a net promoter score.

In a few cases, this reassessment also reflects the impact of increased social unrest."

According to Commerzbank economic experts, trade uncertainty is likely to decrease somewhat in 2020 due to the first agreement that is emerging between the United States and China but will remain high compared to previous years. In the world's largest economy, the United States, growth is currently primarily on the shoulders of consumers. By contrast, companies have continued to restrict their investments. This cautionary behavior is a result of significantly increased uncertainty, due to trade conflicts between the USA and China. Nevertheless, it cannot be assumed that the US economy will slide into recession. After all, consumption is unlikely to decrease significantly, and a restriction in government spending is not expected.

Industry appears to be stabilizing in the euro area, but an early, noticeable recovery in industrial production is unlikely. The lack of tailwind from the global economy prevents a stronger rebound. At the same time, the trade dispute between the USA and China continues to cause uncertainty here. Only the recent slight devaluation of the euro, which improves the price competitiveness of European companies, provides some relief. At the beginning of the year, the external value of the euro was around 2% below the level of the previous year. So far, the service sector has prevented the industrial downturn from plunging the euro zone economy into recession. The decoupling of the service sector from weakening industry since the beginning of 2019 is largely thanks to the ECB's ultra-expansionary monetary policy. Besides the construction industry, it is particularly the service sector that benefits from the domestic demand sparked by this.

While macroeconomic changes do not necessarily have a direct impact on the telecommunications equipment market, trade tariffs, barriers and exchange rate fluctuations do have an impact on ADVA's revenue generation and profitability. Furthermore, it is important to acknowledge that ADVA generates the majority of its revenue in developed countries. The company's largest customer group is communications service providers, which in turn play a critical role in the process of digitization and the construction of economically relevant communications infrastructure. As a rule, these infrastructure investments are not subject to short-term economic fluctuations and are therefore less susceptible to macroeconomic turbulence.

Market environment for ADVA

The addressable market for ADVA is determined by the digitization of ecosystems and the resulting increase in demand for cloud-based solutions and the underlying communication networks. The rapid adoption of digital processes across all industries, the creation and use of artificial intelligence, and the ubiquitous use of high-definition video over mobile and fixed networks are important and sustainable growth drivers for the market.

ADVA's network technology enables the construction of a high-performance communications infrastructure that serves as the basis for the digital economy, the industrial internet of things (Industrial IoT) – often referred to as Industry 4.0 in Germany – and the digitization of ecosystems. The company addresses important applications in this growth market. Fiber optic transmission technology delivers scalable bandwidth for network operators' infrastructure and the data center interconnect (DCI) of large enterprises and internet content providers. At the edge of the network, the company's cloud access technology with virtualization enables fast and flexible provision of cloud services. In addition, the company's synchronization technology provides timing solutions required for the construction of mobile broadband networks and globally distributed data centers. Especially in Europe, there has been a backlog in the expansion of communications infrastructure since the 2008 financial crisis. The upcoming introduction of 5G mobile technology further intensifies the investment pressure.

ADVA is well positioned in several areas of the WDM market, the core segment of the overall optical networking hardware market. The adjacent market for Ethernet-based network access solutions is gaining new momentum with the introduction of virtualized network features. Here, the company's solutions can address more and more new growth applications and open up additional opportunities. Finally, ADVA provides differentiated network synchronization solutions for mobile networks and expands the feature set of the portfolio to address timing requirements for other industries. The total addressable market for ADVA is estimated to be USD 15 billion[4] in 2019, growing to USD 18.5 billion by 2024 (see also the chapter "Market, target customers and growth drivers").

[4] Industry analyst estimates for access, metro and long-haul WDM equipment ("optical") and access switching & routing ("packet edge") relevant to ADVA. Sources: Ovum, "optical networks forecast 2019-2024" published September 2019 and "service provider switching and routing forecast 2019-2024", published June 2019

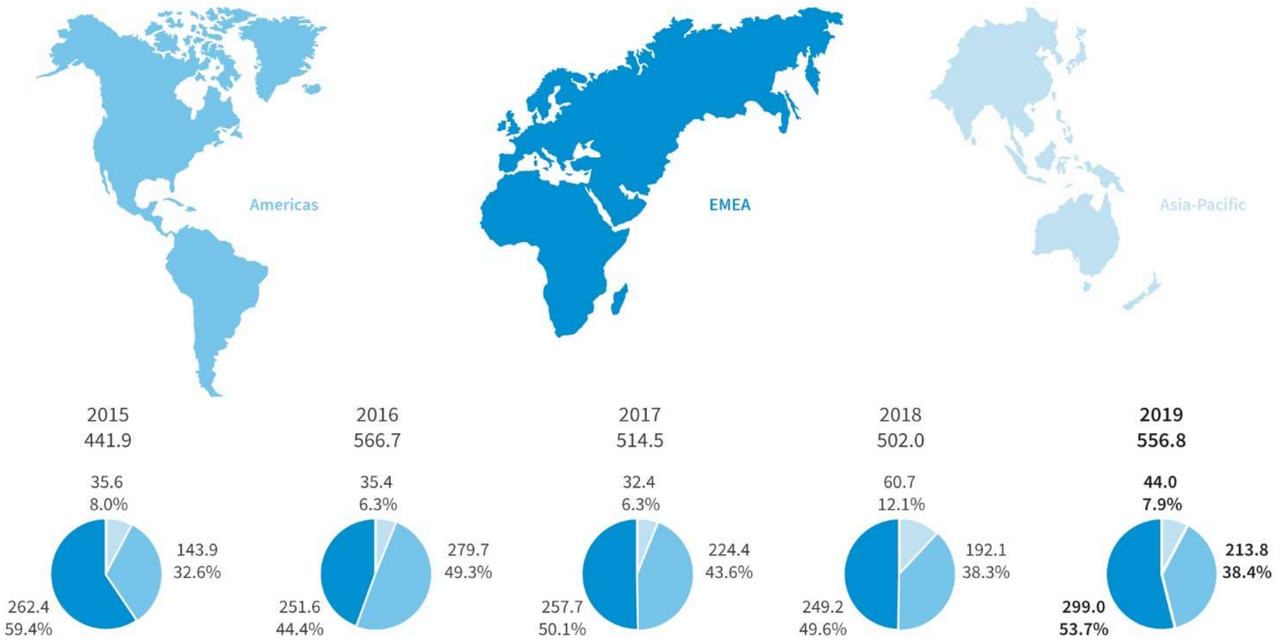
Business development and operational performance of the group

Revenues

Revenues represent one of the four key performance indicators for ADVA. In 2019, the group generated revenues of EUR 556.8 million, an increase of 10.9% on revenues of EUR 502.0 million in 2018. The positive development is due to solid demand from all customer groups in all technology areas. Except for Q1 2019, quarterly revenues increased sequentially in 2019 and reached EUR 151.1 million in Q4. This represents a growth of 4.7% when comparing to Q3 2019 and a year-on-year growth of 14.9%.

Revenues by region

(in millions of EUR and relative to total revenues)



In 2019, EMEA (Europe, Middle East and Africa) was reported as the most significant sales region, followed by the Americas and in third place Asia-Pacific.

Year-on-year, EMEA revenues of EUR 299.0 million in 2019 were strongly up from EUR 249.2 million in 2018. This is primarily due to very good demand from network operators. At the same time, business with private enterprise networks also developed very well. ADVA is traditionally strong in this region, using its mature partner strategy and achieving good results thanks to a broad and loyal customer base.

In the Americas region, revenues increased from EUR 192.1 million in 2018 to EUR 213.8 million in 2019. Similar to EMEA, demand from network operators in America was very strong and there were numerous successful projects with large companies.

In Asia-Pacific, revenues significantly decreased from EUR 60.7 million in 2018 to EUR 44.0 million in 2019. The region is predominated by project-based business, leading to greater fluctuations in individual quarters. In addition, there were regulatory uncertainties at one large customer, so that major revenue losses were also recorded over the year.

Results of operations

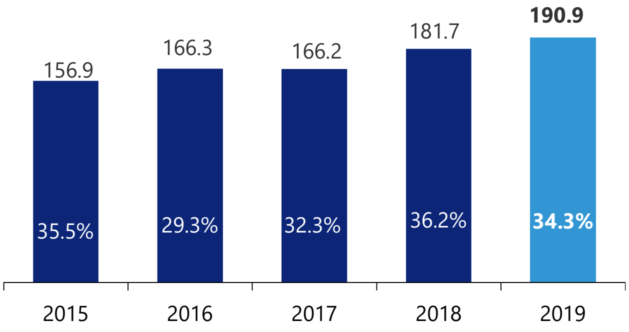
(in millions of EUR, except earnings per share)	2019	Portion of revenues	2018	Portion of revenues
Revenues	**556.8**	**100.0%**	**502.0**	**100.0%**
Cost of goods sold	-365.9	65.7%	-320.3	63.8%
Gross profit	**190.9**	**34.3%**	**181.7**	**36.2%**
Selling and marketing expenses	-72.8	13.1%	-63.5	12.7%
General and administrative expenses	-35.1	6.3%	-35.0	7.0%
Research and development expenses	-75.2	13.5%	-76.6	15.3%
Other operating income and expenses, net	4.2	0.8%	8.4	1.7%
Operating income	**12.0**	**2.2%**	**15.0**	**3.0%**
Interest income and expenses, net	-2.3	0.4%	-1.4	0.3%
Other financial gains and losses, net	-0.8	0.2%	-1.1	0.2%
Income before tax	**8.9**	**1.6%**	**12.5**	**2.5%**
Income tax expense (benefit), net	-1.9	0.3%	-2.8	0.6%
Net income	**7.0**	**1.3%**	**9.7**	**1.9%**
Earnings per share (in EUR)				
basic	0.14		0.19	
diluted	0.14		0.19	

Cost of goods sold and gross profit

Cost of goods sold increased from EUR 320.3 million in 2018 to EUR 365.9 million in 2019, primarily due to the higher revenues. Cost of goods sold includes amortization charges for capitalized development projects of EUR 33.5 million in 2019 after EUR 28.4 million in 2018.

Gross profit

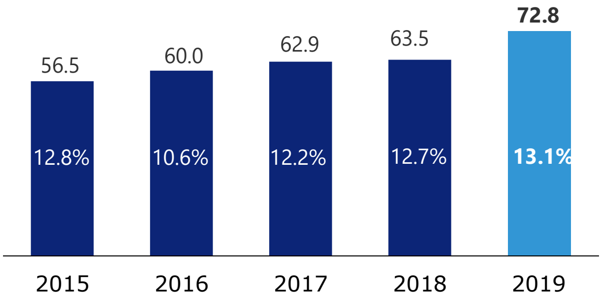
(in millions of EUR and relative to total revenues)



Gross profit improved to EUR 190.9 million in 2019 after EUR 181.7 million in 2018, comprising 34.3% and 36.2% of revenues, respectively. The development of the group's gross margin in general is impacted by variations in regional revenue distribution and in product and customer mix.

Selling and marketing expenses

(in millions of EUR and relative to total revenues)

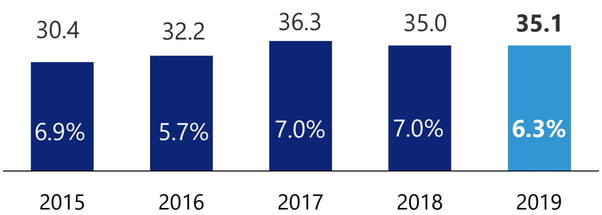


Selling and marketing expenses of EUR 72.8 million in 2019 were up from EUR 63.5 million in 2018 and comprised 13.1% and 12.7% of revenues, respectively. This increase is mainly attributable to increased personnel expense, predominantly due to growth of the team, increased variable remuneration and restructuring costs.

ADVA continues to invest in after-sales customer service and intensified direct-touch activities with those key customers served via indirect distribution channels. Establishing direct contact enables the group to work more closely with its end customers and better understand their specific requirements, which in turn helps in developing market-relevant products.

General and administrative expenses

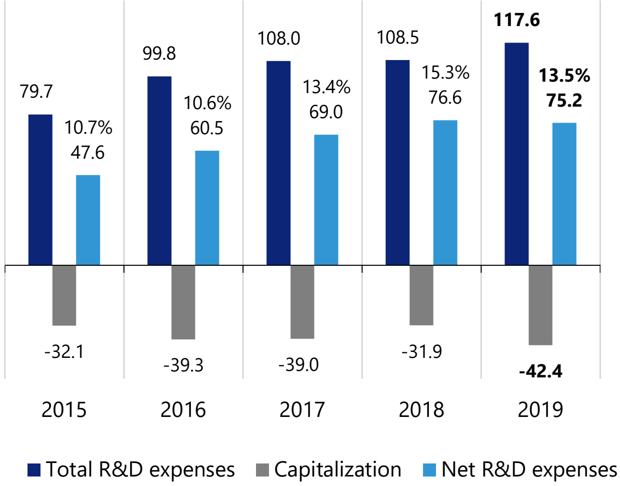
(in millions of EUR and relative to total revenues)



General and administrative expenses were at EUR 35.1 million in 2019 and slightly up from EUR 35.0 million recorded in 2018. The share of total revenues was at 6.3% in 2019 after 7.0% reported in 2018.

Research and development expenses

(in millions of EUR and relative to total revenues)



ADVA's research and development activities are driven by the distinct emphasis on differentiating its innovative connectivity solutions for cloud and mobile services and working with customers and partners to identify and meet their current and future needs. The resulting key technologies and products simplify complicated existing network structures and supplement existing solutions.

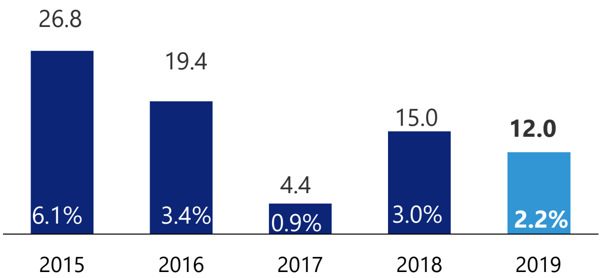
During 2019, research and development activities were focused on the following three technology areas:

- Enhancements to the open optical transport solution including the development of the new TeraFlex™ terminal and a new generation of open line system (OLS)
- A new generation of 100G products including network functions virtualization (NFV) software for the company's cloud access portfolio
- Ultra-precise synchronization technologies for 5G mobile networks and other industry verticals.

Net research and development expenses of EUR 75.2 million were slightly down from the EUR 76.6 million in 2018, thereby constituting 13.5% of revenues in 2019 after 15.3% in the prior year. Capitalization of development expenses of EUR 42.4 million in 2019 was significantly up from EUR 31.9 million seen in 2018. The capitalization rate in 2019 amounted to 36.1% (prior year: 29.4%) and the extraordinarily low capitalization rate for the previous year was influenced by the one-time decline in capitalization in the area of virtualization of network solutions. The slight decrease in net R&D expenses mainly relates to the significantly increased capitalization rate in 2019 compared to prior year which, however, was at an average level in a multi-year comparison.

Operating income

(in millions of EUR and relative to total revenues)



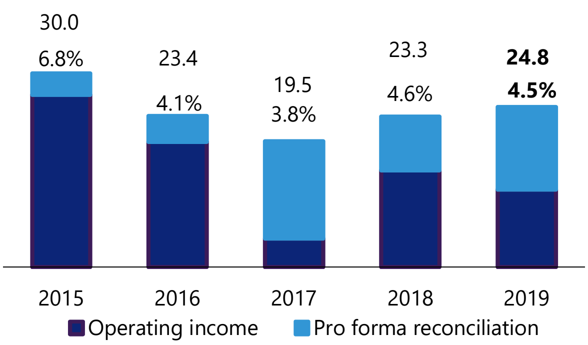
Net other operating income and expenses amounted to positive EUR 4.2 million in 2019, down from positive EUR 8.4 million in the prior year. This item is mainly impacted by subsidies received for specific research activities and release of provisions created in earlier periods.

Total operating expenses increased from EUR 166.7 million in 2018 to EUR 178.9 million in 2019, representing 32.1% of revenues in 2019 after 33.2% in the prior year.

Overall, ADVA reported a strongly decreased operating income of EUR 12.0 million in 2019 after an operating income of EUR 15.0 million in the prior year. The decline in operating result is largely due to a decrease in gross margin combined with increased operating cost due to restructuring measures.

Pro forma operating income

(in millions of EUR and relative to total revenues)

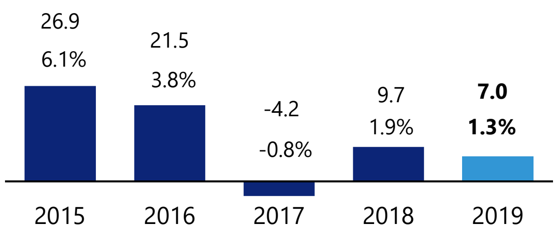


Pro forma operating income represents one of the four key performance indicators for the group. As pro forma operating income excludes non-cash charges related to stock compensation and business combinations as well as non-recurring expenses related to restructuring measures, ADVA's management board believes that pro forma operating income is a more appropriate measure than operating income when benchmarking the group's operational performance against other telecommunications equipment providers.

In contrast to the operating result, the pro forma operating result increased from EUR 23.3 million in 2018 to EUR 24.8 million in 2019, mainly due to higher restructuring expenses of EUR 5.7 million in 2019 (prior year: EUR 1.3 million), which had a negative impact on the operating result and were not taken into account for the calculation of the pro forma figure.

Net income (loss)

(in millions of EUR and relative to total revenues)



Given the decreased operating income, compared to 2018, ADVA reported net income of EUR 7.0 million for 2019, after a net income of EUR 9.7 million in 2018. Beyond operating income, the net result in 2019 included net interest expenses of EUR 2.3 million (prior year: EUR 1.4 million) and net other financial losses of EUR 0.8 million (prior year: net other financial loss of EUR 1.1 million). The increase in interest expenses is due to the inclusion of interest from the recognition of rental agreements in accordance with IFRS 16. Other financial losses mainly related to the translation of foreign currency assets and liabilities and to gains and losses on hedging instruments. Moreover, 2019 includes expenses of EUR 1.4 million from the write-off of another investment. In 2018, an income of EUR 0.4 million from the write-up of an asset for sale was included.

In 2019, the group reported an income tax expense of EUR 1.9 million after an income tax expense of EUR 2.8 million in 2018, representing a tax rate of 21.09% (previous year: 22.49%). In 2019, the increased current income tax expense and deferred tax expense were offset by the release of provisions for tax risks.

Earnings per share

Basic and diluted earnings per share were EUR 0.14 each, in 2019 after EUR 0.19 each, in the prior year. Basic average shares outstanding increased by 0.2 million to 50.0 million in 2019, due to capital increases from the exercise of stock options. Diluted weighted average shares outstanding were at 50.5 million in 2019.

Summary: Business development and operational performance

Operating income as well as net income decreased strongly in 2019 compared to the previous year due to the decline in gross margin and the increase of operating expenses by EUR 12.2 million.

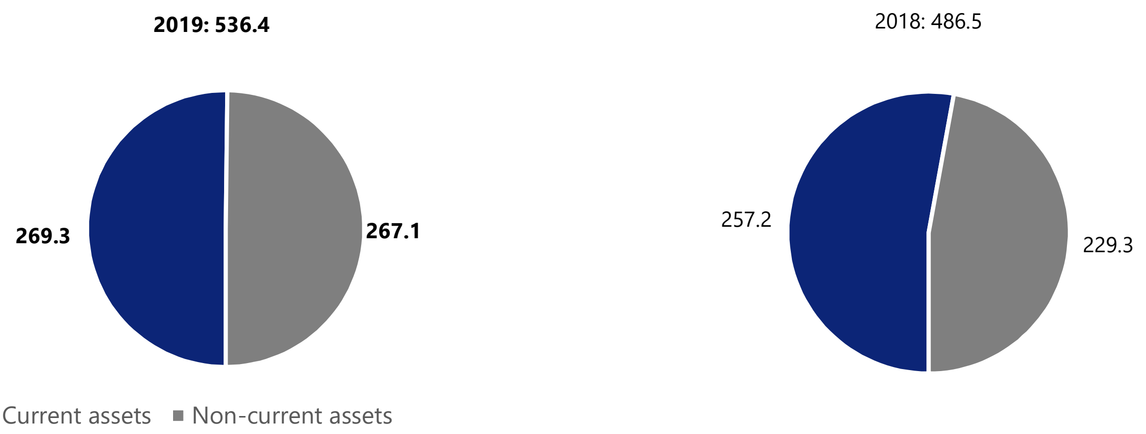
Net assets and financial position of the group

Balance sheet structure

ADVA's total assets increased by EUR 49.9 million or 10.2%, from EUR 486.5 million at year-end 2018 to EUR 536.4 million at the end of 2019.

