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Joh. Vaillant GmbH & Co KG	Accounting /	Consolidated financial statements for the business	December 24, 2019
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Joh. Vaillant GmbH & Co KG

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Vaillant Group's outlook on the development of sales revenues and operating profit (EBIT) for 2019

- Fiscal year 2018: Highest turnover in the company's history; Operational earnings increase - strategically on track
- Sales increased to 2,501 million euros (compared to previous year +6.0 percent; currency-adjusted +10.6 percent)
- Operating profit (EBIT) of 221 million euros (compared to previous year -4.6 percent) and consolidated net income of 160 million euros (compared to previous year -9.3 percent) burdened by one-off effects
- Future orientation of the organization successfully driven forward

Outlook for 2019:

Challenging year 2019 expected with moderate increase in sales and a slight increase in operating profit (EBIT), subject to significant exchange rate fluctuations

BASICS OF THE GROUP**Company profile**

The Vaillant Group is an international company in the heating, ventilation and air conditioning industry. The core business focuses on energy-saving and environmentally friendly heating and hot water devices based on natural gas and renewable energies. The Vaillant Group has a closed value chain - from development and production to sales and subsequent customer service.

The Vaillant Group has been a purely family business since the company was founded in 1874. To this day, the owners take responsibility for the successful direction of the company. The goal is sustainable and profitable growth. This is traditionally in line with the consistent orientation towards social and ecological standards.

Business model

The Vaillant Group is a leading provider of heating, ventilation and air conditioning technology. The focus is on efficient and energy-saving heating devices based on natural gas and technologies for the use of renewable energies. The product portfolio includes all essential technologies for building supply. These include condensing boilers, heat pumps, ventilation systems, control technology, heat storage systems, thermal solar systems and photovoltaic systems, battery storage systems as well as gas and electric water heaters, air conditioning units and radiators. The Vaillant Group also offers coordinated systems that combine several energy sources and technical components from a single source.

In addition to the product business, our service business is another focus of our business activities. Commissioning, repairs, maintenance and training courses, technical support from specialist partners and the guarantee of maximum availability of spare parts are just as much a part of this as warranty extensions, digitally networked services and internet-based applications.

The business activity is mainly concentrated in Europe as well as the countries China, Russia and Turkey. The Vaillant Group has branches in over 20 countries and exports products to over 60 countries.

Eight international heating technology brands make up the brand family of the Vaillant Group: Vaillant, Saunier Duval, AWB, Bulex, Glow-worm, Hermann Saunier Duval, Protherm and DemirDöküm. The largest share of sales is attributable to the main brand Vaillant, which stands for high quality products, highly efficient heat generation, renewable energies and excellent service. The remaining brands concentrate primarily on high-volume market segments.

Sales in the Vaillant Group generally take place in three stages. Direct customers within the distribution chain are wholesalers for sanitary and heating technology. Customers at further levels of the sales chain include companies in the construction and housing industry, plumbers and specialist tradesmen, architects and planners as well as private property owners.

The Vaillant Group manufactures products at a total of nine locations - at seven locations in Europe, one in Turkey and one in China. The production includes the manufacture of all performance and quality-relevant core components as well as the final assembly of all devices with a full review of the technical performance characteristics. All production processes take place uniformly across all locations.

The Vaillant Group conducts product development at four locations within the EU as well as in Turkey and the People's Republic of China. The development of high-efficiency technologies takes place at locations in Western Europe.

ECONOMIC REPORT

Macroeconomic and industry-specific framework conditions

Overall Economic Development

According to forecasts by the International Monetary Fund (IMF), the global economy recorded growth of 3.7 percent in 2018, which was slightly below the level of the previous year. At 2.3 percent (2017: 2.4 percent), the development of the advanced economies was also below the prior-year period. The growth here was mainly based on a positive economy in the USA. The euro zone, on the other hand, was 1.8 percent below the previous year's figure (2017: 2.4 percent). The group of leading emerging markets also recorded a growth rate of 4.6 percent in 2018, slightly below the previous year's level.

Within the eurozone, the economic climate clouded over in several larger economies. Growth slowed to 1.5 percent (2017: 2.5 percent) in Germany. France recorded slower growth with 1.5 percent (2017: 2.3 percent), as did Italy with 1.0 percent (2017: 1.6 percent) and Spain with 2.5 percent (2017: 3.0 percent).

A similar development took place in major economies outside the euro area. The UK recorded declining growth with 1.4 percent (2017: 1.8 percent), Turkey with 3.5 percent (2017: 7.4 percent) and, for the first time, China with 6.6 percent (2017: 6.9 percent).

The following table shows the development of the average exchange rates of the currencies relevant to us against the euro:

Average exchange rate based on 1 euro		2018	2017
Chinese renminbi	CNY	7.82	7.64
British pound	GBP	0.88	0.88
Turkish lira	TRY	5.64	4.15
Russian ruble	RUB	74.59	66.65

Industry development

Measured on the basis of cumulative sales volumes, the European heating technology markets - including Russia and Turkey - recorded growth of 3.0 percent in 2018 (2017: 3.0 percent). In the major volume segment of wall-mounted heat generators, the overall market was up 3.4 percent. The demand for heat pumps increased again slightly by 16.0 percent despite the already very positive development in the previous year.

In the German market, growth was 1.5 percent, which means that the positive trend from the previous year continued at a slower pace. The growth in sales of heat pumps in Germany remained at a high level of around 10.8 percent.

The markets in France (7.0 percent), Italy (7.9 percent) and Spain (11.6 percent) developed significantly above the European average during 2018. According to industry analysts, this development in demand can essentially be explained by an overall improvement in the economic situation in the countries and the associated positive investment and consumer climate.

The UK market also developed positively at 5.3 percent. This represents a significant turnaround compared to the significant market decline in the previous year.

With a market decline of -6.1 percent in Turkey, the very positive increase in demand of the previous year was reversed. Stronger cyclical upward and downward movements occur comparatively frequently in the Turkish market and are currently also negatively influenced by macroeconomic factors.

The Chinese market, which has been growing rapidly in the double-digit range for years, slowed its growth significantly to 8.3 percent for the first time.

Legal framework

In December 2015, at the UN climate conference in Paris, the decision was made to limit global warming to below 2 ° C. According to this agreement, all countries must draw up national climate protection plans by 2020. In addition to the climate protection plans already in place in Germany and France, the Czech Republic, Great Britain and Ukraine adopted corresponding papers in 2018. The Vaillant Group is following the political discussion on the national climate protection plans for the most important markets.

In June 2018, a new EU building efficiency guideline was issued, which in particular addresses efficiency-enhancing measures for the building stock. All EU member states are requested to transpose the EU Building Efficiency Directive into national law by March 2020.

After Germany (2016), Great Britain and Austria (2017), Italy and Spain also introduced an energy efficiency label for existing heating systems in 2018.

For information on the possible effects of Great Britain leaving the European Union, please refer to the "Risk and Opportunities Report" section.