Assets

(on December 31, in millions of EUR)



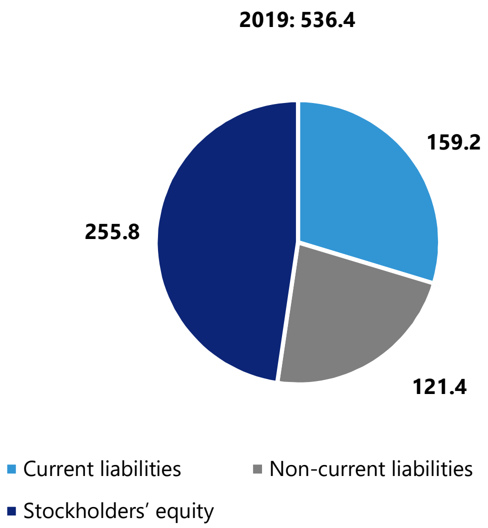
Current assets increased by EUR 12.1 million or 4.7% from EUR 257.2 million on December 31, 2018, to EUR 269.3 million on December 31, 2019, and comprised 50.2% of the balance sheet total after 52.9% at the end of the prior year. The increase in current assets was mainly driven by a significant rise in inventories by EUR 19.6 million to EUR 105.4 million, anticipating negative effects from the trade dispute between the US and China. Inventory turns remained stable at 4.0x in 2019 and 2018. Trade accounts receivable slightly decreased from EUR 97.9 million to EUR 96.2 million at the end of December 2019. Days sales outstanding improved from 68 days reported in 2018 to 66 days in 2019. At the same time, cash and cash equivalents at EUR 54.3 million were EUR 8.4 million down at year-end 2019, mainly due to increased cash outflows for net working capital and higher investments in capitalized development projects.

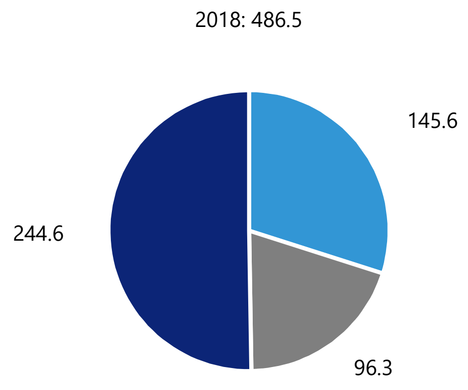
Non-current assets strongly increased by EUR 37.8 million from EUR 229.3 million at year-end 2018 to EUR 267.1 million on December 31, 2019. This increase is mainly due to the recognition of right-of-use assets in the amount of EUR 32.0 million in connection with the first-time adoption of IFRS 16 and the increase in capitalized development projects by EUR 8.2 million to EUR 96.2 million at the end of 2019, largely driven by developments of the future product platform for innovative connectivity solutions. At the same time, property, plant and equipment increased from EUR 29.1 million in 2018 to EUR 32.6 million at year-end 2019. On the other hand, other intangible assets from acquisitions and other intangibles decreased by EUR 7.0 million to EUR 24.6 million, mainly due to scheduled amortization of acquired technologies and customer relationships. Deferred tax assets decreased by EUR 1.0 million to EUR 6.3 million at the end of 2019. Deferred tax assets and liabilities are presented net in accordance with relevant netting requirements.

Meaningful additional assets belonging to ADVA are the broad and global customer base of several hundred service providers and thousands of enterprises, the ADVA, Oscilloquartz and Ensemble brands, the vendor and partner relationships and a highly motivated and skilled global team. These assets are not recognized in the balance sheet. Customer satisfaction as measured by the net promoter score represents one of the group’s four key performance indicators.

Liabilities

(on December 31, in millions of EUR)





With respect to equity and liabilities, current liabilities increased by EUR 13.6 million from EUR 145.6 million at year-end 2018 to EUR 159.2 million at the end of 2019, primarily due to first-time recognition of current lease liabilities amounting to EUR 6.1 million related to the first-time adoption of IFRS 16. At the same time, trade accounts payable increased strongly by EUR 10.2 million to EUR 73.4 million at year-end 2019, with days payable outstanding increased to 63 days in 2019 from 55 days in 2018. The increase in trade accounts payable is driven by the order-oriented timing of material purchases.

Non-current liabilities at EUR 121.4 million at year-end 2019 were significantly up from EUR 96.3 million reported at prior year-end. Within non-current liabilities, lease liabilities of EUR 28.3 million are reported for the first time in connection with the first-time adoption of IFRS 16. Non-current liabilities to banks decreased by EUR 8.3 million to EUR 61.8 million at the end of 2019 due to scheduled repayments. Financial liabilities are explained in more detail in a separate section below. At the same time, pensions provision increased by EUR 2.2 million to EUR 7.8 million and deferred taxes increased by EUR 1.5 million to EUR 12.3 million at the end of 2019. The increase in provisions for pension obligations is mainly due to lower interest rates considered in the valuation.

Stockholders' equity increased by EUR 11.2 million from EUR 244.6 million at year-end 2018 to EUR 255.8 million at the end of 2019, mainly due to net income as well as positive effects from currency translation in other comprehensive income. In 2019, capital increases totaling EUR 1.3 million from the exercise of stock options, and stock compensation expenses totaling EUR 1.5 million were reported.

Balance sheet ratios

The equity ratio declined to 47.7% at the end of 2019, after 50.3% at year-end 2018. The non-current assets ratio amounted to 95.8% on December 31, 2019, with stockholders' equity mainly covering the non-current assets. The decline is particularly due to the recognition of right-of-use assets in connection with the first-time adoption of IFRS 16.

(on December 31, in %)		2019	2018
Equity ratio	Stockholders' equity / Total assets	47.7	50.3
Non-current asset ratio	Stockholders' equity / Non-current assets	95.8	106.7
Liability structure	Current liabilities / Total liabilities	56.7	60.2

Capital expenditures

Capital expenditures for additions to property, plant and equipment in 2019 amounted to EUR 16.9 million, up from EUR 14.0 million in 2018, largely reflecting higher investments in technical equipment.

Capital expenditures for intangible assets of EUR 43.6 million in 2019 were significantly up from EUR 34.2 million in the prior year. This total consists of capitalized development projects of EUR 42.4 million in 2019 after EUR 31.9 million in 2018, and investments in concessions and software licenses and other intangible assets of EUR 1.1 million in 2019 after EUR 2.3 million in 2018. Investments in capitalized development projects are mainly driven by development activities for open optical transmission technology including the new TeraFlex™ terminal and the new generation of 100G products.

Cash flow

(in millions of EUR)	2019	Portion of cash	2018	Portion of cash
Operating cash flow	66.9	123.3%	60.4	96.3%
Investing cash flow	-60.3	111.2%	-48.1	76.7%
Financing cash flow	-14.5	26.8%	-8.2	13.1%
Net effect of foreign currency translation on cash and cash equivalents	-0.5	0.8%	0.2	0.3%
Net change in cash and cash equivalents	**-8.4**	**15.5%**	**4.3**	**6.8%**
Cash and cash equivalents at the beginning of the period	62.7	115.5%	58.4	93.2%
Cash and cash equivalents at the end of the period	**54.3**	**100.0%**	**62.7**	**100.0%**

Cash flow from operating activities of EUR 66.9 million in 2019 was up EUR 6.5 million from EUR 60.4 million in 2018. This improvement was mainly due to the increase in non-cash depreciation and amortization, which was partially offset by the increased net working capital.

Cash flow from investing activities was negative EUR 60.3 million in 2019 after negative EUR 48.1 million in the prior year. In 2019, capital expenditures for property, plant and equipment and capitalized development projects increased compared to the previous year.

Finally, cash flow from financing activities at negative EUR 14.5 million in 2019 was significantly up compared to the 2018 level of negative EUR 8.2 million. Due to the first-time adoption of IFRS 16, reductions in lease liabilities are classified as financing activities from 2019. In addition, the net outflow results mainly from scheduled repayments and interest payments for existing liabilities to banks. In 2018, the cash outflows mainly included scheduled servicing of existing liabilities to banks

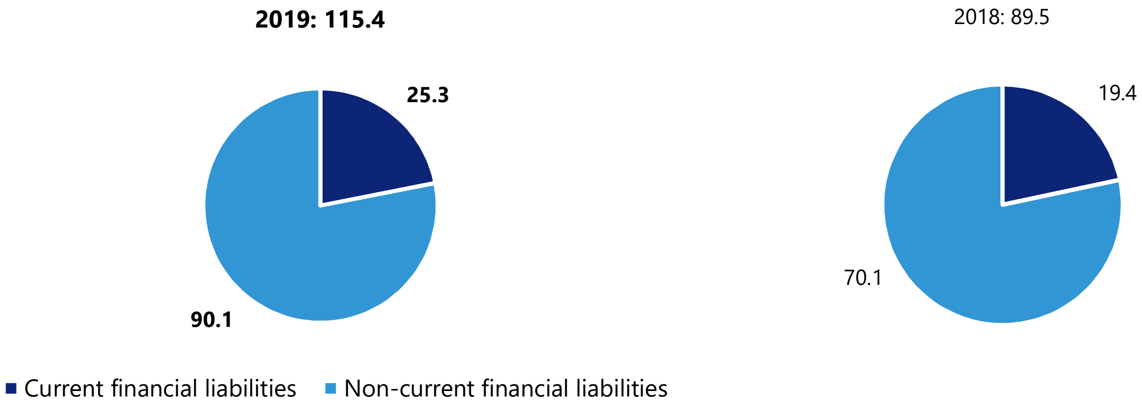
Overall, including the net effect of foreign currency translation on cash and cash equivalents of negative EUR 0.5 million (2018: positive EUR 0.2 million), cash and cash equivalents decreased by EUR 8.4 million in 2019, from EUR 62.7 million at year-end 2018 to EUR 54.3 million at the end of 2019, after an increase of EUR 4.3 million in the prior year.

Financing and liquidity

ADVA's financial management is performed centrally by ADVA Optical Networking SE. Its objective is to provide sufficient funds to ensure ongoing operations and to support the group's projected growth. Beyond the strong equity base appropriate for the business, ADVA finances its business by means of liabilities with maturities typically exceeding the life of the assets being financed. For any liability taken, ADVA is focused on minimizing related interest cost, as long as access to funds is not at risk. Excess funds are generally used to redeem liabilities.

FINANCIAL LIABILITIES

(on December 31, in millions of EUR)



Due to the first-time adoption of IFRS 16, current and non-current lease liabilities totaling EUR 34.4 million are included in financial liabilities in 2019. As a result, financial liabilities have increased significantly by EUR 25.9 million to EUR 115.4 million at the end of 2019. While current liabilities to banks remained largely stable at EUR 19.2 million, non-current liabilities to banks fell to EUR 61.8 million at the end of December 2019 due to scheduled repayments.

In 2019, a new bullet loan of EUR 10.0 million was taken out with Deutsche Bank. This loan is due for repayment in one amount in the third quarter of 2022.

All financial liabilities were exclusively denominated in euro at the end of 2018 and 2019.

On December 31, 2019, the group had available EUR 10.0 million (on December 31, 2018: EUR 10.0 million) of undrawn committed borrowing facilities.

Further details about the group's financial liabilities can be found in note (17) to the consolidated financial statements.

NET DEBT

Net debt[2] represents one of the four key performance indicators for the group. As a result of the first-time inclusion of lease liabilities, ADVA's net debt deteriorated significantly by EUR 34.3 million to EUR 61.1 million at the end of 2019. Excluding the effects of IFRS 16, net debt would have amounted to EUR 26.7 million. Cash and cash equivalents of EUR 54.3 million on December 31, 2019, and of EUR 62.7 million on December 31, 2018, were invested mainly in EUR, USD and in GBP. At year-end 2019 and 2018, access to EUR 0.2 million and EUR 0.3 million of cash and cash equivalents was restricted, respectively.

Net debt as of December 31 is calculated as follows:

(in millions of EUR)	**2019**	**2018**
Liabilities to banks		
current	19.2	19.4
non-current	61.8	70.1
Lease liabilities		
current	6.1	n/a
non-current	28.3	n/a
Cash and cash equivalents	-54.3	-62.7
Net debt	**61.1**	**26.8**

As of December 31, ADVA reports liquidity ratios as follows:

		2019	2018
Cash ratio	Cash and cash equivalents / Current liabilities	0.34	0.43
Quick ratio	Monetary current assets* / Current liabilities	0.95	1.11
Current ratio	Current assets / Current liabilities	1.69	1.77

* Monetary current assets are defined as the sum of cash and cash equivalents, short-term investments and securities and trade accounts receivable.

Return on capital employed (ROCE)

Return on capital employed in 2019 was at 3.3%, down from 4.8% reported in 2018. The decrease is mainly due to the lower operating result as well as a EUR 57.1 million increase in capital employed in 2019.

(base data in millions of EUR)	2019	2018
Operating income	12.0	15.0
Average total assets*	517.6	472.7
Average current liabilities*	151.2	163.4
ROCE Operating income / Ø total assets – Ø current liabilities	**3.3%**	**4.8%**

* Arithmetic average of five quarterly period-end values (Dec. 31 of the prior year and Mar. 31, Jun. 30, Sep. 30 and Dec. 31 of the year).

Summary: Net assets and financial position

ADVA's net assets and financial position deteriorated in 2019, mainly due to the first-time adoption of IFRS 16 and the associated recognition of rights-of-use assets and lease liabilities as well as the decline in cash and cash equivalents.

Transactions with related parties

Transactions with related individuals and legal entities are discussed in notes (40) and (41) to the consolidated financial statements.

Performance of ADVA Optical Networking SE

In addition to reporting on the ADVA Optical Networking group, the following sections provide information on the performance of ADVA Optical Networking SE.

ADVA Optical Networking SE is the parent company of the group and performs the group's management and corporate functions. It takes on major group-wide responsibilities such as finance and accounting, corporate compliance and risk management, strategic and product-oriented R&D activities as well as corporate and marketing communications worldwide.

ADVA Optical Networking SE's individual financial statements are prepared in accordance with the German Commercial Code. The complete individual financial statements are published separately.

Branch offices and organization

The company maintains its registered office in Meiningen, Germany. This is also the location of the main production and development facility of the company (364 employees at year-end 2019). Branch offices are located in Berlin, focusing on software development of the company's products (44 employees) and in Martinsried/Munich, where the company maintains its headquarter with all central functions and the sales and marketing organization (135 employees). On December 31, 2019, further branch offices were located in Hanover, Germany (ten employees), Courtaboeuf/Paris, France (18 employees), Madrid, Spain (2 employees), Helsinki, Finland (one employee), Grottaferrata/Rome, Italy (14 employees), Vienna, Austria (two employees), Zurich, Switzerland (two employees), Dubai, United Arab Emirates (one employee) and Centurion/Pretoria, South Africa (five employees). ADVA is organized according to functional areas across all international locations.

Operational performance

In 2019, ADVA Optical Networking SE generated revenues of EUR 359.3 million, an increase of 10.4% compared to prior year's revenues of EUR 325.5 million.

EMEA continued to be the most important sales region in 2019, followed by the Americas and Asia-Pacific. EMEA revenues increased by 14.4% from EUR 214.9 million in 2018 to EUR 245.9 million in 2019, representing 68.4% of total revenues after 66.0% in 2018. This is primarily due to very good demand from network operators. At the same time, business with private enterprise networks also developed very well. ADVA is traditionally strong in this region, using its mature partner strategy and achieving good results thanks to a broad and loyal customer base. In the Americas, revenues increased by 16.6% from EUR 66.3 million in 2018 to EUR 77.3 million in 2019. Similar to EMEA, demand from network operators in America was very strong and there were numerous successful projects with large companies. The corresponding share of total annual revenues increased from 20.4 % to 21.5%. In the Asia-Pacific region, revenues decreased by 18.3% from EUR 44.3 million in 2018 to EUR 36.1 million in 2019. The region is predominated by project-based business, leading to greater fluctuations in individual quarters. In addition, there were regulatory uncertainties with one large customer, so that major revenue losses were also recorded over the year. The Asia-Pacific region comprised 10.1% of total revenues in 2019 after 13.6% in 2018.

Cost of goods sold increased from EUR 201.8 million in 2018 to EUR 222.0 million in 2019. The corresponding share in total revenue of 61.8% remained almost unchanged compared to 2018 (62.0%).

Gross profit increased from EUR 123.7 million or 38.0 % of revenues in 2018 to EUR 137.3 million or 38.2 % of revenues in 2019. The development of the gross margin is impacted by variations in regional revenue distribution and in product and customer mix.

Due to higher Intercompany recharges selling and marketing expenses increased from EUR 32.3 million in 2018 to EUR 38.6 million in 2019. General and administrative expenses increased to EUR 15.2 million from EUR 14.7 million in 2018. Considering the increase in capitalization of development expenses from EUR 31.9 million in 2018 to EUR 42.4 million in 2019, research and development expenses totaled EUR 91.8 million or 25.6% from revenues compared to EUR 91.6 million or 28.1% from revenues in the prior year. Other operating result (other operating income less other operating expenses) increased because of lower foreign currency translation losses, to EUR 1.6 million from EUR 0.6 million in 2018.

The company generated a net loss after tax of EUR 6.3 million in 2019, compared to a net loss after tax of EUR 14.5 million in 2018.

Summary: Business development and operational performance

Overall, the business development and operational performance developed positively, mainly driven by an increase in revenues.

Net assets and financial position

ADVA Optical Networking SE's balance sheet total decreased by EUR 20.3 million from EUR 335.5 million at year-end 2018 to EUR 315.2 million at year-end 2019. Non-current assets decreased from EUR 199.9 million to EUR 171.7 million on December 31, 2019, representing 54.5% of total assets after 59.6% at the end of the previous year. Current assets increased to EUR 141.6 million from EUR 134.5 million in 2018, representing 44.9% of total assets after 40.1% at the year-end 2018. Within current assets trade accounts receivable declined with EUR 6.8 million, which is mainly attributable to sale of receivables under a new supplier finance agreement. The decline in non-current assets was mainly driven by a decrease in financial assets of EUR 30.4 million to EUR 43.0 million due to loan repayments from affiliated companies.

Mainly due to the net loss reported in the current year, stockholders' equity decreased from EUR 135.0 million at year-end 2018 to EUR 129.9 million at year-end 2019 and represented 41.2% of the balance sheet total after 40.2% at the end of 2018. Liabilities decreased from EUR 168.5 million to EUR 155.1 million. The decrease in liabilities is primarily due to the decrease of liabilities to affiliated companies of EUR 8.5 million and the decrease of liabilities to banks of EUR 8.5 million. This effect was partially offset by an increase in trade accounts payables of EUR 4.2 million. Provisions decreased from EUR 15.2 million in 2018 to EUR 12.7 million in 2019.

Capital expenditures

Total capital expenditures amounted to EUR 51.4 million in 2019 (prior year: EUR 60.0 million). Thereof, EUR 5.7 million (prior year: EUR 4.3 million) were attributable to property, plant and equipment, EUR 43.4 million (prior year: EUR 50.5 million) to intangible assets and EUR 2.3 million to financial assets (prior year: EUR 5.2 million). Investments in property, plant and equipment mainly relate to expenses for measuring and test equipment. Investments in intangible assets mainly relate to the capitalization of development expenses. Financial assets primarily relate to shares in and loans to affiliated companies.

Liquidity

The development of cash and cash equivalents is analyzed as follows:

(in millions of EUR)	2019	2018
Operating cash flow	32.4	39.9
Investing cash flow	-20.0	-29.2
Financing cash flow	-8.8	-6.8
Net change in cash and cash equivalents	**3.6**	**3.9**
Cash at banks and in hand at the beginning of the year	11.3	7.4
Cash and cash equivalents at the end of the year	**14.9**	**11.3**

During 2019 and 2018, the company was able to meet all payment obligations.

Cash and cash equivalents of EUR 14.9 million on December 31, 2019, and of EUR 11.3 million on December 31, 2018, were denominated mainly in EUR and USD. Due to the increase in cash and cash equivalents and the decrease in liabilities to banks in 2019, ADVA Optical Networking SE's net debt decreased from EUR 78.7 million in 2018 to EUR 66.6 million in 2019.

Financing

Liabilities to banks decreased from EUR 90.0 million at year-end 2018 to EUR 81.5 million at the end of 2019. In 2019, the company took out a bullet loan of EUR 10.0 million with a 3-year term. All financial liabilities were exclusively denominated in EUR at the end of 2018 and 2019. Further details about the financial liabilities can be found in notes (17) and (35) of the consolidated financial statements.

On December 31, 2019, the company had available EUR 10.0 million (on December 31, 2018: EUR 10.0 million) of undrawn committed borrowing facilities in respect of which all conditions had been met.

The following table provides an overview of the maturity of each financial liability at year-end 2019:

(in millions of EUR)		Maturity		
		≤ 12 months	**13 – 36 months**	**> 36 months**
Loans of IKB Deutsche Industriebank	3.7	3.7	-	-
	6.3	6.3	-	-
	2.5	2.5	-	-
Loan of Deutsche Bank	10.0	-	10.0	-
Syndicated loan	59.0	6.7	29.3	23.0
Total financial liabilities	**81.5**	**19.2**	**39.3**	**23.0**

Dividend payments

In 2019 there were no dividend payments for 2018 (prior year: nil for 2017). ADVA Optical Networking SE does not plan to pay out a dividend for 2019.

Summary: Net assets and financial position

The net assets of ADVA Optical Networking SE developed negatively in 2019, whereas the net liquidity developed positively in the same period.

Events after the balance sheet date

There were no events after the balance sheet date that materially impacted the net assets and financial position of the group and ADVA Optical Networking SE on December 31, 2019, or the groups and the company's financial performance for 2019. Similarly, there were no events considered material for disclosure.

Disclosures under takeover law in accordance with Section 289a (1) HGB and Section 315a (1) HGB

Share capital and shareholder structure

On December 31, 2019, ADVA Optical Networking SE had issued 50,181,966 no-par value bearer shares (December 31, 2018: 49,930,955). The common shares entitle the holder to vote at the Annual Shareholders' Meeting and to receive dividends in case of a distribution. No restrictions are attached to the common shares. No other class of shares had been issued during the reporting period.

At year-end 2019, EGORA Holding GmbH held a total of 7,456,749 shares or 14.86% of all ADVA Optical Networking SE shares outstanding (at year-end 2018: 7,456,749 shares or 14.93% of all shares outstanding). 5,930,902 of these shares or 11.82 % of all shares outstanding (at year-end 2018: 5,930,902 shares or 11.88% of all shares outstanding) were held by EGORA Ventures GmbH, a 100% subsidiary of EGORA Holding GmbH, and the remaining 1,525,847 shares or 3.04% of all shares outstanding (at year-end 2018: 1,525,847 shares or 3.05% of all shares outstanding) were held directly by EGORA Holding GmbH. Both EGORA companies have their registered offices in Fraunhoferstrasse 22, 82152 Martinsried/Munich, Germany. Additionally, at year-end 2019, Teleios Capital Partners LLC, registered office Baarerstraße 12 in 6300 Zug, Switzerland, held 11,217,927 shares or 22.36%[5] of all ADVA Optical Networking SE shares outstanding (at year-end 2018: 10,104,243 shares or 20.23%). No other shareholder has filed with the company to have held more than 10% of the company's shares outstanding on December 31, 2019. Further details on share capital and shareholder structure are disclosed in note (22) to the consolidated financial statements.

Restriction of voting rights and share transfers

At year-end 2019, the management board of ADVA Optical Networking SE had no knowledge of any restrictions related to voting rights or share transfers.

Appointment and dismissal of management board members

The appointment and dismissal of members of the management board of ADVA Optical Networking SE follows the direction of the German Stock Corporation Act (Aktiengesetz, AktG), the German SE Implementation Act (SE-Ausführungsgesetz, SEAG) as well as the provisions in section 6 of the company's current articles of association as of June 6, 2019. According to these articles, in principle the supervisory board appoints the members of the management board and does so for a maximum period of five years. However, it is the company's practice to appoint the members of the management board for two years only. Repeated appointment is possible. According to the company's statutes, the management board of ADVA Optical Networking SE shall regularly consist of two individuals and the supervisory board shall have the right to determine and appoint a higher number of individuals. If the management board consists of more than one individual, the supervisory board may appoint one member of the management board chief executive officer or speaker of the management board, and another member his or her deputy. The supervisory board may revoke an already effective appointment for important reasons. In 2019, no appointments or dismissals of management board members were affected. ADVA Optical Networking SE's management board consisted of Brian Protiva (chief executive officer), Christoph Glingener (chief technology officer), Ulrich Dopfer (chief financial officer) and Scott St. John (chief marketing & sales officer) throughout the year.

Changes to articles of association

Following article 9 SE Regulation in conjunction with section 50 SEAG, amendments to the articles of association of ADVA Optical Networking SE are made pursuant to section 179 AktG in conjunction with Section 133 AktG considering a 75% majority vote, as well as the provisions in section 4 para. 6 and section 13 para. 3 of the current articles of association of the company dated June 6, 2019. Accordingly, in principle any changes to the articles of association other than purely formal amendments need to be resolved by the shareholders' meeting. However, the shareholders' meeting has authorized the supervisory board to change the version of the articles of association in accordance with capital increases from authorized capital and conditional capital.

Issuance and buy-back of shares

The rights of the management board to issue new shares are regulated in section 4 paragraphs 4 and 5k of the articles of association as of June 6, 2019, of ADVA Optical Networking SE. According to ADVA Optical Networking SE's current articles of association, the management board is

[5] Capital shares refer to the total number of voting rights at the respective notification date. A change in the total number of voting rights after the notification date was not taken into account.

authorized with approval of the supervisory board to increase the capital stock by up to 24,965,477 new shares from authorized capital, amounting to a total of EUR 24,965,477 against cash or contribution in kind with possible exclusion of subscription rights (authorized capital 2019/I). As of December 31, 2019, the authorized capital amounted to EUR 24,965,477, so that at that time the management board was capable of issuing up to 24,965,477 shares, equating to 49.75% of total shares outstanding. In addition, as of December 31, 2019, a conditional capital of EUR 4,993,095 was recorded in the commercial register (conditional capital 2011/I). The conditional capital can only be used for granting stock option rights to members of the management board, to employees of the company and to management and employees of affiliated companies. The conditional capital increase is put into effect only if, when and insofar as the holders of the option rights exercise these rights. 251,011 new shares were already created in 2019 as a result of the exercise of stock options but will only be registered in the trade register after the balance sheet date. Thus, the number of shares that can be issued by the management board from the conditional capital is reduced to 4,742,084.

At year-end 2019, the management board was authorized to buy back up to a total of 10.0% of the existing share capital at the time of resolution by the Annual Shareholders' Meeting or – if this value is lower – at the time the authorization will be exercised. This right was granted to the management board until May 21, 2024, by a resolution of the shareholders' meeting on May 22, 2019. Shares bought back may be used for all legally permitted purposes, in particular as consideration for the acquisition of companies, parts of companies or investments in companies, for issuing stock to employees of the company or affiliated companies, for serving share subscription rights from the company's stock option plans, and for redeeming the shares pursuant to the legal provisions.

Takeover bid-driven change of control provisions

At year-end 2019, a bilateral loan with redemption value of nominally EUR 6.3 million (repayable in 16 equal quarterly installments since March 2017), a bilateral loan with redemption value of nominally EUR 2.5 million (repayable in 16 equal quarterly installments since March 2017), a bilateral loan with redemption value of nominally EUR 3.8 million (repayable in 12 equal quarterly installments since March 2019), a bilateral loan with redemption value of nominally EUR 10.0 million (repayable on the final due date), and a syndicated loan with a redemption value of nominally EUR 59.0 million (repayable in half-yearly installments as well as a final installment on the due date from June 2019), respectively, are part of ADVA Optical Networking SE's financial liabilities. In addition, the syndicated loan has an undrawn credit line of EUR 10.0 million at the reporting date. In the event of a potential takeover bid-driven change in control of ADVA Optical Networking SE, the creditors have the right to terminate these loans with immediate effect.

As of December 31, 2019, for the event of a takeover bid-driven change in control there have been no recourse agreements in place with any of the members of the management board or with any of the group's employees.

Declaration on corporate governance and corporate governance report

Compliance with the rules of proper corporate governance is of great importance to ADVA - it is the foundation for the group's success. According to section 289f and § 315d of the German Commercial Code (Handelsgesetzbuch, HGB), ADVA Optical Networking SE is obliged to publish a "declaration on corporate governance", and section 161 of the German Stock Corporation Act (Aktiengesetz, AktG) in connection with section 3.10 of the German Corporate Governance Code as amended on February 7, 2017, recommends that management board and supervisory board shall prepare a "corporate governance report". In order to facilitate public access to all respective data, ADVA integrates the "declaration on corporate governance" and the "corporate governance report" into one single publication on its website www.adva.com (About Us / Investor Relations / Corporate Governance).

Definition of aims and terms for the rise of the women portion in the supervisory board, the management board and in both leadership levels below the management board

Following the entry into force of the "Law on Equal Participation of Women and Men in Management Positions in the Private and Public Sector" (FüPoG), the supervisory board of ADVA Optical Networking SE had set a target of 33.33% for the company's supervisory board, and a target of 0% for the management board of the company, both to be achieved by June 30, 2017. As of June 30, 2017, the proportion of women on the supervisory board of ADVA Optical Networking SE has been 33.33% and on the management board 0%. So, both targets were achieved. For the following period, the supervisory board determined at its meeting on November 15, 2017, that a women's portion of 33.33% on the supervisory board shall be maintained until March 31, 2021, and a women's portion of 0% on the management board until December 31, 2021. As of

December 31, 2019, these shares have already been realized.

Following the entry into force of the FüPoG, the management board of ADVA Optical Networking SE had set an 8% women's share for the first management level and a 30% women's share for the second management level below the management board; both to be achieved by June 30, 2017. As of June 30, 2017, the women's portion on the first management level has been 7%, and 32% on the second management level, exceeding the self-imposed target on the second management level, but slightly missing the self-imposed target of the first management level. This was due to an in-house change of a reporting line that lifted a male executive from the second to the first management level; besides that, the management structure and team remained unchanged at both management levels. For the following period, ADVA Optical Networking SE's management board has set a target of 7% for the women's share on the first level of management and of 30% on the second level of management below management board, both to be achieved until June 30, 2022. As of December 31, 2019, the women's portion on the first management level has been 13%, and 33% on the second management level; thus, these shares have already been realized.

Separate nonfinancial report

In order to facilitate public access to all respective data, ADVA decided to publish a separate nonfinancial report on its website www.adva.com (About Us / Sustainability) simultaneously with the publication of the annual report on February 20, 2020.

Remuneration of the management and the supervisory board

The compensation of ADVA's management board members consists of fixed and variable components. In addition to a fixed salary, the members of the management board receive two kinds of variable compensation which are assessed based either on short-term aspects or on long-term criteria focusing on the sustainable development of the group. As additional long-term variable compensation, the management board members receive stock options within the scope of ADVA's stock option program. The variable compensation for the members of the management board includes capped components (short-term variable compensation, long-term variable compensation, newly issued options), and provides upper and lower limits for the four targets of the short-term variable compensation.

In 2019, the fixed salaries of all members of the management board remained unchanged. The short-term variable compensation of all four members of the management board was based on the group's pro forma operating income[1] (40%), the group's revenues (20%), and the group's net debt (20%) as well as individual goals agreed with each member of the management board at the beginning of the year (20%). The short-term variable compensation is determined annually as compensation for the current year at the discretion of the supervisory board. Furthermore, a long-term variable compensation focusing on the sustainable development of the group was agreed which will be paid to the members of the management board after three years, provided that a year-by-year increased minimum group pro forma operating income is met for each of the three years. All members of the management board additionally receive a company car or a car allowance. Moreover, ADVA bears the costs of the directors and officers liability insurance for the management board members, taking into account the statutory deductible amount. These benefits are partially taxable by the members of the management board as non-cash benefits. In addition, ADVA grants stock options to members of the management board. These option rights authorize the members of the management board to purchase a set number of shares in the company once a fixed vesting period has elapsed and the goal to increase the share price by at least 20% has been reached.

Total management board compensation payable for 2019 and 2018 was EUR 1,695 thousand and EUR 2,099 thousand, respectively. During both years, there were no long-term service contracts in the sense of IAS 19 for any member of the management board. In 2019 and 2018, no loans were granted to the members of the management board. As of December 31, 2019 and 2018, no receivables outstanding from members of the management board have been reported.

Value of benefits granted for the reporting period

(in thousands of EUR)	Brian Protiva				Christoph Glingener				Ulrich Dopfer				Scott St. John			
	Chief executive officer				Chief technology officer and chief operations officer				Chief financial officer				Chief marketing and sales officer			
	2019	**2018**	**2019 (Min)**	**2019 (Max)**	**2019**	**2018**	**2019 (Min)**	**2019 (Max)**	**2019**	**2018**	**2019 (Min)**	**2019 (Max)**	**2019**	**2018**	**2019 (Min)**	**2019 (Max)**
Fixed compensation	253	253	253	253	253	253	253	253	253	253	253	253	253	253	253	253
Fringe benefits	9	11	9	9	14	14	14	14	15	20	15	15	15	20	15	15
Total	**262**	**264**	**262**	**262**	**267**	**267**	**267**	**267**	**268**	**273**	**268**	**268**	**268**	**273**	**268**	**268**
Short-term variable compensation (1 year)	206	221	-	536	146	150	-	380	131	142	-	340	147	142	-	360
Multi-year variable compensation:																
Long-term variable compensation (3 years)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stock option plans (7 years)	-	157	-	-	-	-	-	-	-	-	-	-	-	210	-	-
Total	**468**	**642**	**262**	**798**	**413**	**417**	**267**	**647**	**399**	**415**	**268**	**608**	**415**	**625**	**268**	**628**

Actual contribution for the reporting period

	Brian Protiva				Christoph Glingener				Ulrich Dopfer				Scott St. John			
	Chief executive officer				Chief technology officer and chief operations officer				Chief financial officer				Chief marketing and sales officer			
(in thousands of EUR)	**2019**	**2018**	**2019 (Min)**	**2019 (Max)**	**2019**	**2018**	**2019 (Min)**	**2019 (Max)**	**2019**	**2018**	**2019 (Min)**	**2019 (Max)**	**2019**	**2018**	**2019 (Min)**	**2019 (Max)**
Fixed compensation	253	253	253	253	253	253	253	253	253	253	253	253	253	253	253	253
Fringe benefits	9	11	9	9	14	14	14	14	15	20	15	15	15	20	15	15
Total	**262**	**264**	**262**	**262**	**267**	**267**	**267**	**267**	**268**	**273**	**268**	**268**	**268**	**273**	**268**	**268**
Short-term variable compensation (1 year)	206	221	206	206	146	150	146	146	131	142	131	131	147	142	147	147
Multi-year variable compensation:																
Long-term variable compensation (3 years)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stock option plans (7 years)	59	-	59	59	59	-	59	59	-	9	-	-	-	-	-	-
Total	**527**	**485**	**527**	**527**	**472**	**417**	**472**	**472**	**399**	**424**	**399**	**399**	**415**	**415**	**415**	**415**

The compensation of the members of ADVA's supervisory board, beyond the reimbursement of out of pocket expenses, only consists of fixed compensation paid out quarterly.

The total compensation payable to the members of ADVA's supervisory board for 2019 and 2018 amounted to EUR 235 thousand, each.

Furthermore, ADVA bears the cost of the directors and officers liability insurance for all members of the supervisory board. During 2019, no loans or advance payments were granted to members of the supervisory board.

Detailed information on the compensation structure of the individual members of the management and supervisory boards can be found in note (41) to the consolidated financial statements.

Employees

On December 31, 2019, ADVA had 1,903 employees worldwide, including 24 apprentices (prior year: 1,886 including 31 apprentices).

On average, ADVA had 1,909 employees during 2019, up from 1,857 in 2018. Furthermore, there were 35 and 24 temporary employees working for ADVA at year-end 2019 and 2018, respectively.

Personnel expenses in the group increased from EUR 173.0 million in 2018 to EUR 187.8 million in 2019, representing 34.5% and 33.7% of revenues, respectively.

On December 31, 2019, ADVA Optical Networking SE had 598 employees, thereof 23 apprentices (prior year: 575 employees, thereof 30 apprentices). This corresponds to an increase of 23 employees or 4.0% versus the end of the prior year.

The breakdown of employees of ADVA SE by functional area is as follows:

(on December 31)	2019	2018	Change
Purchasing and production	155	161	-6
Sales, marketing and service	141	116	+25
Management and administration	95	81	+14
Research and development	184	187	-3
Apprentices	23	30	-7
Total employees	**598**	**575**	**+23**

Personnel expenses in the ADVA SE increased from EUR 46.8 million in 2018 to EUR 50.0 million in 2019, representing 13.9% of revenues in 2019 compared to 14.4% in 2018. The employee compensation packages comprise fixed and variable elements and include stock options. These compensation packages enable employees to participate appropriately in the success of the group, and support employee retention, while at the same time rewarding individual efforts, teamwork, innovation and productivity. Furthermore, employees who perform exceptionally well, or who make suggestions for significant improvements are recognized through the group's spot award program. In addition, the group is committed to offering all employees comprehensive on-the-job training, as well as specific continuing education opportunities in order to advance their personal and professional development.

The group offers different types of continuing education programs through the ADVA university, based on employee development needs. These needs are identified, documented, and reviewed semi-annually, within an electronic performance appraisal and competency management system.

Within ADVA, all relevant local regulations for health and safety in the workplace are complied with, and in some countries are regularly monitored by independent engineering offices for safety in the workplace.

ADVA is committed to the creation of a workplace free of discrimination and harassment. The group recruits, hires, trains and promotes individuals on all job levels without regard to race, religion, ancestry, sexual orientation, marital status, national origin, age, gender and physical or mental disability. ADVA is committed to a fair and equitable workplace where everyone is a respected and valued member of the team. The group's core values (teamwork, excellence, accountability and motivation) and leadership principles (integrity & honesty, decisiveness and respect) guide employees and managers in all business activities.

An efficient employee representation without trade union ties is in place on a global basis, reflecting the international employee base and overall orientation of the group.

At its main production and development facility in Meiningen, Germany, ADVA currently provides 23 apprenticeship positions, whereof 15 lead to professions as electronic technician for devices and systems, office management assistant and as specialist for warehouse logistics. In Meiningen, Germany, the company is among the most recognized apprenticeship providers for industrial electronics professions in its region. In addition, ADVA offers a dual study program in Germany that provides on-the-job work experience to students pursuing degrees. Currently eight students are trained within this program.

Risk and opportunity report

ADVA's future development offers a broad variety of opportunities. It is however also subject to various risks, which in certain cases could endanger the group's continued existence. The management board has implemented a comprehensive risk management and internal control system that enables the detection of risks in a timely manner and allows the group to take corrective action and to benefit from identified opportunities. An integral aspect of the group's strategy is its ability to anticipate developments in the marketplace and future customer needs. Special emphasis is given to product development, the quality of the group's products and the validation, selection and oversight of key business partners.

Risk management system

Since ADVA was founded in 1994, its business has become more diversified. The group markets its products and solutions in part via a variety of distribution partners but has become less dependent over the years due to continued investment in a direct distribution model in core geographies. Beyond focusing on enhancing revenue predictability, a comprehensive risk management system has been established. The risk management system is subject to scheduled reviews by the group's internal audit function.

Being a globally operating company, ADVA implemented its risk management system on the basis of applicable laws and regulations such as Germany's BilMoG and KonTraG and by taking into account common international standards and best practices such as the COSO framework[6] and the ISO 31000 auditing standard. It is closely integrated with supporting management systems such as the group's compliance management system. The management board nevertheless recognizes that a risk management system cannot in all cases prevent the occurrence of events that may cause material damage to the group.

ADVA's strategic goals are the basis for its risk management system. These goals are organized into four areas, growth and profitability, innovation, operational excellence and people. The strategic goals are reviewed by the management board and the supervisory board on a yearly basis and amended where appropriate. They also constitute the basis for the group's three-year business plan, which is reviewed and updated annually. Each of these goals is defined in detail and then broken down into specific departmental and individual targets. The strategic goals are traced to each employee so that every individual can focus and be evaluated on his/her own performance and contribution to ADVA's overall success.

ADVA measures the accomplishment of its strategic goals against revenues, pro forma operating income[1] and net debt[2] as well as the non-financial criterion of customer satisfaction measured by the net promoter score[3]. These metrics represent the group's key performance indicators. The management board sets target values for all four metrics for the year to come and measures actual values against the target values: revenues and pro forma operating income on a monthly basis, net debt on a quarterly basis and the net promoter score on an annual basis. Corrective action is taken quickly should a deviation from the plan occur or be reasonably predicted to occur. This information is summarized and communicated to the management board in monthly, quarterly and yearly reports.