Overall statement on business development

Overall, we can look back on a satisfactory 2018 financial year. In a challenging economic environment for us, we were able to increase sales ¹ to 2,501 million euros in the 2018 financial year and thus achieve the highest sales value in the company's history. Compared to the previous year, we exceeded sales by 6.0 percent or currency-adjusted by 10.6 percent.

The operating result (EBIT) fell by 4.6 percent to 221 million euros (2017: 232 million euros). This includes negative one-off effects, particularly in connection with the ruling on the equal treatment of pension claims in Great Britain. In the previous year, however, EBIT was influenced by positive one-time effects, including income from the sale of the property in Gelsenkirchen. Adjusted for these one-off effects, there is an increase in the operating result compared to the previous year.

Earnings situation

Sales and operating profit (EBIT)

In the 2018 financial year, sales were up on the previous year at 2,501 million euros (2017: 2,360 million euros; compared to 2017, 6.0 percent).

In the Northern Europe region (Great Britain, Belgium, the Netherlands and Scandinavia), sales rose by 12.0 percent to EUR 561 million above the previous year's figure (2017: EUR 500 million), primarily due to the positive business development in Great Britain. In Great Britain, we increased our sales significantly year-on-year in view of the increased market volume, combined with market share gains in circulation water heaters and the successful implementation of our sales strategy from our point of view (compared to 2017 nominal 15.6 percent; currency-adjusted 16.5 percent). While we benefited from successful sales campaigns in Belgium, in the Netherlands, the positive development of the project business led to increased sales. Adjusted for exchange rate fluctuations, total sales in the region came to 564 million euros.

Sales revenues in the Southern Europe region (France, Italy and Spain) rose by 7.5 percent to EUR 621 million (2017: EUR 577 million) due to an overall positive economic development and the associated increase in demand. In Spain, we were able to increase sales year-on-year, especially in the circulation water heater business and in the service business. In France we recorded an increase in sales. One reason for this is the positive development in the project business, which was favored by a demand for circulating water heaters and system components supported by subsidy programs. In addition, the heat pump business developed positively year-on-year. In Italy, sales were also above the previous year's level. In particular, increased sales in the business with circulation water heaters and air conditioning units contributed to this increase.

Sales in Central Europe (Germany, Austria, Switzerland) increased by 3.5 percent to 587 million euros (2017: 568 million euros). In Germany, we recorded an increase in the circulation water heater business in particular. The positive sales development in Austria resulted mainly from the increase in sales both in the business with circulation water heaters and in the service business.

In the Eastern Europe region (Czech Republic, Russia, Croatia, Hungary, Poland, Romania, Slovakia, Ukraine), sales of EUR 269 million were well above the previous year's level (2017: EUR 240 million; compared to 2017 nominal 12.1 percent; currency-adjusted 16, 0 percent). Due to the positive development in demand in the project business, we recorded significant growth in Poland and the Croatia region. In addition, EU-funded programs to promote more efficient heating systems led to an increase in sales in the Czech Republic.

Sales revenue in the Asia / Export region (China, Turkey, South Korea, export) fell by 2.3 percent to 463 million euros (2017: 474 million euros; adjusted for currency effects: 17.7 percent). In Turkey, we were unable to match the previous year's level, primarily due to the decline in the exchange rate of the Turkish lira (compared to 2017 nominally -5.5 percent; currency-adjusted: 28.4 percent). Adjusted for the currency effect, we increased sales in the business with circulating water heaters in particular, mainly by taking advantage of the positive demand situation in the local heating market in the first half of the year - supported by government consumption incentives. In China, business with circulation water heaters developed at a comparable level to the previous year despite the slowdown in new construction activity in the Chinese market and delays in the completion of apartments due to government intervention in the new construction market. Business with gas water heaters and the service business performed well.

The development of the cost items compared to the previous year is explained below ² :

The cost of sales increased by 5.1 percent to 1,510 million euros (2017: 1,437 million euros). The positive sales development made a major contribution to this. The gross margin on sales was 39.6 percent (2017: 39.1 percent) and the gross profit on sales was 991 million euros (2017: 923 million euros).

In 2018, research and development expenses amounted to 98 million euros (2017: 92 million euros). In relation to sales, this results in a ratio at the previous year's level of 3.9 percent (2017: 3.9 percent). For information on the main activities, please refer to the "Research and Development" chapter.

Marketing and selling expenses were 524 million euros, 5.0 percent higher than the previous year's figure (2017: 499 million euros). In addition to the increase in variable sales costs as a result of the positive sales development, the increase was characterized by additional expenses for marketing campaigns. The share of marketing and sales costs in total sales fell to 20.9 percent (2017: 21.1 percent).

We recorded an increase of 18.2 percent in administrative costs of 130 million euros (2017: 110 million euros). This was due to additional expenses in connection with the activities for our digitization projects and inflation. As a result, the share of administrative costs rose to 5.2 percent (2017: 4.6 percent).

The other operating result of EUR -18 million (2017: EUR 9 million) in the 2018 reporting year was largely characterized by negative one-off effects, especially in connection with the ruling on the equal treatment of pension claims in Great Britain. In addition, the previous year was positively influenced by one-off effects, including the income from the sale of the property in Gelsenkirchen.

The operating result (EBIT) fell by 4.6 percent year-on-year to EUR 221 million (2017: EUR 232 million). Adjusted for the one-off effects of 2018 and the previous year described in other comprehensive income, EBIT was up on the previous year.

Comparison of the actual with the forecast business development

On the basis of the forecasts for business and industry development in 2018 made at the end of the 2017 financial year and taking into account the opportunities and risk potentials known to us at the time, we expected a moderate increase in sales, subject to significant exchange rate fluctuations. Due to the elimination of positive one-off effects from 2017 and the intensification of our strategic projects, we have forecast an operating result (EBIT) in the order of magnitude for the 2016 financial year (2016: 215 million euros).

With a nominal sales growth of 6.0 percent, we were able to exceed the moderate increase in sales expected for 2018.

With regard to the operating result (EBIT), we exceeded our target for 2018, mainly due to the good sales development.

Financial result and consolidated net income

The financial result deteriorated to -15 million euros (2017: -4 million euros) and resulted primarily from a positive one-time effect in the interest result that was taken into account in the previous year. Adjusted for this one-off effect, the financial result is on a comparable level to the previous year.

Earnings before income taxes amounted to 206 million euros (2017: 228 million euros). After deducting a tax expense of 46 million euros (2017: 51 million euros), the consolidated net income for the 2018 financial year was 160 million euros (2017: 176 million euros).

Assets and financial position

Investments and divestments

In 2018, 96 million euros (2017: 82 million euros) were invested in property, plant and equipment and intangible assets ³ .

In the area of production, the focus was on expanding production lines and systems as well as laboratory and test systems, especially at our locations in Remscheid and Troisdorf.

The sales, marketing and service division invested, among other things, in the renovation and modernization of sales buildings and training centers.