Moreover, budgets are reviewed on a monthly basis and adjustments are made if necessary. The group's accounting, controlling and treasury departments provide globally consolidated reports on available cash funds and the development of margins and current assets (e.g., inventories and receivables) on a monthly and quarterly basis. These reports also include budgeted, forecasted and actual revenues and expenditures. The structure and content of these reports is continuously adapted to the most current requirements.

ADVA regularly monitors the credit-worthiness of its customers and updates credit limits as needed. Material expenditures and investments must be approved in advance through an electronic purchase order system. In conjunction with continuously updated revenue and cash forecasts, a detailed monthly preview of the anticipated group development within the next three to twelve months is put together and communicated to the management board. Moreover, the group's accounting, controlling and legal departments review potential legal and litigation risks on a quarterly basis in order to obtain a reliable estimate of the potential loss, taking into account all relevant information and expectations. Finally, ADVA's management board

[6] Five major accounting organizations formed a group known as COSO (Committee of Sponsoring Organizations of the Treadway Commission) to provide guidance on evaluating internal control. They issued this guidance as the COSO Internal Control Framework.

discusses all significant business transactions with the supervisory board and obtains its approval if necessary.

In order to ensure observance of all applicable laws and regulations and to support the group's ongoing growth and internationalization, the management board implemented a combined risk management and compliance function. Key compliance measures include a code of conduct, a range of group-wide policies, the training of employees and the active encouragement to report suspected incidents of non-compliance and to seek support when having questions. All implemented measures and processes for risk management as well as compliance are continuously reviewed and improved. In 2019, the group completed the global implementation of its improved processes for risk identification and quantification as started in 2017 and, since then, continuously applied and further refined.

ADVA differentiates between two main categories of risks and opportunities – those considered major and those considered non-material. A risk or opportunity is considered major if its expected net impact on the group's pro forma operating income exceeds EUR 1 million in terms of ADVA's three-year business plan. If not attributable to the pro forma operating income, the group's net income is used as reference. The expected net impact is calculated by multiplying the potential net impact of a particular risk or opportunity with its net likelihood of occurrence.

For each major risk, the group assigns a dedicated risk owner who is responsible for defining and implementing an adequate and effective response for risk mitigation. Adherence with this process is monitored by the group's compliance function which conducts structured reviews with each risk owner according to a defined schedule and at a minimum three times per year. Should any such major risk materialize, the assigned risk owner has the responsibility to immediately report this to the management board. Independent of specific risk ownership, all employees of ADVA are asked to escalate additional obvious risk items directly and informally to the group's compliance function and the chief financial officer. Risk identification and reporting is supported by monthly reports and regular webinars in which the management board informs the global management team about the current business development, outlook and goals.

Based on the outlined analytical tools and processes, ADVA ranked 20 risks as major risks at the end of 2019 (end of 2018: 17), which are discussed in detail below.

The risks and opportunities of ADVA Optical Networking SE essentially correspond to those of the group. In addition to the risks listed here, there is also a risk with regard to the recoverability of shares in affiliated companies. ADVA Optical Networking SE does not consider this risk to be material.

Major risks 2020-2022

1 Inadequate go-to-market support

2 Perceived lack of scale or innovation capability

3 Loss of key customers or channel partners

4 Market pricing pressure

5 Wrong product strategy

6 Uncompetitive product cost

7 Uncompetitive products due to delayed release

8 Product hardware design quality and regulatory compliance

9 Product software design quality

10 Alleged IP infringements by ADVA

11 Alleged IP infringements by supplier

12 Supplier and manufacturer quality

13 Supply shortages of critical product components

14 Global tariffs

15 Foreign currency fluctuations

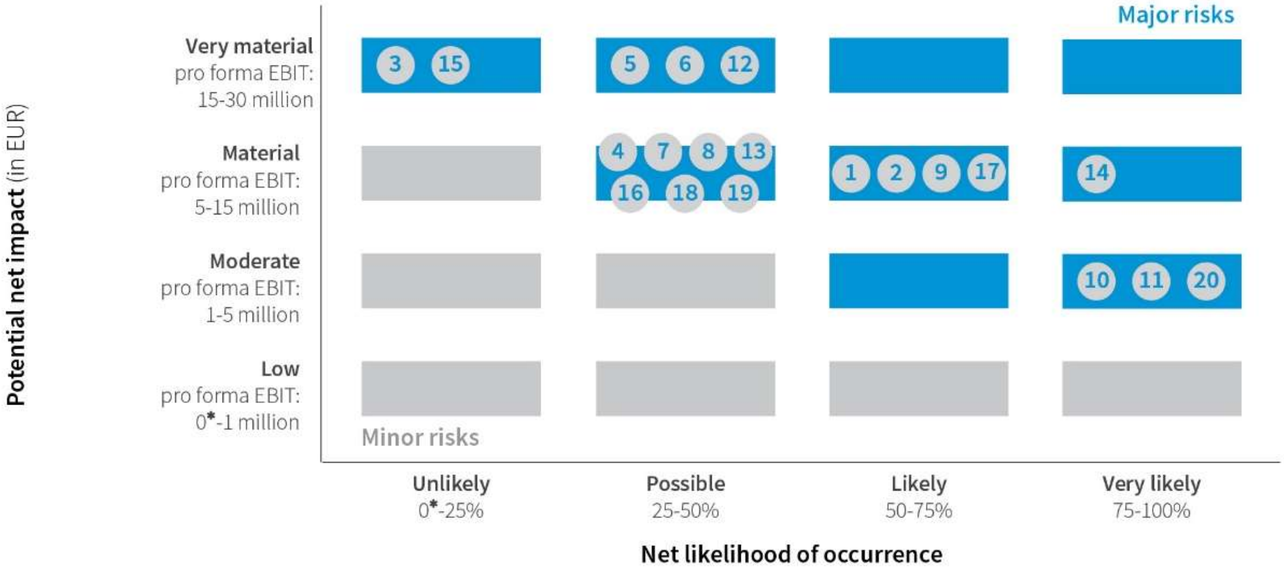
16 Confidentiality of business-sensitive data

17 Compliance violations by intermediaries

18 Bribery

19 Loss of knowledge, skills, relationships and overall capacity

20 Harassment or discrimination claims or proceedings



*Defined minimum thresholds for risk reporting

Growth and profitability risks

INADEQUATE GO-TO-MARKET SUPPORT (LIKELY; MATERIAL)

ADVA operates in an industry characterized by rapid technological change. Examples include the ongoing convergence of Layer 2 and 3 at the network edge, the emergence of new disrupting technologies such as NFV and the growing importance of network synchronization. In order to benefit from such developments, ADVA has substantially increased its product portfolio during the last few years and continuously develops new products and features in order to meet customer requirements. Supporting the market introduction of new and enhanced products and technologies requires significant investments in resources, tools and procedures. Inadequate go-to-market support may result in delays in selling newly developed products and solutions, undermining ADVA's growth and profitability targets.

PERCEIVED LACK OF SCALE OR INNOVATION CAPABILITY (LIKELY; MATERIAL)

Industries and consumers increasingly rely on networks for their daily business operations. As the discussions around 5G illustrate, the strategic importance of networks for societies and nations is ever increasing. As a result, the group's customers are more intently seeking out vendors who offer leading innovation and engagement models, and who have the financial strength and sustainability to deliver on these over the long-term. With ADVA being one of the smaller companies in the network equipment industry, a certain risk arises that customers may have doubts about ADVA's ability to execute on its (product) strategy. Nevertheless, the group's proven track record in meeting this challenge does help to mitigate the risk.

LOSS OF KEY CUSTOMERS OR CHANNEL PARTNERS (UNLIKELY; VERY MATERIAL)

The loss of key customers or channel partners would have significant impact on ADVA's business and may arise from changes in customer demands and the group's ability to meet them, or mergers and acquisitions of existing customers that result in the decision to consolidate vendors and technology partners in a way that either reduces or eliminates ADVA's share of the consolidated entity's spend. However, for most key revenue customers, the group has deployed thousands of systems over a multi-year period which are integrated in operational workflows and processes and, as a result, there is a certain dependency on ADVA and its products. For key customers and channel partners, the group furthermore ensures continuous performance and satisfaction through a dedicated team of professionals.

MARKET PRICING PRESSURE (POSSIBLE; MATERIAL)

Procurement is a key focus area for customers and their cost-saving initiatives. Purchases, especially for multi-year projects, are often conditioned on gradual price decreases. In addition, several products are essentially being commoditized with many competing vendors. The group has many preventive action plans in place. Most important is its focus on innovation. In order to successfully defend higher prices, the group consistently pushes the limits of new technology in its products, improves its processes, and communicates the value, reliability, scalability, cost-effectiveness, performance and technological leadership of its solutions to all of its customers.

Innovation risks

WRONG PRODUCT STRATEGY (POSSIBLE; VERY MATERIAL)

The market for innovative connectivity solutions for cloud and mobile services is highly competitive and subject to rapid technological change. Competition in this market is characterized by various factors, such as price, functionality, service, scalability and the ability of systems to meet customers' immediate and future network requirements. Should ADVA be unable to quickly adapt to changing market conditions, customer requirements or industry standards, the group's development would be impacted negatively. Since some of the group's competitors operate in a broader market and have considerably more resources available due to their greater size, ADVA must continue to focus its efforts on those technologies and features that are expected to supersede the current ones. The likelihood of wrong development decisions is minimized by a series of preventive actions that include running advanced technology projects, running a team of navigators to decide on strategic direction, industry and competitor analysis, keeping the group's development roadmap up-to-date, testing product visions with customers, monitoring and influencing standardization and staying close to customers in order to identify differentiating technology opportunities. In addition, the group has implemented a highly flexible and adaptive development organization and processes to quickly adjust to changing requirements.

UNCOMPETITIVE PRODUCT COST (POSSIBLE; VERY MATERIAL)

ADVA achieves cost advantages through its ability to scale economically and through the optimization of product design. The loss of competitive product cost would drastically reduce the group's success in winning new business and would have a negative effect on gross and operating margins. The significant pricing pressure for innovative connectivity solutions must be met strategically by improving processes, controls and technology while maintaining adequate R&D budgets, as well as operationally by achieving cost leadership in sourcing product components. A dedicated team identifies competitive price and cost targets for new products, monitors product cost changes throughout the development process and negotiates, tracks and forecasts product and related component costs. Achievement of the group's annual cost reduction targets for sourcing components is supported by monthly and quarterly status reports to the group's management board.

UNCOMPETITIVE PRODUCTS DUE TO DELAYED RELEASE (POSSIBLE; MATERIAL)

High competition and rapid technological change are the decisive characteristics of the market for innovative connectivity solutions for cloud and mobile services. Continuous success not only requires the identification of innovative solutions for future network and customer requirements by maintaining cost leadership, but to also release such innovations at the projected time as delays may undermine their competitiveness. As a result, ADVA implemented a joint development and operations organization ("DevOps") clustered into technology value streams in order to maximize effectiveness and break up barriers. All value streams operate according to one common tool-supported development process.

PRODUCT HARDWARE DESIGN QUALITY AND REGULATORY COMPLIANCE (POSSIBLE; MATERIAL)

Increasing pressure on product development timelines and growing product complexities that need to be supported by limited R&D resources present challenges for product hardware design quality and regulatory compliance. For risk mitigation, the group implemented a tool-supported development process that ensures "design for manufacturability" as well as the application of a meaningful development failure model and effective analysis conducted in alignment with ADVA's Quality Management Department. The aim is to identify and rectify potential flaws in hardware design as early as possible.

PRODUCT SOFTWARE DESIGN QUALITY (LIKELY; MATERIAL)

ADVA develops, manufactures and sells solutions for a modern telecommunication infrastructure. While mostly hardware based, it is increasingly software that drives the product performance and feature set. In order to support ADVA's growth targets by addressing a maximum number of customer needs, the group's limited R&D resources need to support a growing number of features. To enable this, the group applies a software development methodology commonly referred to as "Agile." It is embedded into a tool-assisted development and release process supported by continuous transparency and reporting on the achieved quality levels.

ALLEGED INTELLECTUAL PROPERTY INFRINGEMENTS BY ADVA (VERY LIKELY; MODERATE)

Third parties may assert that ADVA has violated their intellectual property rights and claim license fees, indemnities or a discontinuation of production and marketing of affected products. Related disputes could result in considerable cost to ADVA, while also diverting management and technical resources. For mitigation, the group has implemented adequate guidelines to avoid infringements in the first place. ADVA also uses and continuously extends its own patent portfolio as defense. A dedicated team is available to assess and appropriately act on any asserted intellectual property infringement.

ALLEGED INTELLECTUAL PROPERTY INFRINGEMENTS BY SUPPLIER (VERY LIKELY; MODERATE)

Besides ADVA itself, the group's suppliers may also be approached by third parties claiming intellectual property infringements. As a consequence, the group may be unable to source a particular component as required for its own solutions. To support risk mitigation, ADVA's contract templates include intellectual property provisions that aim to ensure authorized use of third-party intellectual property and to indemnify the group against the resulting damage of any infringement. In addition, multi-sourcing of components is pursued wherever technologically and economically feasible.

Operational excellence risks

SUPPLIER AND MANUFACTURER QUALITY RISKS (POSSIBLE; VERY MATERIAL)

ADVA's product quality is significantly influenced by its suppliers and contract manufacturers. Failure of a single part may cause the whole system to be dysfunctional. Early detection of component as well as production deficiencies is thus critical for the group's success. Deteriorating quality levels could not only lead to delays in installation, return of products or cancellation of orders, but also to penalties and lawsuits, contract terminations and liability claims. Preventive actions to avoid quality deterioration include close collaboration with key suppliers during the development of critical components, structured and tool-based processes for supplier and manufacturer identification and qualification, robust contracting including adequate indemnifications, and regular audits of key suppliers and all manufacturers.

SUPPLY SHORTAGES OF CRITICAL PRODUCT COMPONENTS (POSSIBLE; MATERIAL)

ADVA sources product components either based on forecasts or upon receipt of a customer purchase order. Any shortage in the required material can thus have a significant negative impact on the group's performance. This may be caused by natural disasters, pandemics, political conflicts or specific problems of a supplier. For mitigation, ADVA implemented tool-based processes for demand forecasting as well as the structured identification and consistent monitoring of suppliers, in particular suppliers of single source components. This includes the introduction of alternatives during the design phase of a new product.

GLOBAL TARIFFS (VERY LIKELY; MATERIAL)

During 2019, the US-China trade conflict evolved into more than a dispute over the existing bilateral trade imbalance. It also began to concern future technology leadership and national security questions. In addition, growing trade tensions emerged between the US and the European Union (EU) and these may result in higher tariffs and more non-tariff barriers that could slow down trade on both sides. Much uncertainty also exists with regard to the outcome and aftermath of Brexit and the short- and mid-term implications of the UK's economic growth and trade volume with the EU. With tariffs being increasingly used as a tool to enforce a political agenda, a flexible supply chain and manufacturing process that is less dependable on and can react swiftly in response to political decisions is key for risk mitigation. In 2019, ADVA substantially increased the flexibility of its operations but may nonetheless see a material impact from tariffs and non-tariff barriers in 2020 and beyond.

FOREIGN CURRENCY RISKS (UNLIKELY; VERY MATERIAL)

Due to a major portion of the group's revenues and costs being generated in foreign currencies, ADVA's profit is particularly subject to fluctuations in the EUR/USD, GBP/USD, EUR/ILS and EUR/PLN exchange rates. In 2019, on a net basis, the group realized significant GBP inflows and USD outflows. To combat fluctuations, the USD net cash flows are in part hedged against GBP using forward exchange agreements. The duration of such agreements follows ADVA's communication to the capital markets. Information on the sensitivity of the group's net income to fluctuations in foreign exchange rates is provided in note (34) to the consolidated financial statements.

CONFIDENTIALITY OF BUSINESS-SENSITIVE DATA (POSSIBLE; MATERIAL)

Stolen credit card information, personal data and business data from major companies have become the topic of frequent business headlines. Unauthorized access to the group's information systems and confidential data can not only cause material damage but also result in penalty payments for violating the EU GDPR. ADVA implemented technical and non-technical means to reduce its risk exposure, e.g., by investing in IT security resources and by implementing a variety of hardware, software and process-based risk-mitigating measures.

People risks

COMPLIANCE VIOLATIONS BY INTERMEDIARIES (LIKELY; MATERIAL)

ADVA markets its products and solutions in part via a variety of distribution partners due to required economies of scale, local (legal) requirements and in order to benefit from existing contractual as well as personal relationships and post-sale support organizations and capabilities. While the group's ability to control the partners' activities are limited, compliance violations by intermediaries may, under specific circumstances, be attributed to ADVA. For mitigation, ADVA implemented robust risk-based due diligence procedures including upfront vetting of new intermediaries and periodic reviews and updates. Furthermore, resale contracts include robust compliance representations. Commission-based setups are tightly controlled and avoided where possible.

BRIBERY (POSSIBLE; MATERIAL)

ADVA markets its products and services around the world. In recent years, its customer base and operational setup have become substantially more international. To ensure ethical behavior in all business situations, robust procedures and controls were implemented. If violated, the consequences for the group could be severe, including material fines, the breach of customer contracts and a general loss of reputation. ADVA has a dedicated anti-corruption program in place, which is based on a culture of Integrity and ethical decision making, strong tone from the top and supported by a central compliance department and dedicated regional compliance officers, means for (anonymous) reporting of concerns, tight controls on all financial transactions, continuous and risk-based monitoring of activities and the periodic auditing of all implemented measures through an independent function.

LOSS OF KNOWLEDGE, SKILLS, RELATIONSHIPS AND OVERALL CAPACITY (POSSIBLE; MATERIAL)

Slowing economic growth in the second half of 2019 is not yet having a material impact on global job markets. In addition, the digital transformation is continuing at a rapid pace and has led to a permanent shortage of skilled workers within the technology industry. While particularly intense in developed countries, competition for talent is fierce all over the globe. As a result, the group is continuously challenged to retain and nurture its employees in order not to lose their knowledge, skills and relationships required to develop, sell and maintain the group's innovative products and solutions.

HARASSMENT OR DISCRIMINATION CLAIMS OR PROCEEDINGS (VERY LIKELY; MODERATE)

ADVA is committed to ensure equal employment opportunities without regard to race, religion, gender and any other protected factor and to prevent any related unwelcome behavior i.e., harassment. The group is proud about its international and diverse setup and employment base, and its open, transparent and respectful culture and management style. While multiple actions are taken to ensure ethical conduct of everyone working for the group globally, there is a high likelihood of alleged or actual violations, which may result in costly legal proceedings for the group, depending on the allegation's nature, scope and location.

Minor and financial risks

Beyond the discussed 20 major risks, there is a broad range of minor risks that can also have a negative impact on ADVA. These uncertainties include financial risks such as the inability to secure financing, the risk of early maturity of loans due to the breach of material contractual obligations in connection with loan agreements totaling EUR 81.0 million and committed borrowing facilities totaling EUR 10.0 million, impairment of intangible assets and changes in interest rate levels, time risks related to carrier investment cycles and to distribution partnerships, legal risks pertaining to potential claims under product and warranty liabilities, as well as general macro-economic risks and risks related to acquisitions. However, the management board of ADVA does not consider any of these or other uncertainties to be likely and/or to have a major impact on the group.

Changes to the overall risk situation and classified major risks in 2019

During 2019, the number of ADVA's major risks increased by three mainly due to the continuing adoption and evolution of its improved risk identification and quantification processes. In addition, the previously reported product design quality risk was split into a hardware and a software component in order to more clearly define responsibilities and to increase focus on the related risk mitigation. Finally, the US-China trade conflict evolved into the more general risk of global tariffs. In summary, 15 risks remained largely unchanged, one risk was split into two and three new major risks were added. In addition, the group's Net Promoter Score decreased to 44% (2018: 52%). Overall, the risk situation remained largely the same as in 2018 as the group's continued diversification and internationalization helped to balance the outlined changes.

Opportunity identification

The identification of opportunities is largely identical to the processes, tools and concepts as described in the "risk management system" section above. The annual definition of the group's opportunities is supported by the management board, which has regular discussions with key customers and industry thought leaders in order to identify new opportunities and technological trends. Throughout the group, agile processes maximize the group's ability to take advantage of newly identified trends. Current major opportunities are as follows:

MARKET SHARE GAIN IN OPTICAL NETWORKING (LIKELY; VERY MATERIAL)

With 25 years of expertise in interconnecting data centers, ADVA is a leading contender in the enterprise DCI space. In addition to broad success with private enterprise networks, the company has gained a lot of traction with communication service providers (CSPs) and internet content providers (ICPs). During 2019, the group successfully trialed and deployed its new TeraFlex™ open terminal in the networks of several customers. The product has a market-leading feature set, and an accelerating commercial ramp of the platform will likely result in an increased market share in optical networking.