In addition, the shell of our new research and development center at the headquarters in Remscheid was completed in 2018, which will be ready for occupancy in the 2019 financial year. The existing investment commitments are in the mid double-digit million euro range. Financing is ensured by existing liquid funds and existing credit lines.

Financial position

At 2,118 million euros, the balance sheet total was on a par with the previous year (2017: 2,098 million euros).

At 1,204 million euros, non-current assets were up on the previous year (2017: 1,182 million euros). The main reason for this was an increase in property, plant and equipment to 334 million euros (2017: 308 million euros) due to the new construction of our research and development center at the Remscheid site and the expansion investments, including at the site in Slovakia. In addition, as part of our development activities, in particular due to the further development of our heat pump platform, other intangible assets increased to 125 million euros (2017: 109 million euros). The decrease in goodwill to 639 million euros (2017: 656 million euros) due to the currency translation as of the reporting date had the opposite effect.

At 913 million euros, the balance sheet value of current assets was on a level comparable to that of the previous year (2017: 916 million euros). This includes an increase in inventories, among other things in connection with planned changes as part of the optimization of our production network and the increase in safety stocks as well as

market-related pre-production. Current trade receivables, at EUR 266 million, were below the previous year's level (2017: EUR 284 million). On the balance sheet date, we had cash and cash equivalents of 232 million euros (2017: 264 million euros).

At 630 million euros, equity was above the previous year's level (2017: 621 million euros). The consolidated net income of 160 million euros (2017: 176 million euros) had an increasing effect. The negative effects from currency conversions of EUR -37 million (2017: EUR -25 million), the profit withdrawal by the shareholders of EUR 106 million and lower year-on-year positive effects from the revaluation of Pension obligations of 6 million euros (2017: 34 million euros). The equity ratio increased slightly to 29.8 percent as of December 31, 2018 (2017: 29.6 percent).

Long-term debt increased by EUR 62 million to EUR 606 million (2017: EUR 544 million). In particular, the utilized credit facilities in the amount of EUR 87 million contributed to this development. The pension obligations on the balance sheet fell to EUR 314 million (2017: EUR 338 million).

At EUR 881 million, short-term debt was below the previous year's figure (2017: EUR 933 million) and was primarily due to the scheduled partial repayment of the US private placement loan.

Financial condition

In the 2018 reporting year, the cash flow from operating activities, at 159 million euros, was below the level of the previous year (2017: 228 million euros). The main reason for this was a higher level of funds tied up in working capital. This includes a build-up of inventories, among other things in connection with planned changes as part of the optimization of our production network and the increase in safety stocks as well as market-related preproductions.

The outflow of funds in the cash flow from investing activities amounted to -126 million euros and was 42.6 percent above the previous year's level (2017: -88 million euros). This is primarily due to project-related higher spending on research and development. In addition, further payments were made in the course of business in 2018 for the modernization and construction of new buildings, in particular for the new research and development center.

In the context of financing activities, the cash outflow of EUR -59 million in the 2018 financial year was lower than in the previous year (2017: EUR -74 million), mainly due to higher borrowing to finance our investments and the higher inventory level. The scheduled partial repayment of the US private placement loan of EUR 58 million also had an impact in the 2018 reporting year.

Cash and cash equivalents were below the previous year's level at 232 million euros (2017: 264 million euros).

At 22 million euros, free cash flow⁴ was below the previous year's level (2017: 139 million euros). The net cash flow fell to -27 million euros (2017: 66 million euros).

As of December 31, 2018, the Vaillant Group had financial liabilities of 247 million euros (2017: 184 million euros). The largest share is accounted for by long-term financial liabilities, which, in addition to the syndicate loans, include the US private placement loan taken out in 2006. The last tranche of this loan will be repaid as scheduled in the 2021 reporting year. In addition to the existing liquid funds, the Vaillant Group can ensure liquidity at all times by means of unused credit lines.

Research and Development

In the reporting period, development activities concentrated on continuing the multi-year development projects that had already been started in previous years. The focus in the core segment of gas wall-mounted heaters in 2018 continued to be on the development of a new, cross-brand, standardized generation of gas-adaptive devices as well as a cost-effective generation of products.

In the area of heat pumps, a modular product platform for air-water heat pumps for indoor and outdoor use was launched. This increases the market segment coverage for heat pumps to over 90 percent. In order to anticipate future product and market requirements, a further development program was continued in which only refrigerants with a low global warming potential are used.

Development costs of 35 million euros (2017: 24 million euros) were capitalized in the 2018 reporting year for projects that are forward-looking from our point of view.

RISKS AND OPPORTUNITIES REPORT

Risks and Opportunities

In the course of its business activities, the Vaillant Group is exposed to a large number of risks that are inextricably linked with entrepreneurial activity. Entrepreneurial activity also consists of developing and using opportunities and thus securing and expanding the company's competitiveness. With its Risk and Opportunity Management System (RCMS), the Vaillant Group aims to identify, evaluate and monitor risks and opportunities at an early stage and, by taking suitable measures, to avert negative effects on short-term operational or long-term strategic corporate goals or to exploit potential opportunities. This is intended to identify and prevent possible threats to the continued existence of the company in good time. The RCMS also pursues the purpose of improving the basis for business decisions and thus ensuring competitiveness and the implementation of the planned growth targets in the long term.

Risk and opportunity management system

The RCMS is integrated into all planning, controlling and reporting processes in the individual companies, the corporate divisions and at group level.

All events and possible developments within and outside the Vaillant Group that could have a negative impact on the achievement of operational or strategic corporate goals are defined as risks. Opportunities are understood to mean all internal and external events and possible developments that contribute to the company's success beyond the planned operational or strategic goals.

In the interests of a sustainable increase in company value, the planned, target-oriented assumption of calculable risks is part of the Vaillant Group's risk strategy. The risk principles, which are an elementary component of the RCMS, form the framework for risk acceptance. As a result, corporate decisions must not have inherent risks that threaten the continued existence of the company. If risks cannot be avoided, suitable countermeasures must be taken to reduce or transfer possible risk effects, for example through insurance.

The basis of the RCMS is a monthly operational and quarterly structural opportunity and risk inventory.

The control and monitoring of risks and opportunities is carried out in the subsidiaries of the Vaillant Group, in the corporate divisions and at Group level. This provides a group-wide, integrative management tool for the systematic handling of risks and opportunities, which is checked annually for correctness, not least as part of the annual audit.

The scope of consolidation for risk and opportunity management corresponds to the scope of consolidation in the consolidated financial statements of the Vaillant Group.

The reporting of risks and opportunities in the management report generally covers the coming 2019 financial year. However, should significant new risks or opportunities arise or their significance change after this period, this will also be discussed below. The sequence of the risks and opportunities described within the company areas listed below reflects the current assessment of the relative degree of risk and opportunity. More significant topics are mentioned first. This presentation also provides an indication of the current overall situation of risks and opportunities for the Vaillant Group.

Presentation of the main risk and opportunity areas

Research and Development

In research and development (R&D) there is a risk that products are developed that do not meet customer needs. The global trend towards globalization, the associated changes in customer needs and increasing price pressure increase this risk. In order to take this risk into account, the development department works closely with program and product management as well as the new business unit for heat pumps and renewable energies. Specific market and customer requirements are defined as input variables for product development projects and new, adapted product variants are developed from them. In addition, to secure our assessment of trends, Regular market studies and customer surveys are carried out to meet customer and market needs. In addition, there is a regular exchange with relevant scientists. Every market launch is preceded by field and laboratory tests that check and ensure the functions, robustness, safety and longevity of the products. In addition, extensive simulations and calculations take place in the early phase of product development, which are an essential part of our zero-defect quality philosophy. This allows us to limit liability and

warranty risks. Every market launch is preceded by field and laboratory tests that check and ensure the functions, robustness, safety and longevity of the products. In addition, extensive simulations and calculations take place in the early phase of product development, which are an essential part of our zero-defect quality philosophy. This allows us to limit liability and warranty risks. Every market launch is preceded by field and laboratory tests that check and ensure the functions, robustness, safety and longevity of the products. In addition, extensive simulations and calculations take place in the early phase of product development, which are an essential part of our zero-defect quality philosophy. This allows us to limit liability and warranty risks. which are an integral part of our zero-defect quality philosophy. This allows us to limit liability and warranty risks. which are an integral part of our zero-defect quality philosophy. This allows us to limit liability and warranty risks.

In the case of development projects that are important to us, there is a risk of content deviations or delays. We meet this challenge by setting up cross-functional steering and control bodies, which guarantee the ongoing monitoring of project progress and guarantee fast decision-making processes.

The risks of extensive process changes are countered by intensive training programs at all levels. The construction of a new research and development center at the headquarters in Remscheid represents a major opportunity. The new building complex will be ready for occupancy in 2019 and will integrate all the functional areas involved in the creation of the product.

Digitization is an excellent opportunity. This makes it possible to use networked components to develop new product and service solutions which, in addition to optimizing processes within the Vaillant Group, offer both the installer and the end customer additional benefits. This includes, for example, the development of internet-enabled product solutions that enable simple selection and commissioning as well as intelligent energy and comfort management in the building. Changes in the market or in the product environment offer further opportunities to ensure our competitiveness and a leading market position in the long term. We continuously monitor the direct and expanded technological environment. The findings flow into a technology and pre-development roadmap that forms the basis of our development activities. This approach enables us to develop new products in our core business and when expanding our portfolio.

procurement

The significant devaluation of the Turkish lira and the associated consequences were among the greatest risks in the procurement environment last year. Important imports for raw materials, which have to be paid for in euros and dollars, have become significantly more expensive in Turkey. Our procurement was also partially affected by this, so that our Turkish subsidiaries had to face the increased prices of Turkish suppliers by passing the price increases on to customers.

In 2018, the European ordinance on fluorinated greenhouse gases had a serious impact on the procurement of a refrigerant used by the Vaillant Group. The aim of the regulation is to reduce the shortage of conventional refrigerants in order to increase the demand for refrigerants with a low greenhouse effect. In Europe, this led to a sharp rise in purchase prices compared to the previous year. However, bottlenecks in procurement could be avoided by making quantities available to our suppliers in good time.

The extremely positive dynamics on the electronics market for active and passive components compared to the previous year continued in 2018. The growing demand with constant supply led to increased replenishment times and rising prices. The use of alternative suppliers and the expansion of our safety stocks have proven to be suitable measures to ward off production bottlenecks. We will continue to strategically expand Business Continuity Management (BCM) in the years to come. The identification of risks, the reduction of possible risks under economic framework conditions as well as systematic reporting form the focal points in the implementation.

production

The close interlinking of the Vaillant Group's production network offers opportunities, but also risks. Due to cross-location production processes, prolonged disruptions or failures of individual production or factory systems in particular can significantly impair the ability of the entire corporate group to deliver. In order to reduce the risk of business interruption, our Business Continuity Management (BCM) will be systematically continued in the future. The crisis team members were trained at all locations and made familiar with the extensive BCM process instructions. In addition, the Vaillant Group maintains global property and business failure insurance based on the industry standard.

With advancing digitization in production, the risk of IT production downtime increases. This is counteracted with a BCM strategy for production IT and an expansion of the IT infrastructure.

Opportunities in the markets and the associated higher volumes or more complex products can involve a risk with regard to capacities and available production space. Regular analyzes of future capacities and requirements as well as the production network enable us to react quickly to these changes.

Sales, Marketing and Services

Not least because of the volatile political developments, the Vaillant Group continues to operate in a market environment characterized by uncertainty. Trade policy conflicts and geopolitical crises have an impact on European and global economic events.

The changes on the market side include developments in the European heating technology market and advancing globalization, through which new, non-European players are pushing into the market. This increases the intensity of competition, which in turn leads to an intensified price war. In China, for example, extensive local subsidy programs are leading to a shift in market growth towards circulating water heaters in the low-price segment. It is primarily local providers who benefit from this. This risk could increase with the expiry of these funding programs. Chinese suppliers could use the manufacturing capacities they freed up to increasingly manufacture products for European markets and offer them in the low-price segment.

As a result, we see a potential risk with regard to the development of demand for our products. This can be accompanied by possible risks from negative effects of exchange rate developments. The pound sterling, the Turkish lira, the Russian ruble and the Chinese renminbi are particularly affected.

We counter these demand risks with targeted sales-side initiatives for the respective markets. The optimal use of our entire product portfolio as well as market-specific multi-brand strategies play an important role here. The overriding goal is to secure future sales growth in order to gain further market shares, especially in the circulation water heater segment.

quality

The quality management system implemented throughout the group was able to guarantee the quality of both new and existing products in the market for the benefit of the customer in 2018 as well. At the same time, we were able to further reduce warranty and goodwill expenses. Successful change management of the processes, methods and organizational structure in quality assurance enabled the necessary resources and activities to ensure high-quality products to be built up during product development. The Vaillant Group takes customer demands for quality into account wherever quality is generated in new product development. This integrated project approach avoids rework and sustainably reduces service calls on the product.

Another focus in 2018 was product release for the market through confirmatory robustness tests based on the described specifications during product development. The quality control loop is closed through the overarching networking, cooperation and permanent measurement of the decisive quality indicators. If necessary, necessary measures are identified and effectively implemented. Product safety and the functionality of the systems come first. In this way we avoid possible liability and warranty risks and ensure a high level of customer satisfaction and cost efficiency. The new test center at the Remscheid site, which will be ready for occupancy in 2019,

Finances

Due to our international business relationships, we are subject to the risks of exchange rate fluctuations. The British pound, the Turkish lira, the Russian ruble and the Chinese renminbi are the currencies with the greatest individual risks. We counter these risks, as far as economically feasible and possible, by concluding currency forwards that are designed as micro-hedges. We counter raw material risks, mainly due to price fluctuations in copper, by using derivative hedging instruments. If the requirements for hedge accounting (cash flow hedge) are met, the hedging transactions meet the criteria of a micro hedge.