VERTICAL INTEGRATION FOR COMPONENT COST REDUCTIONS AND MARKET EXPANSION (POSSIBLE; MATERIAL)

During 2019, the group unveiled its component engineering efforts on the IC-TROSA and received interoperability approval from the Optical Internetworking Forum (OIF). The investment in component technology allows a higher level of vertical integration and independence from component suppliers, leading to an improved cost base for certain functions. In addition, ADVA benefits from an increase in its total addressable market (TAM) and expects a positive contribution to its consolidated revenues and margins in 2020 and beyond.

ADDITIONAL DEMAND FOR PACKET AND VIRTUAL EDGE CLOUD SOLUTIONS (LIKELY; MATERIAL)

With the rollout of 5G and the emergence of edge computing solutions, service providers are redefining their strategies at the network edge. ADVA invested heavily in expanding the company's cloud access portfolio to empower CSPs in their quest for new revenue streams. As a result, ADVA has the world's most comprehensive portfolio of fiber-based Ethernet access and aggregation solutions that empower industry-leading data connectivity services. In addition to the FSP 150 hardware, it is the company's Ensemble software portfolio with virtual networking solutions that enables CSPs to convert enterprise IT spend into new revenue streams for their managed services. Thanks to NFV, service providers can create and deliver new services quickly anywhere on the globe. Driven by close partnerships with some of the world's leading enterprise IT suppliers, the group sees potential for numerous new customer wins and a higher proportion of software sales in this area.

STRATEGIC IMPORTANCE OF SYNCHRONIZATION TECHNOLOGY FOR 5G (VERY LIKELY; MATERIAL)

The ongoing expansion of mobile networks towards LTE-Advanced, as well as the accelerating rollout of 5G lead to more stringent requirements for time and frequency synchronization in mobile networks and an increasing demand for high-precision synchronization technology. Following a multi-year product portfolio refresh, ADVA's Oscilloquartz synchronization technology is industry-leading and continues to win competitive tenders. Many Network build-outs nevertheless are multi-year programs that depend on a variety of variables including end-user demand and their willingness to pay for new services. Due to the strategic nature of 5G, the group nevertheless considers it very likely that synchronization technology may provide a materially increased contribution to its revenues and profits in 2020 and beyond.

NEW MARKETS FOR SYNCHRONIZATION SOLUTIONS (POSSIBLE; MATERIAL)

In addition to the increasing demands of mobile network operators for high-precision synchronization solutions, ADVA's Oscilloquartz technology is also gaining traction in other applications. The synchronization of global databases of internet content providers, time stamping accuracy for financial trading, the synchronization of power grids with decentralized power generation, timing distribution in digital infrastructure deployments and the synchronization of broadcast networks offer additional opportunities for this technology segment.

PORTFOLIO CROSS-SELLING SUPPORTED BY A COMMON NETWORK MANAGEMENT SOFTWARE (VERY LIKELY; MATERIAL)

ADVA operates in three different technology segments: Optical networking solutions, packet and virtual edge cloud solutions and network synchronization solutions. In addition to a wide range of opportunities within every one of these technology segments, the group sees a high likelihood for cross-selling between the technologies as supported by its common network management software. During 2019, ADVA consolidated its previously separate software platforms into one common architecture supporting all technology areas. As this platform is deployed at several hundred of the group's customers which typically have demand for all three technology areas but may only be an existing customer in one or two, material cross-selling opportunities do exist in 2020 and beyond.

INFORMATION SECURITY REQUIREMENTS AND REGIONALIZATION (VERY LIKELY; MATERIAL)

Large companies are concerned about the security of their data and business processes and are therefore building new data protection and storage solutions, which in turn require transmission technology to connect the geographically dispersed sites. In addition, the EU's GDPR, which came into effect in 2018, has led to increased data protection requirements for all companies operating in Europe. In the meantime, the signs of national demarcation are multiplying on the political world stage. In many places, demands for regional solutions are becoming louder. This inevitably affects the technical realization of the cloud as well as the selection of the corresponding equipment suppliers. ADVA is the remaining European specialist in optical transmission technology with a positive reputation amongst its customer base. ADVA's ConnectGuard™ security portfolio provides customers with comprehensive protection in different network scenarios and brings numerous competitive advantages. ADVA, a European company with strong visibility and presence in data center and network operators worldwide expects a positive market environment resulting in solid and profitable growth.

ADDITIONAL SALES OPPORTUNITIES RESULTING FROM MARKET CONSOLIDATION (LIKELY; MATERIAL)

In 2019, vendor consolidation in the optical networking space continued, e.g., with one of the group's Israel-based competitors being acquired by an US technology company.

The takeover further reduces the number of independent companies focusing on optical networking solutions. ADVA is the remaining European specialist for this technology and has established itself as a trusted partner. Through the acquisition of Overture in 2016 and the acquisition of MRV in 2017, the group has contributed to the ongoing industry consolidation and gained more strength and relevance. A consolidated competitive landscape is likely to result in slower market price erosion and new opportunities for ADVA to enter new accounts as a primary or secondary source.

Changes to the overall opportunity situation and the classified major opportunities in 2019

Compared to the previous year, the company believes that its opportunities have slightly increased in all aspects; number, likelihood as well as materiality. Not only the new TeraFlex™ terminal introduced in 2019 but also the group's technology leadership in packet and virtual edge cloud solutions as well as synchronization technology are resulting in a significant potential for further revenues and profitable growth. Coupled with increasing demands driven by information security requirements and regionalization, proven success in cross-selling supported by a common network management software and a consolidated competitive landscape, the group has every reason to look ahead with optimism.

Overall opportunity and risk assessment

Based on careful inspection of the group's opportunity and risk profile at the time of the preparation of the combined management report, the management board of ADVA believes that the group's opportunities in the market for innovative connectivity solutions for cloud and mobile services clearly outweigh the risks identified. The management board has not identified any risks that pose a danger to ADVA's survival or endanger the future of the group. ADVA's overall balance between opportunity and risk is at about the same level as it was at the time of the publication of the 2018 combined management report.

Internal controls related to financial reporting

The management board of ADVA is responsible for establishing and maintaining an adequate system of internal controls. It has implemented an internal control system that enables the management board to ensure completeness, accuracy and reliability of financial reporting at group and legal entity level. When designing its internal control system, ADVA used the COSO framework as a key reference and source of guidance. The internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting. No system of internal control over financial reporting, including one determined to be effective, may prevent or detect all misstatements.

CONTROL ENVIRONMENT

The control environment is the foundation of the internal control system in every organization. ADVA fosters an environment of openness and integrity with a clear commitment to excellence, competence and the development of its employees. The group's leadership principles of integrity/honesty, decisiveness and respect are based on this philosophy, and the culture is reflected in the overall tone set by the management board. ADVA has a clear organizational structure with well-defined authorities and responsibilities. The bodies charged with the governance and control of the group actively participate in the running and steering of the business. The business is managed on a global basis and run via functional areas. Financial steering of the group and financial stewardship for individual legal entities is handled by the chief financial officer, under the audit committee's control.

RISK ASSESSMENT

As part of the internal controls related to financial reporting, the risk assessment follows the process described in the "risk management system" section.

CONTROL ACTIVITIES

At an individual entity level, ADVA's larger and more complex business units use an integrated enterprise resource planning solution, which also serves as general ledger system. Information technology controls have been implemented to restrict user access, ensure proper authorization of changes to the system and efficient handling of user help desk requests. Specific processes are defined and applied for the following reporting cycles in these business units: cash reporting, revenue recognition, accounts payable, capitalization of development expenses and recognition of subsidies for research, inventory reporting, fixed assets, payroll and provisions. ADVA carries out monthly analytical reviews and quarterly balance sheet reviews based on a four-eye principle between the local accounting and the consolidation functions.

For the consolidated financial statements, the balance sheet and income statement positions requiring a significant degree of judgment and estimation when being valued are determined and analyzed with the involvement of management. This is the case for impairment testing reviews (annual or when a triggering event occurs), capitalization of development projects (when the industrialization stage is reached) and tax reporting, specifically deferred taxes (quarterly). ADVA additionally carries out monthly intercompany reconciliations as part of the consolidation process and analytical reviews of actual vs. expected results based on a four-eye principle between the financial planning and the consolidation functions.

All business units follow a set of global accounting policies and reporting guidelines applying to the whole group. The financial statements preparation process is monitored globally via a calendar that is communicated to all involved parties on a monthly basis. Checklists are completed both in the individual business units and at the consolidation level to ensure completeness of all closing steps. Periodic reviews by group management are conducted to detect errors and omissions.

INFORMATION AND COMMUNICATION TOOLS

The internal control system at ADVA is supported by tools to store and exchange information, enabling the management board to make informed business decisions about financial reports and disclosures. The following components ensure proper information and communication for financial reporting:

- Accounting systems for individual entities are matched to the degree of complexity of the business unit. For most entities, an integrated enterprise resource planning system, which also serves as general ledger system, is in place. All local accounts are mapped to the group chart of accounts, which is used group-wide.
- The group consolidation is supported by a database tool which is linked to the enterprise resource planning and financial planning systems via interfaces. The global financial planning system is used extensively in analyzing actual vs. expected results and thus monitoring the results of the consolidation.
- There are global accounting policies for the more complex financial statement positions of the group and a group chart of accounts for all other positions. Accounting policies are updated regularly and are implemented only after a thorough internal review and training.

INTERNAL MONITORING

As part of the ongoing monitoring, the chief financial officer is informed about all material misstatements and control breakdowns at group and business unit level on a quarterly basis in the executive summary to the financial statements. The reporting of deficiencies follows the principles of open and transparent communication. Follow-up is ensured through regular calls where corrective actions are presented.

Internal financial audit

ADVA maintains an internal audit function to regularly assess financial processes and systems.

Based on an annual risk assessment, the internal audit function develops an audit plan proposal for the upcoming year. The proposed plan is presented to, aligned with, and finally ratified by the audit committee. The internal audit function performs internal audit reviews throughout the year according to the audit plan. Audit results are discussed with responsible managers. In case of identified process or system weaknesses, the internal audit function makes recommendations and improvement actions are defined and agreed with the responsible manager(s). The progress of these and their success in removing the identified weaknesses is reviewed by the audit function. The state of internal auditing is reported quarterly to the audit committee and includes feedback about the progress of audits performed versus the audit plan, about the results of terminated audit reviews and about improvements resulting from actions taken.

Outlook

The year 2019 was overshadowed by much geopolitical and economic turmoil, which also had an impact on the network equipment industry. In particular, the trade conflicts between China and the USA influenced global supply and production chains, and the acceptance of the apparently overpowering technology group Huawei has deteriorated further in the western world. At the same time, the digitization of ecosystems continues and investments in a better and newer network infrastructure continue unabated. Industry analysts predict positive growth for several market segments in 2019. According to these estimates[7], the addressable market for ADVA has grown by around 6.2%.

[7] Industry analyst estimates for access, metro and long-haul WDM equipment ("optical") and access switching & routing ("packet edge") relevant to ADVA. Sources: Ovum, "optical networks forecast 2019-2024" published September 2019 and "service provider switching and routing forecast 2019-2024", published June 2019.

In 2019, the ADVA group successfully solidified its position in the market and from Q1 onward was able to grow revenues sequentially with increasing pro forma EBIT. The company's outlook for 2020 is positive.

The statements in this chapter apply to the ADVA group as well as to ADVA Optical Networking SE. Further details on the projected market environment up to the year 2024, as well as the resulting opportunities, can be found in the "General economic and market conditions" section and in the "Business overview" section.

In order to ensure sustainable corporate success, ADVA focuses on the following long-term strategic objectives:

Grow global revenues and profitability through extensive sales and marketing activities, focusing on large customers, new customer acquisition and the service and software business.

Expand the group's proven innovation leadership and increase market share by meeting strategic customers' demand for innovative connectivity solutions.

Maintain operational excellence by further focusing on industry-leading processes and best-in-class execution, ensuring product and service quality leadership, improved efficiency and increased overall customer satisfaction.

- Recruit, retain, motivate, educate and nurture the group's employees to sustainably achieve high levels of performance, personal growth and job satisfaction, while keeping employee turnover low.
- Looking back at 2019, ADVA made good progress in these strategic elements:
- 2019 revenues were 10.9% above the 2018 level and thus slightly above the expectations of the management board communicated in the group management report 2018. There, the board aimed for an increase in revenues in the high single-digit percentage range for 2019. In particular a strong Q4 lifted growth in the double-digit percentage range.
- In terms of sales, the company was able to report numerous successes. New customers were acquired in all regions and business with existing customers – especially the important large customers – developed very positively. However, a clear margin pressure was felt in almost all areas. The US tariffs for imports of Chinese products mentioned earlier disrupted the group's production and supply chains and led to relocation of production sites, and consequently an increase of production and transport costs as well as higher inventory levels. In addition, the strength of the US dollar against the euro was negative for the group's profitability. In response to this pressure on margins, operating costs were reduced in the second half of the year by reducing staff and discontinuing product lines. Positive effects came, as they had begun to in previous year, from the success of Oscilloquartz synchronization technology. Significantly higher revenues combined with very good profitability increased the contribution to the overall result.
- The group's pro forma operating result in 2019 of EUR 24.8 million, or 4.5% of sales, was EUR 1.5 million higher than the EUR 23.3 million reported in 2018. The management board's expectation in the 2018 annual report that the pro forma operating result would reach a mid-single digit level as a percentage of revenues was reached. At EUR 12.0 million, operating profit in 2019 was below the 15.0 million achieved in 2018. The decrease is attributable to extraordinary restructuring expense of EUR 5.7 million.

In terms of innovation leadership, ADVA scored well in all technology areas. The market for cloud access solutions is developing towards higher data rates and the new FSP 150-XG480 with its state-of-the-art 100Gbit/s aggregation technology offers an excellent feature set for the transition from 1Gbit/s to 10Gbit/s services. In addition, the number of customer wins in the area of network functions virtualization (NFV) increased significantly, so that after several years of high development expenditure, the starting signal for profitable sales contributions has now been given. In the market for optical transmission technology, the company successfully ramped the new FSP 3000 TeraFlex™ terminal. With data rates of up to 600Gbit/s per wavelength, the device has been commercially deployed in numerous customer networks. The Oscilloquartz product portfolio for high-precision network synchronization has been expanded in several areas to enable the smooth introduction of 5G, networks. For example, the company has launched the first modular multiband-capable Global Navigation Satellite System (GNSS) receiver for synchronization according to ePRTC and PRTC-B requirements. In connection with the mobile radio evolution, a disaggregated 5G network with edge computing and network slicing functions was also shown for the first time with industrial partners.

All of the technologies in which the group invests are strategically significant and valuable for advancing global digitalization. ADVA is well-positioned to help customers build and grow their network, capitalizing on the megatrends cloud and mobility, as well as new technology such as edge computing, artificial intelligence, and the internet of things.

In the area of operational processes, ADVA has selectively evolved the very good quality of its processes. The company's innovative, globally standardized process landscape and efficient IT infrastructure had already proven themselves in the acquisitions of 2016 and 2017. In 2019, challenges had to be overcome in the company's supply and production chains. In order to minimize the negative impact of US import duties on Chinese goods, production facilities had to be relocated, transport routes changed and inventories increased. Thanks to these measures, ADVA was able to reduce the effects of the trade conflict, but not completely eliminate them.

Net debt stood at EUR 61.1 million at the end of 2019 and increased significantly year-over-year by EUR 34.3 million. This increase is due to the first-time adoption of IFRS 16 and includes EUR 34.4 million lease liabilities that were not recognized in the 2018 financials. Excluding the effects of IFRS 16, net debt would have amounted to EUR 26.7 million. The expectation of the management board communicated in the group management report 2018 to improve net debt excluding IFRS 16 effects was not met. That was already communicated in the company's nine-month quarterly statement. This is mainly due to the already mentioned effects of the trade conflicts and the associated restructuring expenses and higher R&D investment.

As for customer satisfaction, ADVA uses the net promoter score metric to track progress. The company remained below the value of 52% from the previous year. This is largely due to specific quality problems in 2018, which had caused dissatisfaction but have been resolved since. With 44%, however, the high positive level of at least 40% targeted by the management board was again exceeded. Customer.guru (https://customer.guru/net-promoter-score) - a net promoter score survey and benchmarking tool - provides estimates for ADVA's peer group. According to this portal, ADVA's net promoter score is more than 5% higher than the best score in this peer group.

As expected, the high employee turnover observed in 2018, particularly in North America, was a temporary phenomenon related to the measures following the MRV acquisition in 2017. Thanks to a constructive work environment, extensive further training measures and attractive remuneration models, the group was once again able to generate a high level of motivation among its employees in 2019 and return to the low fluctuation rate that has historically been the norm.

Following the significant increase in revenues in the past financial year, the company is aiming to grow again in 2020. Furthermore, the profitability of the group, measured in terms of the pro forma operating result as a percentage of sales, should continue to increase. The following factors, which are also described in the section "Risk and opportunity report" under "Opportunities," will play a decisive role in this regard:

The megatrends cloud and mobility and the associated digitalization of ecosystem continue to drive the transformation of communication networks around the globe. The strategic importance of a reliable, global and highly available, secure communication infrastructure is growing, and the new build and expansion of fiber optic-based infrastructure will accelerate even further. Specialists in optical networking and transmission technology such as ADVA will benefit from this development.

In the access area of the network – especially driven by industrial use cases – new concepts for data processing, storage and transmission are emerging. Edge computing and the virtualization of network functions are changing the business models of network operators and enabling them to provide innovative and customer-optimized services globally. In addition to the FSP 150 product family, it is ADVA's Ensemble software solution that provides additional market differentiation. NFV is driving convergence in the markets for access solutions and expanding ADVA's addressable market. The group sees potential for numerous new customer wins and a higher proportion of software sales in this area.

Security in information technology is becoming increasingly important and more stringent data protection requirements are impacting on the cloud. The company expects a trend towards regionalization in the technical implementation of data centers and in the selection of the corresponding suppliers. ADVA is the leading European specialist in transmission technology and a reliable partner for thousands of companies. Its ConnectGuard™ security portfolio provides customers with comprehensive protection in different network scenarios and brings numerous competitive advantages. ADVA, as a European company with strong visibility and presence with data center and network operators worldwide, is well positioned in this field.

The strategic importance of synchronization technology continues to increase. The progressive expansion of mobile networks towards 5G create stricter requirements regarding time and frequency synchronization in networks. ADVA's Oscilloquartz product portfolio is industry-leading, winning numerous sync bid tenders in 2019. In addition, other industry verticals such es energy utilities and media companies are facing increasingly stringent requirements for precision timing and more accurate synchronization, opening new market opportunities for ADVA.

Industry consolidation has reduced the number of competitors in recent years and the globally dominant network equipment supplier Huawei has started to see political headwinds also outside the United States. As a consequence of the consolidation, ADVA's position and visibility in the market will continue to improve, and the company's profile as a European specialist and reliable partner for innovative network technology is now even sharper.

ADVA is very well-positioned to capitalize on the current and future transformation of networks. The global digitalization of ecosystems, the development and use of artificial intelligence and the internet of things continue to fuel the demand for scalable, secure and ecologically sustainable communication infrastructure. Special investment pressure prevails at the so-called network edge. The edge of the network involves concepts such as edge computing, and it is here there that densification of infrastructure is necessary for the fifth generation of mobile technology (5G). All three of ADVA's technology legs are strategically important in this environment, and the company's product portfolio has many differentiating features.

In addition to the group’s technological competence, it is also increasingly the personality profile of the company that generates positive market resonance. ADVA's brand promise to be a reliable partner for open network solutions, true to the company’s slogan "connecting, extending and assuring the cloud" positions ADVA as an attractive network supplier in key growth markets. The combination of application-optimized innovation, short development and delivery times, a broad and growing customer base and a balanced distribution model differentiates ADVA from comparable companies and leads to a profitable, sustainable business model.

It is currently difficult for ADVA to assess what impact the COVID-19 crisis in China will have on the 2020 financial year. The city of Wuhan is an important center for photonic components and subsystems, and the Chinese government's efforts to contain the crisis will lead to production delays in the global supply chain. It is expected that despite the healthy order backlog, some of the order fulfilment and revenue recognition will shift from Q1 2020 to later quarters. However, with the positive order entry and strong macro-environment, the management board is very confident of further increasing annual revenues and profitability compared to 2019.