Derivatives transactions are carried out on the basis of decisions made centrally, which are weighed up by an exposure committee that meets on a regular basis. The participating members are composed of a representative from the management as well as representatives from purchasing, finance and taxes. Our group-wide treasury guideline forms the regulatory framework. Accordingly, derivative transactions are concluded exclusively to hedge operational business. The selection of adequate hedging transactions ensures effectiveness at all times.

Another risk arises from defined benefit pension obligations, particularly in the UK. The valuation of the pension obligations and the determination of the net pension expense are based on assumptions. Even minor changes to these assumptions, in particular a change in the discount rates, could have a negative or positive effect on the financing status and group equity for the current financial year. In addition, they could lead to a change in the period-related net pension expense in the following financial year (further information can be found in the Notes to the Consolidated Financial Statements).

The Vaillant Group is subject to the risk of bad debts. We counter this risk with a holistic approach to credit and receivables management. This includes monitoring the entire process for all of the Vaillant Group's stores. A creditworthiness monitoring of the borrower and thus the potential bad debt risk takes place at both local and central level. In the main markets, the Vaillant Group is protected against bad debts through trade credit insurance or equivalent credit collateral. The share of secured receivables remains at a high level and has improved compared to the previous year. Nevertheless, there are uncertainties due to the unstable political and economic situation, for example in Turkey, or uncertainty about the economic consequences of Great Britain's exit from the EU economic area. The Vaillant Group counters this risk with intensive market and customer observation in order to counteract this with suitable measures if necessary.

Law and insurance

Legal disputes that have a significant impact on the earnings, financial and asset position of the Vaillant Group are currently neither pending nor threatened.

In addition, potential liability risks and risks from civil or competition law as well as claims are adequately covered by provisions or insurance policies.

steer

Joh. Vaillant GmbH & Co KG and its subsidiaries operate worldwide and are therefore subject to a wide range of local tax laws and regulations. The companies of the Vaillant Group are continuously audited by tax authorities in various countries. Any changes in legal provisions and case law and different legal interpretations by the tax authorities - especially in the area of cross-border transactions - can lead to higher tax expenses and payments. In addition, they can influence the amount of tax receivables and liabilities as well as the deferred tax assets and liabilities. Any changes or attacks by the tax authorities are continuously identified, assessed and monitored by the tax department. If necessary, risk-avoiding measures are taken. In addition, the tax compliance management system as well as management and reporting processes are continuously monitored and continuously improved.

Information technology

With the increase in IT systems and software in all company areas and products, the topic of IT security is becoming increasingly important. The increasing dependence on the Internet, the need for secure information processing and an increased number of external threats also pose particular challenges for the Vaillant Group. In order to increase information security, an in-depth analysis of the cybersecurity situation within the Vaillant Group was carried out. The necessity of central responsibility for better coordination of cybersecurity activities was recognized and the implementation of additional security measures and the creation of further synergies between the IT departments were focused as goals. Therefore, a company-wide cybersecurity program was launched.

A basic set of security measures has been defined for all departments within the Vaillant Group, covering all the controls known from ISO 27001; some departments implement necessary cybersecurity measures in addition to this baseline.

When building the new Internet of Things platform, the implementation of trustworthy, secure systems and services has the highest priority. With this in mind, we already consider compliance with the relevant requirements in the planning and early implementation phase.

staff

The Vaillant Group depends on qualified and committed employees. It is therefore a constant challenge to win this staff over to the Vaillant Group in intense competition and to retain them in the company. The markets relevant to the Vaillant Group are characterized by intense competition for qualified specialists and managers as well as by demographic challenges. Country- and industry-specific fluctuation risks must be identified with foresight and specifically addressed in order to maintain skills and competencies that are critical to success and business.

We counter this risk by giving high priority to the recruiting, development and retention of specialists and managers at the company. For example, feedback systems are used in a targeted manner, employer branding initiatives are promoted, global talent and successor programs are carried out, and competitive compensation packages are offered. A modern, digital work environment also minimizes risks and creates opportunities for employee development and loyalty.

Legal framework

Legal framework conditions that result for us in particular from climate policy requirements as well as environmental and safety regulations have a not inconsiderable influence on the future business success of the Vaillant Group. In our opinion, the Vaillant Group fully complies with the requirements of the EU General Data Protection Regulation (GDPR) that have been in force since May 2018 for compliance with extended data protection requirements and accountability obligations with regard to its associated processes and systems.

The UK's exit from the EU could continue to be disorderly. Such a "hard Brexit" can result in disruptions in the supply chain. In order to counter these risks, we began making appropriate adjustments to our operational business model in the 2018 reporting year.

Against the background of the Paris Climate Protection Agreement of 2015, many countries are planning to convert their energy supply to renewable energies as quickly as possible and to reduce the use of coal, oil and gas. In the long term, this "decarbonisation" means for the Vaillant Group a market shift from gas appliances to technologies that are operated on the basis of electricity.

In addition, there are a large number of national and regional funding programs for the energetic modernization of heating systems and the use of renewable energy. However, these programs are often very volatile, limited in time and the product requirements are subject to regular adjustment. In order to minimize the risk of dependency on funding programs, the Vaillant Group has started various projects to reduce product costs and can therefore react flexibly to changes in funding conditions in the future.

Environmental risks that could arise in connection with the violation of applicable regulations on environmental protection are covered by environmental liability and environmental damage insurance according to the industry standard.

Summary of the risks and opportunities

At the time this report was prepared, no risks were known which, individually or in their entirety, could jeopardize the continued existence of the Vaillant Group. We classify all identified risks as manageable. It should be noted, however, that risks with a currently lower estimated risk level may have more serious damage effects than risks with a currently higher estimated risk level. There may also be negative effects on business developments from risks that are not currently known or that are not classified as significant.

There are no significant changes compared to the assessment of the risks and opportunities in the previous year. As before, there are significant exchange rate risks that are difficult to assess due to their connection with political and / or economic developments in the respective countries (e.g. Great Britain, Turkey, Russia, China). The expectations for the coming years were based on exchange rates that are based on the exchange rate fluctuations of the reporting year and the trend forecasts of possible exchange rate developments. Nevertheless, there is the possibility of an additional, unplanned burden on future business results due to negative share price developments for the Vaillant Group.

Furthermore, we continue to assume sales and revenue risks in the coming financial years, which are related to stagnating demand and, at the same time, continued intensification of price competition on the European heating, ventilation and air conditioning markets.

In addition, there is the risk of disruptive business models that pose a medium-term threat to the existing sales and distribution channels as well as the existing product range of the Vaillant Group in the course of the advancing digitization of the markets.

However, digitization does not only represent a risk, but also an excellent opportunity that we are taking advantage of by adapting and expanding our existing organizational and sales structures. This creates additional earnings potential, which opens up opportunities to further strengthen our competitive position.

As in the previous year, we see an opportunity in connection with the construction of our new research and development center at the headquarters in Remscheid, which should be ready for occupancy in the 2019 financial year. This will enable us to generate synergy effects and increase the efficiency of our product development processes.