Against the background of the above-mentioned factors and taking into account planning parameters such as personnel and currency exchange rates, the management board of the company expects increasing revenues to reach more than EUR 580 million for the year 2020. In addition, the management board is committed to continuing its stringent cost-management discipline and expects above-average growth for products with higher margins. Based on these assumptions, the management board expects pro forma operating profit to increase further and exceed 5% of revenues in 2020. Net debt at the end of 2019 according to IFRS 16 accounting standards was EUR 61.1 million. The aim of the company is to ensure rapid debt relief and consistent compliance with the defined objectives of capital management, which are described in Note (35) to the consolidated financial statements. For the financial year 2020, the management board expects a reduction of the company’s net debt in a single-digit percentage range.

The group will continue to selectively invest in product development, technology and revenue-generating opportunities. In addition, the management board expects, due to the continued focus on innovation, quality and service, that customer satisfaction measured by 2020's net promoter score will once again be at high positive levels of at least 40%. Actual results may differ materially from expectations if risks materialize or the underlying assumptions prove unrealistic. The major risks facing ADVA are discussed in the “Risk and opportunity report” section.

Meiningen, February 18, 2020

Brian Protiva	Christoph Glingener
Ulrich Dopfer	Scott St. John

ADVA OPTICAL NETWORKING SE, MEININGEN – FINANCIAL STATEMENTS FOR THE FINANCIAL YEAR JANUARY 1 TO DECEMBER 31, 2019

Balance sheet on December 31, 2019

(in thousands of EUR)	Note	2019	2019	2018
Assets				
A. Fixed Assets	3.1.1			
I. Intangible assets				
1. Self-constructed industrial and similar rights and assets, and licenses in such rights and assets	3.1.2	98,506		90,263
2. Purchased industrial and similar rights and assets, and licenses in such rights and assets	3.1.3	17,360		24,938
3. Goodwill		3		9
			115,869	**115,210**
II. Property, plant and equipment				
1. Land, land rights and buildings, including buildings on third-party land		4,916		4,359
2. Plant and machinery		6,846		5,593
3. Other equipment, furniture and fixtures		713		693
4. Payments on account and assets under construction		288		637
			12,763	**11,282**
III. Financial assets				
1. Shares in affiliated companies	3.1.4	27,629		28,162
2. Loans to affiliated companies	3.1.5	15,407		43,913
3. Investments	3.1.6	-		1,374
			43,036	**73,449**
B. Current Assets				
I. Inventories				
1. Raw materials, consumables and supplies		17,181		11,359
2. Work in process		1,410		1,471
3. Finished goods and merchandise		34,479		31,306
4. Payments on account		3,945		3,961
			57,015	**48,097**
II. Receivables and other assets				
1. Trade accounts receivable	3.1.7	38,077		44,894
2. Receivables from affiliated companies	3.1.8	27,700		28,729
3. Other current assets	3.1.9	3,900		1,490
			69,677	**75,113**
III. Cash at banks and in hand			**14,890**	**11,321**
C. Prepaid expenses			**1,994**	**1,058**
Total assets			**315,244**	**335,530**

Balance sheet on December 31, 2019

(in thousands of EUR)	Note	2019	2019	2018
Equity and liabilities				
A. Equity	3.1.10			
I. Subscribed capital		50,182		49,931
(Conditional capital EUR 4,742 thousand)				
(prior year: 4,778 thousand)				
II. Capital reserve		35,654		34,648
III. Retained earnings				
Other retained earnings		2,551		2,551
IV. Accumulated profit		41,492		47,839
			129,879	**134,969**
B. Provisions				
1. Provisions for pension and similar obligations	3.1.11	833		570
2. Tax provisions	3.1.12	85		-
3. Other provisions	3.1.13	11,771		14,598
			12,689	**15,168**
C. Liabilities	3.1.14			
1. Liabilities to banks		81,500		90,000
2. Advance payments received		110		65
3. Trade accounts payable		30,482		26,288
4. Liabilities to affiliated companies	3.1.8	35,922		44,426
5. Other liabilities		7,134		7,742
thereof for taxes		*878*		*1,139*
thereof for social security		*260*		*262*
			155,148	**168,521**
D. Deferred income			**6,504**	**7,461**
E. Deferred tax liabilities	3.1.15		**11,024**	**9,411**
Total equity and liabilities			**315,244**	**335,530**

Income statement for the period from January 1 to December 31, 2019

(in thousands of EUR)	Note	2019	2018
1. Revenues	3.2.1	359,304	325,484
2. Cost of goods sold	3.2.2/3.2.3	222,010	201,762
3. Gross profit		**137,294**	**123,722**
4. Selling and marketing expenses	3.2.3	38,641	32,252
5. General administrative expenses	3.2.3	15,220	14,719
6. Research and development expenses	3.1.2/3.2.3	91,820	91,587
7. Other operating income	3.2.4	7,605	10,392
thereof currency translation		*5,493*	*8,329*
8. Other operating expenses	3.2.5	5,971	9,772
thereof currency translation		*5,421*	*9,326*
9. Operating income (EBIT)		**-6,753**	**-14,216**
10. Income from investments		4,040	-
thereof from affiliated companies	3.2.6	*4,040*	-
11. Income from other securities and loans classified as financial assets		1.200	1,957
thereof from affiliated companies		*1.200*	*1,957*
12. Other interest and similar income		2	7
thereof interest income from discounting		-	*5*
13. Amortization from financial assets	3.2.7	1,907	-
14. Interest and similar expenses		968	1,287
thereof interest expenses from compounding		*73*	-
15. Tax expense (benefit) net	3.2.8	1,957	981
thereof deferred taxes		*1,613*	*433*
		410	**-304**
16. Result after taxes		**-6,343**	**-14,520**
17. Other tax expense (benefit), net		4	1
18. Net loss for the year		**-6,347**	**-14,521**
19. Profit carried forward		47,839	62,360
20. Accumulated profit		**41,492**	**47,839**

Notes to the financial statements 2019

1. Preparation of the annual financial statements

The annual financial statements of ADVA Optical Networking SE (hereinafter referred to as “the company”) for the financial year ended 2019 were prepared in accordance with the regulations of the German Commercial Code (Handelsgesetzbuch, HGB) as amended by the Accounting Conversion Directives (BilRUG) and the SE regulations in connection with the German Corporation Law (AktG). The classification of income and expenses in the income statement is based on their function within the company. For the sake of clarity, when disclosure options exist, the appropriate disclosures are provided in the notes to the financial statements.

2. General information on corrections, accounting policies & valuation and currency translation

2.1. Information about the company

The company is a Societas Europaea located in Märzenquelle 1-3, 98617 Meiningen, Germany and is registered at the district court Jena under HRB number 508155.

ADVA Optical Networking SE is classed as a large company in accordance with the Germany Commercial Code (HGB) § 267. The business year is equal to the calendar year. The financial statements for the year ended December 31, 2019, were authorized for issue in accordance with a resolution of the management board on February 18, 2020.

The company develops, manufactures and sells networking solutions for a modern telecommunication infrastructure. Its products are based on fiber-optic transmission technology combined with Ethernet functionality and intelligent software for network management and virtualization. Furthermore, the portfolio includes timing and synchronization solutions for networks.

Telecommunications service providers, private companies, universities and government agencies worldwide use the group’s systems. ADVA Optical Networking SE sells its product portfolio both directly and through an international network of distribution partners.

2.2. Accounting policies and valuation

2.2.1. Intangible and tangible assets

Intangible and tangible assets are recognized at acquisition or production costs, including incidental costs, less scheduled depreciation. Depreciation is based on a straight-line method pro rata temporis. Impairment charges are recognized in case of a permanent diminution in value.

Intangible assets with finite lives are amortized on a straight-line basis over the expected useful economic lives of the assets as follows:

- Goodwill — 4.5 years
- Capitalized development projects — 3 to 5 years
- Purchased technology — 4 to 7 years
- Software and other intangible assets — 3 to 7 years

Depreciation on property, plant and equipment is calculated over the estimated useful economic lives of the assets as follows:

- Buildings — 20 to 25 years
- Technical equipment and machinery — 3 to 4 years
- Factory and office equipment — 3 to 10 years

Low-value assets will not be fully expensed in the year of acquisition. The option to expense costs immediately will not be used. Self-constructed tangible assets are capitalized at production costs including appropriate material and production overhead costs. General administrative expenses are not included in the production costs. Investment subsidies are deducted from the acquisition or production costs.

2.2.2. Government grants

Government grants are recognized where there is reasonable assurance that the grant will be received and all the attached conditions will be met. When the grant relates to an expense item, it is recognized as income over the period necessary to match the grant on a systematic basis to the costs that it is intended to compensate. Where the grant relates to an asset, it is recognized as a reduction of purchase costs and released as a reduction of amortization expense over the expected useful economic life of the related asset.

2.2.3. Research and development projects

Development expenses for new products are capitalized at their acquisition and production costs if the production of these products is likely to generate economic benefit for ADVA.

Capitalized development expenses are included in the balance sheet position self-constructed industrial and similar rights and assets, and licenses in such rights and assets. In the event that the requirements for capitalization are not met the expenses are recognized in the income statement in the year they arise.

Capitalized development projects include all costs that can be directly assigned to the development process, including borrowing costs.

The straight-line method of amortization is used from the start of production through the estimated selling periods for the products developed (generally between three and five years).

Completed as well as ongoing development projects are tested for impairment on the balance sheet date or when there is an indication of potential impairment. Impairment losses are recognized if appropriate.

Research costs are expensed as incurred.

2.2.4. Financial assets

Shares in and loans to affiliated companies as well as investments are recognized at acquisition cost including transaction costs less impairment charges in case of a permanent diminution in value.

2.2.5. Inventories

Inventories are recognized at the lower of acquisition or production cost, including incidental costs and allowances, or at the market value or fair value. The cost of purchase is determined by the average method. Production costs include material costs, direct manufacturing costs, depreciation on production-related assets and necessary manufacturing overhead costs. General administrative expenses and interest expenses are not included in production costs.

2.2.6. Accounts receivable and other assets

Accounts receivable and other assets are in accordance with the strict lowest value principle and stated at nominal value, taking into consideration appropriate value adjustments for all identifiable risks.

The bad debt allowance is calculated in accordance with the International Financial Reporting Standard (IFRS) 9. The relative default risk of the receivables from the payment history of the last three years is taken into account.

2.2.7. Cash and cash equivalents

Cash and cash equivalents are stated at nominal value.

2.2.8. Prepaid expenses

Prepaid expenses include payments recorded in the current reporting period that are related to a defined period after the balance sheet date.

2.2.9. Subscribed capital

Subscribed capital is recognized at nominal value.

2.2.10. Pensions and similar obligations

Pensions and similar obligations are actuarially measured using the projected unit credit method. Future obligations are measured and discounted at the net present value based on proportionately acquired pension rights known at the reporting date. Specified parameters for the future development are considered and affect the measurement of future benefits.

2.2.11. Taxes

Current income tax assets and liabilities for the current and prior periods are measured at the amount expected to be recovered from or paid to the taxation authorities. The tax rates and tax laws used to compute the amount are those that are enacted or substantively enacted on the balance sheet date.

2.2.12. Provisions

Provisions are made for all identifiable risks to an adequate extent considering the principles of commercial prudence and are recognized at the settlement amount. Other provisions with a remaining term of more than one year are discounted using the average rate of the last seven years.

2.2.13. Liabilities

Liabilities are stated at the settlement amount. The settlement amount of loans is the nominal value.

2.2.14. Deferred income

Deferred income is recognized for receipts reported in the current period as far as they represent income for a defined period after the reporting date.

2.2.15. Deferred tax

Deferred tax is provided using the liability method on temporary differences on the balance sheet date between the tax bases of assets and liabilities and their carrying amounts for financial reporting purposes.

Deferred tax liabilities are recognized for all taxable temporary differences.

Deferred tax assets are recognized for all deductible temporary differences as well as for tax losses carried forward to the extent that it is probable that taxable profit will be available against which the deductible temporary differences respectively tax losses carried forward can be utilized.

The carrying amount of deferred tax assets is reviewed on each balance sheet date and reduced to the extent that it is no longer probable that sufficient taxable profit will be available to allow the deferred tax asset to be utilized.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply to the year when the asset is realized or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted on the balance sheet date. Future changes in tax rates are recognized on the balance sheet date if their impact is materially certain as part of the tax legislation process.

Deferred tax assets and deferred tax liabilities are offset in the balance sheet.

2.2.16. Derivative financial instruments

Common instruments like forward contracts options are used to protect against changes in interest rates and foreign currency rates.

A provision is recognized for pending loss transactions.

No financial instruments qualify for hedge accounting in the sense of § 254 HGB.

2.3. Currency translation

Conversion into euro of fixed asset purchases is made at the exchange rate on the date of purchase. Accounts receivable, other assets and liabilities are converted at the spot exchange rate on the balance sheet date.

Gains and losses on currency translation are recorded in the income statement as other operating income and expenses.

The foreign exchange rates are:

	Spot rate on Dec. 31., 2019
USD	1.11890
GBP	0.85208
CHF	1.08710
PLN	4.25670
ILS	3.87490
CNY	7.81750
SGD	1.50880
HKD	8.71330
INR	79.81200
BRL	4.51280
JPY	122.19000
SEK	10.44000
AUD	1.59920

2.4. Revenues

Sale of goods

Revenue from the sale of goods is recognized when the significant risks and rewards of ownership of the goods have passed to the buyer, usually on delivery of the goods.

Product returns are estimated according to contractual obligations and past experiences and are recognized as a reduction of revenues.

Rendering of services

Revenues arising from the sale of services primarily derive from maintenance, installation services and training and are recognized when those services have been rendered. Installation services are recognized as revenue if the final installation has been approved by the customer. Generally, maintenance services are reported as deferred revenue and recognized as revenue straight-line over the contract period. Training is recognized as revenue immediately after supply of the service.

In arrangements with customers that include delivery of goods as well as rendering of services, the shipment of the goods is separated from the rendering of the services if the goods have a stand-alone value for the customer and the fair value of the service can be reliably determined. Both components of the transaction are measured at their proportionate fair value.

Discounts and rebates are deducted from revenues.

Revenues for licenses

Revenues for licenses relate to payments for the usage of intellectual property rights recorded at the time they are incurred.

2.5. Cost of goods sold

Cost of goods sold comprises the costs incurred in the production and rendering of services. This item subsumes both the direct cost of materials and production directly assignable to a product and indirect (overhead) costs, including the depreciation of production equipment, amortization of production-related intangible assets and write-downs on inventories. Cost of goods sold also includes changes to the warranty provision. Income from the reversal of write-downs on inventories reduces the cost of goods sold, which also includes amortization of purchased technologies and amortization of capitalized research and development projects.

License payments to ADVA Optical Networking group companies relate to usage of intellectual property rights and are recognized in selling and marketing expenses.

3. Notes and information on selected items of the annual financial Statements

3.1. Balance sheet

3.1.1. Fixed assets

The development of fixed assets from January 1 to December 31, 2019, is disclosed in the following schedule:

(in thousands of EUR)	Accumulated Historic cost					Accumulated depreciation				Net book values	
	Jan. 1, 2019	Additions	Disposals/ retirements	Reclassi- fications	Dec. 31, 2019	Jan. 1, 2019	Additions*	Disposals/ retirements	Dec. 31, 2019	Dec. 31, 2019	Dec. 31, 2018
I. Intangible assets											
1. Self-constructed industrial and similar rights and assets, and licenses in such rights and assets	237,964	42,443**	57,092	-	223,315	147,701	33,484	56,376	124,809	98,506	90,263
2. Purchased industrial and similar rights and assets, and licenses in such rights and assets	60,503	957	-	194	61,654	35,565	8,729	-	44,294	17,360	24,938
3. Goodwill	284	-	-	-	284	275	6	-	281	3	9
	298,751	**43,400**	**57,092**	**194**	**285,253**	**183,541**	**42,219**	**56,376**	**169,384**	**115,869**	**115,210**
II. Property, plant and equipment											
1. Land, land rights and buildings including buildings on third-party land	10,137	656	-	349	11,142	5,778	448	-	6,226	4,916	4,359
2. Plant and machinery	40,568	4,330	5,266	93	39,725	34,975	2,993	5,089	32,879	6,846	5,593
3. Other equipment, furniture and fixtures	6,434	411	1,105	-	5,740	5,741	388	1,102	5,027	713	693
4. Payments on account and assets under construction	637	287	-	-636	288	-	-	-	-	288	637
	57,776	**5,684**	**6,371**	**-194**	**56,895**	**46,494**	**3,829**	**6,191**	**44,132**	**12,763**	**11,282**
III. Financial assets											
1. Shares in affiliated companies	28,162	-	-	-	28,162	-	533	-	533	27,629	28,162
2. Loans to affiliated companies	49,999	2,349***	30,855***	-	21,493	6,086	-	-	6,086	15,407	43,913
3. Investments	1,374	-	-	-	1,374	-	1,374	-	1,374	-	1,374
	79,535	**2,349**	**30,855**	**-**	**51,029**	**6,086**	**1,907**	**-**	**7,993**	**43,036**	**73,449**
Total	**436,062**	**51,433**	**94,318**	**-**	**393,177**	**236,121**	**47,955**	**62,567**	**221,509**	**171,668**	**199,941**

*Thereof depreciation of additions EUR 8,148 thousand in period 2019

**In 2019, borrowing costs of EUR 437 thousand (2018: EUR 359 thousand) related to development projects with an expected duration of more than twelf months were capitalized. Borrowing costs were capitalized applying the weighted average rate of the financial liabilities of 1.7%

***Thereof EUR 2,349 thousand of additions and EUR 188 thousand of disposals from foreign currency valuation of loans issued in USD and ILS

3.1.2. Self-constructed industrial and similar rights and assets, and licenses in such rights and assets

Research and development expenses for the financial years as well as capitalized development projects are included in the table below:

(in thousands of EUR)	2019	2018
Research expenses	2,942	2,442
Development expenses	131,321	121,017
Research & Development expenses	134,263	123,459
Thereof capitalized development projects	-42,443	-31,872
Total research & development expenses in the income statement	**91,820**	**91,587**

3.1.3. Purchased industrial and similar rights and assets, and licenses in such rights and assets

Net book values of purchased industrial and similar rights and assets and licenses in such rights and assets can be analyzed as follows:

(in thousands of EUR)	Dec. 31, 2019	Dec. 31, 2018
Purchased technology Oscilloquartz	-	619
Purchased technology FiSEC	121	412
Purchased hardware technology Overture	88	1,145
Purchased software technology Overture	1,443	2,135
Purchased technology Ringo	444	1,333
Purchased technology Acacia	169	506
Brand Ensemble	43	85
Purchased technology MRV Israel	5,342	6,393
Customer Relationship MRV	7,378	8,811
Other Software licenses	2,332	3,499
Total	**17,360**	**24,938**

3.1.4. Shares in affiliated companies

On December 31, 2019, ADVA Optical Networking SE held directly or indirectly shares in 24 (December 31, 2018: 23) affiliated companies as follows:

(in thousands)			Equity	Net income/loss (-)	Share in Equity owned directly	Share in Equity owned indirectly
ADVA Optical Networking North America Inc. Norcross/Atlanta (Georgia), USA	USD	*	133,832	12,624	-	100%
ADVA Optical Networking Ltd. York, United Kingdom	GBP	**	13,487	-392	100%	-
Oscilloquartz SA Saint-Blaise, Switzerland	CHF	*	2,991	-8	100%	-
ADVA Optical Networking sp. z o.o. Gdynia, Poland	PLN	**	30,425	2,754	100%	-
ADVA Optical Networking Israel Ltd. Ra'anana/Tel Aviv, Israel	ILS	*	-92,265	643	100%	-
ADVA Optical Networking (Shenzhen) Ltd. Shenzhen, China	CNY	**	60,019	5,670	100%	-
Oscilloquartz Finland Oy Espoo, Finland	EUR	*	104	24	100%	-
ADVA IT Solutions Pvt. Ltd. Bangalore, India	INR	*	66,805	-	-	100%
ADVA Optical Networking Trading (Shenzhen) Ltd. Shenzhen, China	USD	*	1,272	116	-	100%
ADVA Optical Networking Singapore Pte. Ltd. Singapore	SGD	**	3,719	279	100%	-
ADVA Optical Networking Hongkong Ltd. Hongkong, China	HKD	**	5,204	813	-	100%
ADVA Optical Networking (India) Private Ltd. Gurgaon, India	INR	*	136,694	37,260	1%	99%
ADVA Optical Networking Serviços Brazil Ltda. São Paulo, Brazil	BRL	*	1,867	208	99%	1%
ADVA Optical Networking Corp. Tokyo, Japan	JPY	*	86,881	2,896	100%	-
ADVA Optical Networking AB Kista/Stockholm, Sweden	SEK	**	2,066	164	100%	-
ADVA NA Holdings Inc. Norcross/Atlanta (Georgia), USA	USD	*	60,716	-1	100%	-
ADVA Optical Networking Pty Ltd. Sydney, (New South Wales), Australia	AUD	*	1,529	160	-	100%
MRV Communications GmbH i.l., Darmstadt, Germany	EUR	****	-	-3		100%
ADVA Optical Networking B.V. Etten-Leur, Netherlands	EUR	*	253	15	100%	-
Charlotte's Web Ltd. Israel	USD	*	-	-	-	100%
NBase Communications Ltd. Israel	USD	*	10,254	-6,666	-	100%
Jolt Ltd. Israel	USD	*	-	-	-	100%
NBase Fibronics Ltd. Israel	USD	*	-1,134	2,612	-	100%
ADVA Canada Inc., Ottawa, Canada	CAD	***	0	n/a	-	100%

* Prepared in accordance with the International Financial Reporting Standards (IFRS) for the period ended December 31, 2019
** Prepared in accordance with local commercial law for the period ended December 31, 2018
*** The entity was legally incorporated in 2019 and will start its operating activities in 2020. The paid-up share capital amounts to CAD 1
**** Liquidation balance sheet as of September 18, 2019

3.1.5. Loans to affiliated companies

Loans to affiliated companies are due within one to five years.