FORECAST REPORT

Overall Economic Development

At the time of writing and on the basis of the available forecasts, it is only possible to make a rough estimate on the global economic development for 2019 and is subject to numerous imponderables. Although the IMF anticipates a growth rate slightly below that of 2018 for 2019, factors such as trade policy conflicts, the exacerbation of existing geopolitical crises, the consequences of Brexit on the economy in the EU internal market and within Great Britain, new sovereign debt crises in the euro area as well as a persistent economic slowdown in China will have negative effects on world trade.

Industry development

Industry analysts expect a stagnating to negative trend in the international heating technology markets for 2019. This applies across the board to all major European core markets. In China, on the other hand, growth is expected to be positive year-on-year, although it remains to be seen whether this will mark a sustainable trend reversal. The heat pumps product segment will probably remain excluded from the generally cautious outlook for the future economic situation in the industry. For this, double-digit growth rates are again forecast for 2019.

Outlook of the Vaillant Group on the development of sales revenues and operating profit (EBIT) for 2019

On the basis of the business and industry development described in this report as well as weighing up the potential risks and opportunities, we can look forward to a challenging year 2019.

The basis for future sales increases is our competitive position in the sometimes difficult environment of the heating, ventilation and air conditioning market. We have consolidated these in recent years with our innovative strength, our strong brands and the quality of our portfolio.

With the growth initiatives initiated and continued in previous years and with the consistent implementation of our strategy, we want to achieve sustainable growth in our core markets.

For 2019, subject to significant exchange rate fluctuations, we expect a moderate increase in sales and a slight increase in the operating result (EBIT). Not least due to unforeseeable developments in the corporate environment, the actual business results may differ from our expectations.

Haan, June 14, 2019

Joh. Vaillant GmbH & Co KG
Vaillant Management GmbH

The Board

Holger Schulz

¹ "Sales revenue" and "sales revenue" are used synonymously in the following

² As of the 2018 reporting year, certain income from the other operating result was now shown in the expenses of the functional areas in order to improve the presentation as part of a voluntary change in reporting. The previous year's figures have been adjusted accordingly. For further information, please refer to the notes to the consolidated financial statements ³ Investments before capitalization of research and development services ⁴ Net cash flow before changes in financial liabilities and dividends

CONSOLIDATED INCOME STATEMENT

	Appendix	2018		2017*	
		Million Euro	%	Million Euro	%
Sales	5.1	2,500.9	100.0	2,359.7	100.0
Production cost of sales	5.2	-1,510.0	-60.4	-1,436.8	-60.9
Gross profit on sales		990.9	39.6	922.9	39.1
Research and development costs	5.3	-97.8	-3.9	-91.6	-3.9
Marketing and distribution costs	5.4	-523.7	-20.9	-498.7	-21.1
administrative expenses	5.5	-130.4	-5.2	-109.7	-4.6
Other company income	5.6	15.6	0.6	40.4	1.7
Other operating expenses	5.6	-33.3	-1.3	-31.7	-1.3
Operating profit (EBIT)		221.3	8.8	231.5	9.8
Result from other financial assets	5.7	-0.0	-0.0	-0.0	-0.0
Result from investments accounted for using the equity method	5.7	-0.2	-0.0	1.2	0.1
Interest income and similar income	5.8	4.7	0.2	56.3	2.4
Interest expense and similar expenses	5.8	-19.6	-0.8	-61.4	-2.6
Earnings before taxes		206.2	8.2	227.7	9.6
Income taxes	5.9	-46.4	-1.9	-51.2	-2.2
Earnings after taxes from continuing operations		159.8	6.4	176.4	7.5
Group profit for the year		159.8	6.4	176.4	7.5
Allocation of the annual surplus to the Shareholder of the parent company		153.9	6.2	170.6	7.2
Minority interests		6.0	0.2	5.8	0.2

* Values adjusted, see explanation in chapter 2.4

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

	Appendix	2018 million euros	2017 million euros
Group profit for the year		159.8	176.4
Components that cannot be reclassified to the income statement			
Change in the revaluation reserve from defined benefit pension commitments		6.2	34.3
Components that can be reclassified to the income statement			
Currency differences from the translation of the financial statements of foreign subsidiaries		-36.7	-24.7
Profits and losses from hedging instruments used to hedge cash flows		-6.0	0.4
Other result	5.11	-36.5	10.0
Overall result		123.4	186.4
Allocation of the overall result to the			
Shareholder of the parent company		117.4	180.6
Minority interests		6.0	5.8

GROUP CASH FLOW STATEMENT

	Appendix	2018 million euros	2017 million euros
Annual surplus		159.8	176.4
Financial result		15.0	3.8
Income taxes		46.4	51.2
Depreciation on intangible assets and property, plant and equipment		76.0	69.4
Other non-cash expenses and income (-)		-0.0	-0.1
Increase / decrease (-) long-term provisions and liabilities		-21.9	-42.4
Increase (-) / decrease in long-term receivables and assets		-1.6	11.9
Book profits (-) / losses from the disposal of property, plant and equipment and intangible assets		-0.9	-6.6
Increase (-) / decrease in inventories		-55.0	-42.1
Increase (-) / decrease in current receivables and other assets		19.6	-3.4
Increase / decrease (-) current liabilities		2.4	40.4
Increase / decrease (-) in short-term provisions and other liabilities		-29.3	-2.9
Operating cash flow		210.4	256.0
Income taxes paid		-51.7	-27.8
Cash flow from operating activities		158.6	228.2
Payment for the acquisition of intangible assets and property, plant and equipment		-128.7	-102.1
Proceeds for the sale of intangible assets and property, plant and equipment		2.1	13.5
Payments for financial assets and for the acquisition of subsidiaries		-0.4	-0.4
Deposits for financial assets		0.8	0.6
Cash flow from investing activities		-126.2	-88.4
Dividends received		0.0	1.1
Increase / repayment (-) of group loans (not consolidated)		-106.3	-77.9
Borrowing		121.9	31.2
Loan repayment		-58.1	-21.7
Interest Paid		-12.0	-21.3
Interest received		4.6	22.9
Finance lease repayments		-2.9	-3.3
Payments to minority shareholders from the change in the participation rate		-0.8	-
Dividends paid to minority shareholders		-5.6	-5.3
Cash flow from financing activities		-59.2	-74.3
Net cash flow		-26.7	65.5
Cash funds at the beginning of the period		264.3	208.4
Currency-related change in financial resources		-5.9	-9.6
Cash funds at the end of the period	6th	231.8	264.3

CONSOLIDATED BALANCE SHEET

	Appendix	December 31, 2018		December 31, 2017	
		Million Euro	%	Million Euro	%
Long-term assets					
Company Value	7.1	639.0	30.2	656.2	31.2
Other intangible assets	7.1	124.9	5.9	109.3	5.2
Property, plant and equipment	7.2	334.2	15.8	307.6	14.7
Companies accounted for using the equity method		0.3	0.0	1.8	0.1
Other financial assets	7.3	2.8	0.1	5.7	0.3
Other claims	7.5	5.8	0.3	5.7	0.3
Deferred taxes	5.9	97.3	4.6	96.3	4.6