The loans to affiliated companies can be analyzed as follows:

(in thousands of EUR)	2019	2018
ADVA Optical Networking Israel Ltd. Ra'anana, Israel	3,484	4,521
ADVA Optical Networking North America Inc. Norcross/Atlanta (Georgia), USA	11,923	39,042
Oscilloquartz Finland Oy Espoo, Finland	-	350
Total	**15,407**	**43,913**

3.1.6. Investments

On December 31, 2019, ADVA Optical Networking SE held 7.1% (prior year: 7.1%) of the shares of Saguna Networks Ltd., Nesher, Israel. In 2019, the investment of 7.1% in the shares of Saguna Networks Ltd. Nesher, Israel, held by ADVA Optical Networking SE has been fully impaired as ADVA does not expect the investment to be recoverable.

ADVA Optical Networking SE does not have significant influence over Saguna Networks Ltd.

3.1.7. Trade accounts receivable

Trade accounts receivable are non-interest-bearing and are due within 30 to 120 days, in general. For specific projects, other payment terms may be agreed.

Trade accounts receivable are due within one year.

Customer credit notes for volume discounts and similar reasons are offset from trade receivables if offsetting is mandatory.

In the current financial year the company entered into a factoring agreement. The agreement entitles the company to transfer trade receivables from a specific customer. In 2019, factored receivables totaled EUR 3,865 thousand (previous year: EUR 0 thousand). The interest expenses associated with this agreement amounts to EUR 2 thousand in 2019 (prior year: EUR 0 thousand).

3.1.8. Receivables from and liabilities to affiliated companies

Receivables from affiliated companies include trade receivables for goods and services of EUR 27,700 thousand (prior year: EUR 28,729 thousand). Accounts receivables from affiliated companies are due within one year.

Liabilities to affiliated companies include trade payables for goods and services of EUR 35,922 thousand (prior year: EUR 44,426 thousand). These payables are due within one year.

3.1.9. Other current assets

Other current assets recognized on the balance sheet are due within one year, with the exception of EUR 228 thousand (prior year: EUR 332 thousand) for rental deposits which are due within five years.

3.1.10. Equity

Common stock and share capital

On December 31, 2019, ADVA Optical Networking SE had issued 50,181,966 (prior year: 49,930,955) no par value bearer shares (hereinafter “common shares”), each representing a notional amount of share capital of EUR 1.00.

The common shares entitle the holder to vote at the annual general meeting and to receive dividends in case of a distribution. No restrictions are attached to the common shares.

Capital transactions

In connection with the exercise of stock options, 251,011 shares were issued to employees of the company and its affiliates out of conditional capital in 2019 (prior year: 195,406 shares). The par value of EUR 251 thousand (prior year: EUR 195 thousand) was appropriated to share capital, whereas the premium resulting from the exercise of stock options of EUR 1,006 thousand (prior year: EUR 615 thousand) was recognized within capital reserve.

Authorized capital

According to the company's articles of association, the management board is authorized, subject to the consent of the supervisory board, to increase subscribed capital until May 21, 2024, only once or in successive tranches by a maximum of EUR 24,965 thousand by issuing new common shares in return for cash or non-cash contributions (conditional capital 2019/I). Subject to the consent of the supervisory board, the management board is further authorized to decide whether to exclude stockholders' subscription rights. Stockholders' subscription rights can be excluded for capital increases for cash contributions as well as contributions in kind if during the term of this authorization and in exclusion of shareholder subscription rights, the shares issued against contributions in cash or in kind do not exceed 20% of the share capital.

Conditional capital
The annual shareholder's meeting on May 22, 2019, resolved the increase of conditional capital 2011/I by EUR 215 thousand to EUR 4,993 thousand. The resolution was registered in the commercial register on June 6, 2019.

Considering the above-described capital transactions, the total conditional capital on December 31, 2019, amounts to EUR 4,742 thousand.

The changes in share capital, authorized and conditional capital are summarized below:

(in thousands of EUR)	Share capital	Authorized capital 2015/I	Conditional capital 2019/I	Conditional capital 2011/I
Jan. 1, 2019	**49,931**	**24,048**	**-**	**4,778**
Changes due to annual shareholder's meeting resolutions	-	**-24,048**	24.965	215
Stock options exercised	251	-	-	-251
Dec. 31, 2019	**50,182**	**-**	**24,965**	**4,742**

Capital reserve
The capital reserve includes premium payments from the issuance of shares, as well as additional contributions to the company's equity associated with the exercise of stock options.

In total, 3,301,567 stock options were outstanding per December 31, 2019.

Premiums from outstanding stock options are not recognized in the capital reserve.

Retained earnings
As part of the first-time application of BilMoG, the deferred taxes resulting from the revaluation effects on January 1, 2010, amounting to EUR 2,551 thousand were recorded in other retained earnings.

Balance sheet profit
The balance sheet was prepared in consideration of the complete profit appropriation. The accumulated profit carried forward of EUR 47,839 thousand (prior year: EUR 62,360 thousand) and the net loss for 2019 of EUR 6,347 thousand (prior year: net loss EUR 14,521 thousand) resulted in an accumulated profit of EUR 41,492 thousand (prior year: EUR 47,839 thousand) on December 31, 2019. The accumulated profit is to be carried forward in full to new account.

Restriction of dividend distribution
Profits from the capitalization of development projects less deferred tax liabilities as well as changes in interest rates applied to discount pension provisions are blocked for dividend distribution.

The following amounts are blocked:

(in thousands of EUR)	2019	2018
Net of capitalized development projects and its deferred tax liabilities	70,057	64,474
Change of the average interest rate from pension provisions*	67	70
Total profits blocked for dividend distribution	**70,124**	**64,544**

* Pursuant to the HGB, the valuation of pension obligations changed from seven to ten years according to the first sentences of Article 75 (6) EGHGB n.F. in conjunction with the first sentences of Article 253 (2) HGB n.F.

Voting rights

According to section 33 paragraph 1 and 2, section 38 paragraph 1 and section 40 of the German Securities Trading Law (Wertpapier-Handelsgesetz, WpHG), the company published the following information on the ADVA Optical Networking homepage in 2019:

Date of change in investment	Name of investment owner	Threshold limit	Share of voting rights
Oct. 24, 2019	DNB Asset Management S.A., Luxembourg, Luxembourg	above 3%	3.04%
Sep. 25, 2019	Morgan Stanley, Wilmington, Delaware, USA	below 3%	0.06%
Sep. 23, 2019	Duke University, Durham, North Carolina, USA	below 3%	0.00%
Sep. 23, 2019	Teleios Capital Partners LLC, Zug, Switzerland	above 20%	22.36%
Jul. 30, 2019	DNB Asset Management AS, Oslo, Norway	above 5%	5.02%
Jan. 17, 2019	Internationale Kapitalanlagegesellschaft mit beschränkter Haftung, Düsseldorf, Germany	below 3%	2.86%
Nov. 30, 2017	EGORA Holding GmbH, Planegg, Germany	below 15%	14.99%
Jul. 28, 2017	The Goldman Sachs Group, Inc., New York, USA	above 3%	4.39%
May 23, 2017	Dimensional Holdings Inc., Oviedo, USA	above 3%	3.01%
May 2, 2017	Ministry of Finance on behalf of the State of Norway, Oslo, Norway	above 3%	3.19%
Feb. 20, 2017	Deutsche Asset Management Investment GmbH, Frankfurt, Germany	below 3%	2.95%

3.1.11. Provisions for pensions and similar obligations

The provision for pensions and similar obligations relate to termination benefit payments due to employees of the Italian branch office and are required due to local statutory regulations (Trattamento di fine rapporta, appr. TFR). This pension entitlement is comparable to a deferred compensation scheme and is based on the level of income and the number of service years. The annual contribution is 7.4% of the employees' annual salary. The accrued sum yields an interest of 1.5% plus 75% of the local inflation rate. The calculation is based on the interest rate resulting from an assumed remaining term of 15 years. For each eligible employee, the annual pro-rate entitlement is accrued during his service time.

At termination of the employment, the employee is entitled to receive the accrued sum. This applies in case of reaching the retirement age of currently 63 years as well as in case of early termination of the employment contract. Early payment of certain parts of the accrued sum is possible in case of specified conditions. In the event of death, payment of the accrued sum is made to the dependants.

Similar to the defined benefit pension plans according to International Financial Reporting Standards (IFRS/IAS 19,) the present value of the pension obligation is calculated applying the projected unit credit method (PUC method). The pension obligation is unfunded and has to be considered as direct commitment to the entitled employees.

The following parameters were applied to calculate the present value of the entitlement:

(in %)	Dec. 31, 2019	Dec. 31, 2018
Discount rate	2.59	3.25
Salary level trend	2.00	2.00
Fluctuation	0.00	0.00

The biometric assumptions essential for the measurement of the pension obligations are RG 48 for life expectation and INPS FPDL Credito for invalidity.

The change in the present value of the pension obligation can be derived as follows:

(in thousands of EUR)	2019	2018
Present value of the obligation on Jan. 1	**570**	**519**
Interest expense	19	19
Current service cost	56	59
Disbursements to employees	-36	-
Losses arising from changes in financial assumptions	54	-23
Other changes	170	-4
Present value of the obligation on Dec. 31	**833**	**570**

Changes in financial assumptions relate to the assumed discount rate and are included in interest and similar expenses. Due to the longer than expected sustained low interest rate environment, the average interest rate applicable for the valuation of pension obligations changed from seven to ten years according to the first sentences of Article 75 (6) EGHGB n.F. in conjunction with the first sentences of Article 253 (2) HGB n.F. since March 11, 2016. As a result, a difference of EUR 67 thousand (prior year: EUR 70 thousand) was calculated in the current year. This difference will not be recorded and is blocked for dividend distribution. Other changes mainly relate to changes in salaries and are reported as personnel expenses.

No provisions are included for indirect pension obligations to employees of the Swiss branch office. The deficit from unrecognized pension obligations according to article 28 section 2 EGHGB amounts to EUR 264 thousand.

3.1.12. Tax provisions

Tax provisions of EUR 85 thousand (prior year: EUR 0 thousand) include expected tax payments due to fiscal authorities applying current tax rates and tax legislations.

3.1.13. Other provisions

On financial year end, other provisions can be analyzed as follows:

(in thousands of EUR)	2019	2018
Personnel provisions	1,877	1,311
Invoices not yet received	5,849	9,118
Provision for tax audit	156	274
Vacation provisions	472	570
Warranty provisions	2,793	3,085
Derivative	336	-
Audit fees	288	240
Total	**11,771**	**14,598**

3.1.14. Liabilities

The maturity of the liabilities can be analyzed as follows:

(in thousands of EUR) on December 31, 2019	Total	Maturity within one year	more than one year	thereof between one and five years	thereof more than five years
Liabilities to banks	81,500	19,221	62,279	62,279	-
Advance payments received	110	110	-	-	-
Trade accounts payable	30,482	30,482	-	-	-
Payables to affiliated companies	35,922	35,922	-	-	-
Other liabilities	7,134	7,134	-	-	-
thereof taxes	*878*	*878*	-	-	-
thereof social security	*260*	*260*	-	-	-
Total liabilities	**155,148**	**92,869**	**62,279**	**62,279**	-

(in thousands of EUR) on December 31, 2018	Total	Maturity within one year	more than one year	thereof between one and five years	thereof more than five years
Liabilities to banks	90,000	19,400	70,600	70,600	-
Advance payments received	65	65	-	-	-
Trade accounts payable	26,288	26,288	-	-	-
Payables to affiliated companies	44,426	44,426	-	-	-
Other liabilities	7,742	7,672	70	70	-
thereof taxes	*1,139*	*1,139*	-	-	-
thereof social security	*262*	*262*	-	-	-
Total liabilities	**168,521**	**97,851**	**70,670**	**70,670**	**-**

On December 31, 2019, other liabilities mainly include EUR 4,081 thousand (prior year: EUR 4,167 thousand) for bonus payments due to employees and management board, EUR 878 thousand (prior year: EUR 1,139 thousand) for withholding taxes, EUR 562 thousand (prior year: EUR 503 thousand) for IP license fees and EUR 704 thousand (prior year: other current assets EUR 485 thousand) for research and development subsidies projects.

3.1.15. Deferred taxes

Deferred taxes are recognized based on the liability method on temporary differences at the balance sheet date between the tax bases of assets and liabilities and their carrying amounts for financial reporting purposes. When calculating deferred taxes, a combined tax rate of 28.88% was applied.

Balance sheet position	Deferred tax category
Self-constructed industrial and similar rights and assets, and licenses in such rights and assets	Liability
Goodwill	Asset
Disagio	Asset
Purchased industrial and similar rights and assets, and licenses in such rights and assets	Asset
Inventories	Liability
Loans to affiliated companies	Liability
Provisions	Asset
Trade accounts payable and liabilities to affiliated companies	Liability
Trade accounts receivables and receivables to affiliated companies	Asset

The corporate income tax loss carry forward on December 31, 2019, amounts to EUR 184,175 thousand (prior year: EUR 165,090 thousand) and the trade income tax loss carry forward amounts to EUR 176,829 thousand (prior year: EUR 158,709 thousand).

Above-listed temporary differences return a surplus of liabilities. Considering the minimum taxation rules according to Article 10 d(2) of the German Income Tax Act (EStG), the company recognized deferred tax assets of EUR 17,980 thousand (prior year: EUR 15,545 thousand) on tax losses of EUR 62,258 thousand (prior year: EUR 54,410 thousand) which can be carried forward indefinitely.

Total deferred tax assets amount to EUR 19,954 thousand (prior year: EUR 17,929 thousand) and are offset against deferred tax liabilities of EUR 30,978 thousand (prior year: EUR 27,340 thousand).

As a result, the company recognized a deferred tax liability in the amount of EUR 11,024 thousand (prior year: EUR 9,411 thousand).

(in thousands of EUR)	2019	2018
Deferred tax assets	19,954	17,929
Deferred tax liabilities	30,978	27,340

3.2. Income statement

3.2.1. Revenues

In 2019 and 2018, revenues included EUR 29,842 thousand and EUR 24,093 thousand for services, respectively. The remaining revenues relate mainly to product sales.

Revenues by region, classified according to shipment destination, are as follows:

(in thousands of EUR)	2019	2018
Germany	101,618	110,966
Rest of Europe, Middle East and Africa	144,239	103,932
Americas	77,299	66,316
Asia-Pacific	36,148	44,270
Total	**359,304**	**325,484**

3.2.2. Material expenses

Cost of goods sold includes the material expenses of the company, classified pursuant to section 275 paragraph 2, number 5 HGB. Material expenses totaled EUR 169,075 thousand in the financial year 2019 (prior year: EUR 146,910 thousand). Therefore, EUR 166,697 thousand (prior year: EUR 144,964 thousand) relate to expenses for raw materials and supplies and EUR 2,378 thousand (prior year: EUR 1,946 thousand) to costs of services.

3.2.3. Personnel expenses

The company applies the cost of sale method, therefore personnel expenses are distributed according to the functional areas in cost of goods sold, selling and marketing, general and administrative as well as research and development expenses. In 2019, personnel expenses of the company, classified pursuant to section 275 paragraph 2 number 6 HGB, amounted to EUR 50,044 thousand (prior year: EUR 46,783 thousand). Thereof EUR 42,977 thousand (prior year: EUR 40,078 thousand) were related to salaries and wages and EUR 7,067 thousand (prior year: EUR 6,705 thousand) were related to costs for social security. For pension plans, EUR 205 thousand (prior year: EUR 83 thousand) were recognized in 2019.

3.2.4. Other operating income

Other operating income can be analyzed as follows:

(in thousands of EUR)	2019	2018
Income from currency translation	5,493	8,329
Grants received for research projects	775	1,614
Other	1,337	449
Other operating income	**7,605**	**10,392**

Other operating income includes income from other accounting periods and can be analyzed as follows:

(in thousands of EUR)	2019	2018
Income from release of provisions	683	247
Income from release of liabilities	331	88
Income from release of specific provisions for trade receivables	28	-
Others	117	-
Income for other accounting periods	**1,159**	**335**

3.2.5. Other operating expenses

Other operating expenses can be analyzed as follows

(in thousands of EUR)	2019	2018
Expenses from currency translations	5,421	9,326
Other*	550	446
Other operating expenses	**5,971**	**9,772**

*This included expenses for other accounting periods with an amount of EUR 110 thousand in 2019 (prior year: EUR 400 thousand).

3.2.6. Income from investments

The income from investments with an amount of EUR 4,040 thousand (prior year: EUR 0 thousand) result from a dividend distribution of Oscilloquartz SA (Saint-Blaise, Switzerland).

3.2.7. Amortization from financial assets

Certain Financial Assets have been deemed unrecognizable and have been impaired as follows:

(in thousands of EUR)	2019	2018
Impairment of financial assets of affiliated companies	533	-
Impairment of financial assets of companies with participating interests	1,374	-
Amortization from financial assets	**1,907**	**-**

3.2.8. Income taxes

The company's income tax comprises corporate income tax (Körperschaftssteuer), solidarity surcharge (Solidaritätszuschlag) and trade income tax (Gewerbesteuer). The tax result also includes foreign income taxes for the company's permanent establishments.

A reconciliation of income taxes based on the accounting profit and the expected domestic income tax rate of 28.88% (prior year: 28.57%) to effective income tax expense (benefit), net, is presented below:

(in thousands of EUR)	**2019**	**2018**
Result before income tax	**-4,390**	**-13,539**
Expected statutory taxes	**-1,268**	**-3,869**
Taxes from prior years	-113	401
Tax-effects from unrecognized tax loss carry-forwards	3,143	3,914
Adjustments of deferred taxes from prior years	-	347
Non-deductible expenses and tax-free income	19	48
Tax-free income from dividends	-1,167	-
Permanent deviations from the balance sheet comparison	681	-
Foreign tax expense	457	147
Effect form trade tax additions	135	154
Effect form trade tax reduction	-9	-187
Change in deferred taxes due to tax rate change	79	12
Other differences	-	14
Recognized income taxes	**1,957**	**981**
Effective tax rate	**-44.5%**	**-7.2%**

Income taxes include deferred taxes in the amount of EUR 1,613 thousand (prior year: EUR 433 thousand).

4. Other information

4.1. Other financial obligations and contingent liabilities

Other financial obligations can be analyzed as follows:

(in thousands of EUR)	Total	Maturity within one year	more than one year	thereof between one and five years	thereof more than five years
Obligations from rent agreements	1,934	692	1,242	1,242	-
Obligations from car leasing agreements	1,410	730	680	680	-
Purchase agreements	29,964	29,935	29	29	-
Other	2,488	1,244	1,244	1,244	-
Total	**35,796**	**32,601**	**3,195**	**3,195**	**-**

The company granted an irrevocable guarantee of GBP 1,500 thousand (EUR 1,760 thousand) for liabilities of ADVA Optical Networking Ltd., York, United Kingdom, another guarantee of EUR 2,184 thousand for liabilities of ADVA Optical Networking (India) Private Ltd., Gurgaon, India, a guarantee of SGD 1,000 thousand (EUR 663 thousand) for liabilities of ADVA Optical Networking Singapore Pte. Ltd., Singapore, and a guarantee of CHF 1,000 thousand (EUR 920 thousand) for liabilities of Oscilloquartz SA, Saint-Blaise, Switzerland.