	Appendix	December 31, 2018		December 31, 2017	
		Million Euro	%	Million Euro	%
		1,204.2	56.9	1,182.4	56.4
Short-term assets					
Stocks	7.6	350.9	16.6	295.9	14.1
Requests from deliveries and services	7.4	266.0	12.6	284.4	13.6
Other financial assets	7.3	1.4	0.1	6.1	0.3
Other claims	7.5	55.6	2.6	55.5	2.6
Tax Refund Claims		7.6	0.4	9.6	0.5
Cash and cash equivalents	6th	231.8	10.9	264.3	12.6
		913.3	43.1	915.7	43.6
Total assets		2,117.5	100.0	2,098.1	100.0
	Appendix	December 31, 2018		December 31, 2017	
		Million Euro	%	Million Euro	%
equity capital					
Subscribed capital		14.0	0.7	14.0	0.7
Capital reserve		3.5	0.2	3.5	0.2
Retained earnings		1,164.0	55.0	1,118.3	53.3
Other equity components		-557.5	-26.3	-521.0	-24.8
Equity of the shareholders of the parent company		624.0	29.5	614.8	29.3
Minority interests		6.0	0.3	6.0	0.3
	7.7	630.0	29.8	620.8	29.6
Long-term liabilities					
Provisions for pensions	7.8	314.5	14.9	338.2	16.1
Other provisions	7.9	71.0	3.4	77.0	3.7
Financial liabilities	7.10	147.6	7.0	59.9	2.9
Other liabilities	7.13	69.5	3.3	63.3	3.0
Deferred taxes	5.9	3.8	0.2	6.4	0.3
		606.4	28.6	544.8	26.0
short-term borrowed capital					
Other provisions	7.9	252.8	11.9	279.9	13.3
Financial liabilities	7.10	99.3	4.7	123.7	5.9
liabilities from goods and services	7.12	298.3	14.1	304.1	14.5
Other liabilities	7.13	218.5	10.3	212.1	10.1
Income tax liabilities	7.9	12.2	0.6	12.7	0.6
		881.1	41.6	932.5	44.4
Total capital		2,117.5	100.0	2,098.1	100.0

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY

Million Euro	Equity attributable to the shareholders of the parent company				
	Subscribed capital	Capital reserve	Retained earnings		
As of 01/01/2017	14.0	3.5	1,026.2		
Overall result	-	-	170.6		
Credits from liability accounts for shareholders	-	-	-78.5		
Changes in the participation rate without loss of control	-	-	-		
Rest	-	-	-0.1		
Total December 31, 2017	14.0	3.5	1,118.3		
As of 01/01/2018 (as previously reported)	14.0	3.5	1,118.3		
Adjustments from retrospective application	-	-	-1.9		
As of 01/01/2018	14.0	3.5	1,116.4		
Overall result	-	-	153.9		
Credits from liability accounts for shareholders	-	-	-105.8		
Changes in the participation rate without loss of control	-	-	-0.5		
Other *	-	-	-		
As of December 31, 2018	14.0	3.5	1,164.0		
	Equity attributable to the shareholders of the parent company				
	Other equity components				
Million Euro	Currency conversion	Revaluation reserve from defined benefit pension commitments	Time valuation of hedging instruments	Others	total
As of 01/01/2017	-114.0	-403.0	-15.0	1.1	512.8
Overall result	-24.7	34.3	0.4	-	180.6
Credits from liability accounts for shareholders	-	-	-	-	-78.5

Equity attributable to the shareholders of the parent company

Million Euro	Other equity components					total
	Currency conversion	Revaluation reserve from defined benefit pension commitments	Time valuation of hedging instruments	Others		
Changes in the participation rate without loss of control	-	-	-	-	-	-
Rest	-	-	-	-	-	-0.1
Total December 31, 2017	-138.7	-368.8	-14.6	1.1		614.8
As of 01/01/2018 (as previously reported)	-138.7	-368.8	-14.6	1.1		614.8
Adjustments from retrospective application	-	-	-	-	-	-1.9
As of 01/01/2018	-138.7	-368.8	-14.6	1.1		612.9
Overall result	-36.7	6.2	-6.0	-	-	117.4
Credits from liability accounts for shareholders	-	-	-	-	-	-105.8
Changes in the participation rate without loss of control	-	-	-	-	-	-0.5
Other *	-20.7	-	20.7	-	-	-
As of December 31, 2018	-196.1	-362.5	0.1	1.1		624.0
Million Euro				Minority interests		Total equity
As of 01/01/2017				5.4		518.2
Overall result				5.8		186.4
Credits from liability accounts for shareholders				-5.3		-83.8
Changes in the participation rate without loss of control				-		-
Rest				-		-0.1
Total December 31, 2017				6.0		620.8
As of 01/01/2018 (as previously reported)				6.0		620.8
Adjustments from retrospective application				-		-1.9
As of 01/01/2018				6.0		619.0
Overall result				6.0		123.4
Credits from liability accounts for shareholders				-5.6		-111.4
Changes in the participation rate without loss of control				-0.3		-0.9
Other *				-		-
As of December 31, 2018				6.0		630.0

* see chapter 8.4

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**1 GENERAL PRINCIPLES**

The consolidated financial statements and the group management report of Joh.Vaillant GmbH & Co KG, based in Haan (register court: Wuppertal District Court HRA 19162) for the financial year ending on December 31, 2018, were prepared by the management on June 14, 2019. The consolidated financial statements are submitted to the Advisory Board for approval. This has the opportunity to change the consolidated financial statements after approval by the management. The consolidated financial statements are deemed to have been adopted with the approval of the advisory board if the management and the advisory board do not decide in favor of the shareholders' approval.

Joh. Vaillant GmbH & Co KG is the management company of the Joh. Vaillant GmbH & Co KG group.

The actual business activity corresponds to the entry in the commercial register. The main activity of the Vaillant Group is the development and production of hot water and heating devices and the worldwide sale of these products.

This conclusion is published in the Federal Gazette.

2 ACCOUNTING METHODS**2.1 Basis for preparing the financial statements**

With the exception of certain financial instruments, which are shown at fair value, the consolidated financial statements are generally prepared using the cost principle. The consolidated financial statements are prepared in euros. Unless otherwise stated, all amounts are given in millions of euros. Due to rounding, there may be slight deviations in the form of totals and the calculation of percentages in these financial statements.

In order to improve the clarity of the presentation, various items in the income statement and balance sheet have been combined. These items are shown and explained separately in the notes.

The income statement is prepared using the cost of sales method. The balance sheet is broken down according to the maturity of the assets and liabilities.