The use of these guarantees is unlikely, as all subsidiaries are controlled 100% by ADVA Optical Networking SE and appropriate countermeasures can be taken at an earlier stage.

4.2. Derivative financial instruments

Forward rate agreements

To hedge the foreign exchange risk on future cash flows, the company entered into forward exchange contracts that mature in the first quarter of 2020. In 2019, unrealized losses for these foreign currency hedges amounted to EUR 336 thousand.

In prior periods, the Company entered into forward exchange contracts maturing in 2019. A net gain of EUR 49 thousand was realized on these transactions.

Declaration about fair value

The fair value and nominal value of these financial instruments on December 31 are as follows:

(in thousands of EUR)	Fair value 2019	Fair value 2018	Nominal value 2019	Nominal value 2018
Forward rate agreements	-336	108	14,591	8,786

The nominal value is the accounting value from which payments are derived (underlying transaction). Since the nominal value itself is not at risk, it is the potential for changes in foreign exchange rates, interest rates and prices that is hedged.

The fair value reflects the credit risk of the instrument. Since the company only uses standard instruments for its hedges, the fair value is determined using market prices and is not netted against any contrary trend in the value of underlying transactions.

4.3. Corporate bodies of ADVA Optical Networking SE

4.3.1. Management board

	Resident in	External Mandates
Brian Protiva Chief executive officer	Berg, Germany	Member of the board of directors of AMS Technologies AG, Martinsried, Germany
Christoph Glingener Chief technology officer and chief operating officer	Jade, Germany	Member of the board of trustees of Fraunhofer Heinrich-Hertz-Institute, Berlin, Germany
Ulrich Dopfer Chief financial officer	Alpharetta Georgia, USA	-
Scott St. John Chief marketing and sales officer	Raleigh North Carolina, USA	-

4.3.2. Supervisory board

	Resident in	Occupation	External mandates
Nikos Theodosopoulos Chairman	Manhasset New York, USA	Founder and managing member, NT Advisors LLC, Manhasset, New York, USA	Member of the board of directors of Arista Networks, Inc., Santa Clara, CA, USA Member of the advisory board of Columbia Engineering Entrepreneurship, New York, NY, USA Member of the board of directors of Harmonic, Inc., San Jose, CA, USA Board member of Driving Management Systems, Inc., Colorado Springs, CO, USA
Johanna Hey Vice chairwoman	Cologne, Germany	Professor for tax law, University of Cologne, Cologne, Germany	Director of the Institut Finanzen und Steuern e.V., Berlin, Germany Member of the supervisory board of Gothaer Versicherungsbank VVaG, Cologne, Germany Member of the supervisory board of Gothaer Finanzholding AG, Cologne, Germany Member of the supervisory board of Cologne Executive School GmbH, Cologne, Germany Member of the supervisory board of Flossbach von Storch AG, Cologne, Germany
Michael Aquino	Peachtree City, Georgia, USA	Consultant	-

4.4. Compensation of the management board

In 2019 and 2018, the management board of the company consisted of the members stated below. Ulrich Dopfer and Scott St. John received remuneration from the subsidiary ADVA Optical Networking North America Inc., Norcross/Atlanta (Georgia), USA.

The total management board compensation according to section 285 paragraph 1 number 9a HGB (German statutory regulations) was EUR 1,695 thousand in 2019 and EUR 2,099 thousand in 2018.

The value of benefits granted to the individual board members analyzes as follows:

(in thousands of EUR)	Fixed	Bonus (variable)	Issuance of stock options (variable)	Total 2019	Total 2018
Brian Protiva Chief executive officer	262	206	-	**468**	642
Christoph Glingener Chief technology officer and chief operating officer	267	146	-	**413**	417
Ulrich Dopfer Chief financial officer	268	131	-	**399**	415
Scott St. John Chief marketing and sales officer	268	147	-	**415**	625

The fixed compensation includes non-performance-based considerations and fringe benefits (company car allowances). The variable compensation considers components related to short-term performance goals that are reported as other liabilities on December 31, 2019, as well as components based on long-term performance goals (none in 2019; prior year: EUR 367 thousand which solely relate to issuance of options to Brian Protiva and Scott St. John).

The company paid pecuniary damage liability insurance premiums on behalf of members of the management board totaling EUR 13 thousand both in 2019 and 2018 (in equal amounts for each management board member), respectively.

In 2019 and 2018, no loans were granted to the members of the management board. At December 31, 2019, no receivables outstanding from members of the management board have been reported.

On December 31, the members of the management board held the following shares and had been granted the following stock options:

	Shares		Stock options	
	2019	**2018**	**2019**	**2018**
Brian Protiva Chief executive officer	401,030	401,030	285,000	335,000
Christoph Glingener Chief technology officer and chief operating officer	-	-	275,000	325,000
Ulrich Dopfer Chief financial officer	500	500	256,667	256,667
Scott St. John Chief marketing and sales officer	-	-	250,000	250,000

On December 31, 2019 and 2018, the options to members of the management board were granted solely out of Plan XIVa. The option rights authorize the management board to purchase the said number of common shares in the company once the qualifying period has elapsed. Plan XIVa includes a profit limit of EUR 20.00 per option.

The strike price for these option rights is

- EUR 3.90 for 130,000 options granted on November 15, 2013,
- EUR 3.19 for 60,000 options granted on May 15, 2014,
- EUR 5.15 for 150,000 options granted on May 15, 2015,
- EUR 8.70 for 401,667 options granted on May 15, 2016,
- EUR 4.98 for 150,000 options granted on November 15, 2017,
- EUR 5.79 for 175,000 options granted on May 15, 2018 respectively.

The management board received cash inflows of EUR 118 thousand from the exercise of stock options in 2019 (2018: EUR 9 thousand).

Further information on compensation of the management board is included in the remuneration report in the management Report of the group.

4.5. Compensation of the supervisory board

The fixed compensation to be paid to the supervisory board for 2019 and 2018 totaled EUR 235 thousand, respectively. This amount analyzes across the individual board members as follows:

(in thousands of EUR)	**2019**	**2018**
Nikos Theodosopoulos Chairman	100	100
Johanna Hey Vice chairwoman	90	90
Hans-Joachim Grallert (until June 13, 2018)	-	20
Michael Aquino (since June 13, 2018)	45	25

The fixed compensation for the supervisory board of ADVA Optical Networking SE is paid out in quarterly installments. The fixed compensation for Q4 2019 amounting to EUR 59 thousand was paid out in January 2020 and is included in other liabilities.

The group paid pecuniary damage liability insurance premiums on behalf of members of the supervisory board totaling EUR 10 thousand in 2019 and 2018 EUR 10 thousand, respectively.

On December 31, 2019, no shares or stock options were held by members of the supervisory board (December 31, 2018: none).

4.6. Employees

The company employed an average of 562 employees and 24 apprentices (prior year: 545 employees and 26 apprentices), divided into the following functional areas:

Employees per functional area	2019	2018
Purchasing and production	160	164
Sales, marketing and service	128	115
Management and administration	89	82
Research and development	185	184
Apprentices	24	26
Total	**586**	**571**

4.7. Auditor's fees

The auditor fees are disclosed in the consolidated accounts. In 2019, other consulting services mainly include services in relation to the separate nonfinancial report and financial covenants.

4.8. Declaration of compliance with corporate governance code

Pursuant to Section 161 of the German Stock Corporation Law (AktG), the management board and the supervisory Board have issued a declaration of compliance with the German Corporate Governance Code. This declaration is published on the group's website (www.advaoptical.com).

4.9. Consolidated financial statements

The company prepares consolidated financial statements for the smallest and biggest group of consolidation of affiliated companies. These consolidated financial statements can be viewed at the district court Jena under HRB number 508155.

5. Events after the balance sheet date

There were no events after the balance sheet date that materially affected the net assets and financial position of the group on December 31, 2019, or its financial performance for 2019. Similarly, there were no events considered material to disclose.

Meiningen February 18, 2020

Brian Protiva Christoph Glingener

Ulrich Dopfer Scott St. John

AFFIRMATIVE DECLARATION OF THE LEGAL REPRESENTATIVES

We, the members of the management board of ADVA Optical Networking SE, to the best of our knowledge affirm that, in accordance with the applicable reporting principles, the management report and the financial statements of ADVA Optical Networking SE represent a true and fair view of the net assets, financial position and performance of the company, together with a description of the principal opportunities and risks associated with the expected development of the company.

Meiningen February 18, 2020

Brian Protiva	Christoph Glingener
Ulrich Dopfer	Scott St. John

INDEPENDENT AUDITOR'S REPORT

To ADVA Optical Networking SE, Meiningen

REPORT ON THE AUDIT OF THE ANNUAL FINANCIAL STATEMENTS AND OF THE MANAGEMENT REPORT

Audit Opinions

We have audited the annual financial statements of ADVA Optical Networking SE, Meiningen, which comprise the balance sheet as at December 31, 2019**,** and the statement of profit and loss for the financial year from January 1 to December 31, 2019, and notes to the financial statements, including the presentation of the recognition and measurement policies. In addition, we have audited the management report of ADVA Optical Networking SE, which is combined with the group management report, for the financial year from January 1 to December 31, 2019. We have not audited the content of those parts of the management report listed in the "Other Information" section of our auditor's report.

In our opinion, on the basis of the knowledge obtained in the audit,

- the accompanying annual financial statements comply, in all material respects, with the requirements of German commercial law and give a true and fair view of the assets, liabilities and financial position of the Company as at December 31, 2019 and of its financial performance for the financial year from January 1 to December 31, 2019 in compliance with German Legally Required Accounting Principles, and

- the accompanying management report as a whole provides an appropriate view of the Company's position. In all material respects, this management report is consistent with the annual financial statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development. Our audit opinion on the management report does not cover the content of those parts of the management report listed in the "Other Information" section of our auditor's report.

Pursuant to § [Article] 322 Abs. [paragraph] 3 Satz [sentence] 1 HGB [Handelsgesetzbuch: German Commercial Code], we declare that our audit has not led to any reservations relating to the legal compliance of the annual financial statements and of the management report.

Basis for the Audit Opinions

We conducted our audit of the annual financial statements and of the management report in accordance with § 317 HGB and the EU Audit Regulation (No. 537/2014, referred to subsequently as "EU Audit Regulation") and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer [Institute of Public Auditors in Germany] (IDW). Our responsibilities under those requirements and principles are further described in the "Auditor's Responsibilities for the Audit of the Annual Financial Statements and of the Management Report" section of our auditor's report. We are independent of the Company in accordance with the requirements of European law and German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. In addition, in accordance with Article 10 (2) point (f) of the EU Audit Regulation, we declare that we have not provided non-audit services prohibited under Article 5 (1) of the EU Audit Regulation. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions on the annual financial statements and on the management report.

Key Audit Matters in the Audit of the Annual Financial Statements

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the annual financial statements for the financial year from January 1 to December 31, 2019. These matters were addressed in the context of our audit of the annual financial statements as a whole, and in forming our audit opinion thereon; we do not provide a separate audit opinion on these matters.

In our view, the matters of most significance in our audit were as follows:

❶ Accounting treatment of internally generated intangible assets

❷ Valuation of shares in affiliated companies

❸ Appropriateness of revenue recognition

Our presentation of these key audit matters has been structured in each case as follows:

① Matter and issue

② Audit approach and findings

③ Reference to further information

Hereinafter we present the key audit matters:

❶ Accounting treatment of internally generated intangible assets

① In the Company's annual financial statements, internally generated industrial property rights and similar rights and assets are recognized in the amount of TEUR 98,506 under the balance-sheet item „Intangible assets". These represent the costs of developing new products which are permitted to be capitalized in accordance with § 248 Abs. 2 Satz 1 HGB. Capitalized own expenses contributed TEUR 8,959 to the net profit or loss for the financial year. Development costs of this type may only be capitalized subject to certain conditions. GAS 24, the application of which is recommended in the annual financial statements, sets out the conditions in detail. Nevertheless, the assessment of eligibility for capitalization still leaves considerable scope for the exercise of judgment. Against this background and due to the underlying complexity of the methodological requirements for the measurement, this matter was of particular significance for our audit.

② As part of our audit, we assessed the internal processes and controls for recording the development projects among other things. We also assessed the methodology used to calculate the expenses eligible for capitalization. We evaluated the eligibility for capitalization of each material project on the basis of the conditions set out in GAS 24. We evaluated the stage of progress of the particular project by means of discussions with members of staff in the R&D controlling department and inspection of the project documentation. We assessed the amount of the development costs capitalized and the recoverability of the development expenditure on the basis of suitable supporting evidence. In our view, the methodology applied by the Company for capitalizing development projects is appropriate, and the stage of completion of the projects and the development costs capitalized have been clearly documented.

③ The Company's disclosures on internally generated intangible assets are contained in sections 2.2.1, 2.2.3, 3.1.1. and 3.1.2 in the notes to the annual financial statements.

❷ Valuation of shares in affiliated companies

① In the Company's annual financial statements, shares in affiliated companies are disclosed in the amount of TEUR 27,629 under the balance-sheet item "Financial assets".

Shares in affiliated companies are measured in accordance with German commercial law at the lower of cost or fair value. The fair values of the material shares in affiliated companies are calculated using discounted cash flow models as the present values of the expected future cash flows according to the planning projections prepared by the executive directors. Expectations relating to future market developments and assumptions about the development of macroeconomic factors are also taken into account. The discount rate used is the individually determined cost of capital for the relevant financial asset. Based on the values calculated and other documentation, an impairment loss amounting to TEUR 533 was recognized in the fiscal year.

The outcome of this valuation exercise is dependent to a large extent on the estimates made by the executive directors of the future cash flows, and on the respective discount rates and rates of growth employed. The valuation is therefore subject to material uncertainty. In the light of this background and the highly complex nature of the measurement, this matter was of particular significance during our audit.

② As part of our audit, we assessed the methodology employed for the purposes of the valuation exercise, among other things. In particular, we assessed whether the fair values had been appropriately determined using discounted cash flow models in compliance with the relevant measurement standards. We based our assessment, among other things, on a comparison with general and sector-specific market expectations as well as on the executive directors' explanations regarding the key planning value drivers underlying the expected cash flows. In the knowledge that even relatively small changes in the discount rate applied can have a material impact on the values of the entities calculated in this way, we also focused our testing in particular on the parameters used to determine the discount rate applied, and evaluated the measurement model. Taking into consideration the information available, we believe that the valuation parameters and underlying assumptions used by the executive directors are appropriate overall for the purpose of accurately measuring the material shares in affiliated companies.

③ The Company's disclosures on shares in affiliated companies are contained in sections 2.2.4, 3.1.1 and 3.1.4 in the notes to the annual financial statements.

❸ Appropriateness of revenue recognition

① In the Company's annual financial statements revenue amounting to TEUR 359,304 is reported in the income statement. The revenue comprises sales of services and products. The related services agreements cover several financial years in some cases and deferred income is recognized in the balance sheet in order to allocate revenue to the correct period. The Company also performs the function of owning and selling licenses within the Group. This item represents significant amounts and is subject to particular risk in view of the complexity involved in recognizing revenue accurately; it was therefore of particular significance for our audit.

② As part of our audit, we assessed the processes and controls established by the Company for the purposes of revenue recognition. Our audit approach included carrying out tests of control as well as substantive audit procedures. Among other things, this included inspecting material new contracts in the financial year and evaluating their treatment in the financial statements. In addition, we used sampling techniques to establish that goods and services provided were billed and matched them with corresponding payments received, and we also assessed whether the revenue was recognized in the correct period.

We were able to satisfy ourselves that the processes and controls in place are appropriate for the purpose of ensuring that revenue is recognized appropriately.

③ The Company's disclosures relating to revenue are contained in sections 2.4 and 3.2.1 of the notes to the annual financial statements.

Other Information

The executive directors are responsible for the other information. The other information comprises the following non-audited parts of the management report, which we obtained prior to the date of our auditor's report:

- the statement on corporate governance pursuant to § 289f HGB and § 315d HGB included in section "Declaration on corporate governance and corporate governance report" of the management report
- the separate non-financial report pursuant to § 289b Abs. 3 HGB and § 315b Abs. 3 HGB

Our audit opinions on the annual financial statements and on the management report do not cover the other information, and consequently we do not express an audit opinion or any other form of assurance conclusion thereon.

In connection with our audit, our responsibility is to read the other information and, in so doing, to consider whether the other information

- is materially inconsistent with the annual financial statements, with the management report or our knowledge obtained in the audit, or
- otherwise appears to be materially misstated.

Responsibilities of the Executive Directors and the Supervisory Board for the Annual Financial Statements and the Management Report

The executive directors are responsible for the preparation of the annual financial statements that comply, in all material respects, with the requirements of German commercial law, and that the annual financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Company in compliance with German Legally Required Accounting Principles. In addition, the executive directors are responsible for such internal control as they, in accordance with German Legally Required Accounting Principles, have determined necessary to enable the preparation of annual financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the annual financial statements, the executive directors are responsible for assessing the Company's ability to continue as a going concern. They also have the responsibility for disclosing, as applicable, matters related to going concern. In addition, they are responsible for financial reporting based on the going concern basis of accounting, provided no actual or legal circumstances conflict therewith.

Furthermore, the executive directors are responsible for the preparation of the management report that as a whole provides an appropriate view of the Company's position and is, in all material respects, consistent with the annual financial statements, complies with German legal requirements, and appropriately presents the opportunities and risks of future development. In addition, the executive directors are responsible for such arrangements and measures (systems) as they have considered necessary to enable the preparation of a management report that is in accordance with the applicable German legal requirements, and to be able to provide sufficient appropriate evidence for the assertions in the management report.

The supervisory board is responsible for overseeing the Company's financial reporting process for the preparation of the annual financial statements and of the management report.

Auditor's Responsibilities for the Audit of the Annual Financial Statements and of the Management Report

Our objectives are to obtain reasonable assurance about whether the annual financial statements as a whole are free from material misstatement, whether due to fraud or error, and whether the management report as a whole provides an appropriate view of the Company's position and, in all material respects, is consistent with the annual financial statements and the knowledge obtained in the audit, complies with the German legal requirements and appropriately presents the opportunities and risks of future development, as well as to issue an auditor's report that includes our audit opinions on the annual financial statements and on the management report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with § 317 HGB and the EU Audit Regulation and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW) will always detect a material misstatement. 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 annual financial statements and this management report.

We exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the annual financial statements and of the management report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our audit opinions. 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 controls.

- Obtain an understanding of internal control relevant to the audit of the annual financial statements and of arrangements and measures (systems) relevant to the audit of the management report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an audit opinion on the effectiveness of these systems of the Company.

- Evaluate the appropriateness of accounting policies used by the executive directors and the reasonableness of estimates made by the executive directors and related disclosures.

- Conclude on the appropriateness of the executive directors' use of the going concern basis of accounting and, 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 the auditor's report to the related disclosures in the annual financial statements and in the management report or, if such disclosures are inadequate, to modify our respective audit opinions. 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 the Company to cease to be able to continue as a going concern.

- Evaluate the overall presentation, structure and content of the annual financial statements, including the disclosures, and whether the annual financial statements present the underlying transactions and events in a manner that the annual financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Company in compliance with German Legally Required Accounting Principles.

- Evaluate the consistency of the management report with the annual financial statements, its conformity with German law, and the view of the Company's position it provides.

- Perform audit procedures on the prospective information presented by the executive directors in the management report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by the executive directors as a basis for the prospective information, and evaluate the proper derivation of the prospective information from these assumptions. We do not express a separate audit opinion on the prospective information and on the assumptions used as a basis. There is a substantial unavoidable risk that future events will differ materially from the prospective information.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with the relevant independence requirements, and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, the related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the annual financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter.

OTHER LEGAL AND REGULATORY REQUIREMENTS

Further Information pursuant to Article 10 of the EU Audit Regulation

We were elected as auditor by the annual general meeting on May 22, 2019. We were engaged by the supervisory board on November 20, 2019. We have been the auditor of the ADVA Optical Networking SE, Meiningen, without interruption since the financial year 2010.

We declare that the audit opinions expressed in this auditor's report are consistent with the additional report to the audit committee pursuant to Article 11 of the EU Audit Regulation (long-form audit report).

GERMAN PUBLIC AUDITOR RESPONSIBLE FOR THE ENGAGEMENT

The German Public Auditor responsible for the engagement is Holger Graßnick.

sgd. Holger Graßnick

Wirtschaftsprüfer
(German Public Auditor)

sgd. ppa. Sonja Knösch

Wirtschaftsprüferin
(German Public Auditor)

Munich, February 18, 2020

PricewaterhouseCoopers GmbH
Wirtschaftsprüfungsgesellschaft