2.1.1 Statement of Compliance with IFRS

The consolidated financial statements of the Vaillant Group were prepared in accordance with the International Financial Reporting Standards (IFRS) of the International Accounting Standards Board (IASB), as applicable in the European Union (EU), and the additional commercial law provisions to be applied in accordance with Section 315e (1) of the German Commercial Code and was supplemented by a group management report. Due to the regulation of Section 315e (3) HGB, these consolidated financial statements prepared in accordance with IFRS exempt from the obligation to prepare consolidated financial statements in accordance with HGB.

2.1.2 Consolidation principles

The consolidated financial statements of the Vaillant Group include the financial statements of Joh. Vaillant GmbH & Co KG and the financial statements of the companies it controls (subsidiaries) as of December 31, 2018. The Vaillant Group gains control if it:

- can exercise power of disposal over the investee,

- is exposed to fluctuating returns from its participation and
- can influence the level of returns due to its power of disposal.

The Vaillant Group reassesses whether or not it controls an associated company if facts and circumstances indicate that one or more of the above-mentioned control criteria have changed.

There is a rebuttable presumption that control generally exists when the Vaillant Group has the majority of the voting rights in an associated company. If there is no majority of voting rights, the Vaillant Group still controls the investee if it has the practical option of unilaterally determining the relevant activities of the investee through its voting rights. When assessing whether its voting rights are sufficient for the power of determination, the Vaillant Group takes into account all facts and circumstances, including

the scope of the voting rights held by the Vaillant Group in relation to the scope and distribution of the voting rights of other voting right holders;

- potential voting rights of the Vaillant Group, other holders of voting rights and other parties;
- rights from other contractual agreements; and

Other facts and circumstances that indicate that the Vaillant Group has or does not currently have the ability to determine the relevant activities at the times at which decisions have to be made, taking into account the voting behavior at previous shareholders' meetings.

Subsidiaries are fully consolidated from the time of acquisition, i.e. from the time at which the Vaillant Group gains control. The consolidation ends as soon as the parent company no longer has control. The financial statements of the subsidiaries as well as the financial statements of the parent company are prepared using uniform accounting methods for the same reporting period. The business year corresponds to the calendar year. All intra-group balances, income and expenses as well as unrealized gains and losses and dividends from intra-group transactions are eliminated in full.

A change in the level of participation in a subsidiary without loss of control is accounted for as an equity transaction.

Losses are allocated to minority interests (interests without a controlling influence) even if this leads to a negative balance.

If the parent company loses control over a subsidiary,

it deregisters the assets (including goodwill) and debts of the subsidiary,

- it books off the book value of all minority interests in the former subsidiary,
- it records the fair value of the consideration received,
- it records the fair value of the remaining investment,
- it records earnings surpluses or deficits in the profit and loss account,
- it reclassifies the components of the other comprehensive income attributable to the parent company in the income statement or, if required, in the retained earnings.

2.2 Accounting regulations applied for the first time

All IFRS binding for the 2018 financial year, as applied in the EU, have been complied with. The IFRS include the new IFRS issued by the IASB, the International Accounting Standards (IAS), the interpretations of the International Financial Reporting Standards Interpretations Committee (IFRS IC) and the Standing Interpretations Committee (SIC).

The accounting methods applied are basically the same as those applied in the previous year with the following exceptions:

The Vaillant Group applied IFRS 9 Financial Instruments for the first time in the past financial year. IFRS 9 introduces new recognition and measurement regulations for financial instruments and replaces the provisions of IAS 39. The new regulations include the classification of financial assets depending on the underlying business model and the cash flow characteristics of the instruments. The provisions on impairment provide that credit losses are not only recognized when a loss event occurs, but when they are added on the basis of a future-oriented expected loss model. The new standard also includes a fundamental revision of the regulations on hedge accounting,

The first-time application of IFRS 9 Financial Instruments resulted in the changes listed in the following table with regard to the classification and measurement of financial assets and liabilities with regard to the first-time application of January 1, 2018:

Million Euro	Measurement category according to IAS 39	Measurement category according to IFRS 9	Book value in accordance with IAS 39	Book value according to IFRS 9
Cash and cash equivalents	Receivables and loans at amortized cost	Financial assets at amortized cost	264.3	264.3
Forward foreign exchange transactions	Derivatives with a hedging relationship / derivatives without a hedging relationship	Derivatives with a hedging relationship / derivatives without a hedging relationship	0.3	0.3
Commodity futures	Derivatives with a hedging relationship	Derivatives with a hedging relationship	6.9	6.9
Requests from deliveries and services	Receivables and loans at amortized cost	Financial assets at amortized cost	273	273
Trade accounts receivable that are sold under the ABS program	Receivables and loans at amortized cost	Financial assets that are measured at fair value through profit or loss	11.4	11.1
Other financial assets (non-derivative)	Receivables and loans at amortized cost	Financial assets at amortized cost	23.6	23.6
Investments in equity instruments	Available for sale (at fair value not affecting profit or loss)	Financial assets that are measured at fair value through profit or loss	0.2	0.2
liabilities from goods and services	Financial liabilities at amortized cost	Financial liabilities at amortized cost	304.1	304.1
Financial liabilities (non-derivative)	Financial liabilities at amortized cost	Financial liabilities at amortized cost	180.4	180.4
Other financial liabilities	Financial liabilities at amortized cost	Financial liabilities at amortized cost	53.7	53.7

The transition from existing hedging relationships to the new rules did not result in any effects. A fair value measurement of outstanding trade receivables that can still be sold in subsequent months under the existing ABS program has only insignificant effects. Based on the circumstances at the time of initial application, a fair value analysis would have led to a reduction in the carrying amount of the items in question by EUR 0.3 million.

According to IFRS 9, investments in equity instruments are generally to be measured at fair value through profit or loss, whereas according to IAS 39, as financial instruments available for sale, they are subject to fair value measurement with no effect on income.

The Vaillant Group has made use of the option of simplified first-time application, which means that there is no need to adjust the previous year's figures. As there were no significant deviations between the previous book value according to IAS 39 and the book value according to IFRS 9 at the beginning of the 2018 financial year, an adjustment to the retained earnings as of January 1, 2018 was waived.

In addition, the Vaillant Group applied IFRS 15 Revenue from Contracts with Customers for the first time in the past financial year. According to IFRS 15, companies must use a five-step model to determine when (or over what period) and to what extent they record sales. The model specifies that revenue at the time (or over the period of time) the transfer of control of goods or services from the company to the customer is to be recognized in the amount to which the company is expected to be entitled. The application guidelines of the new standard contain rules on numerous topics, including warranties and licenses. It also includes regulations on the point in time at which costs are capitalized for the acquisition or performance of a contract, provided the costs do not fall within the scope of another standard. The standard requires additional information, including the breakdown of total sales, performance obligations, reconciliations for the opening and closing balances of the contractual assets and liabilities, as well as significant judgments and estimates.

The application of IFRS 15 as of January 1, 2018 only had a minor impact on the amount and time of revenue recognition in existing customer relationships, as the Vaillant Group had already interpreted the rules for revenue recognition before the date of initial application in such a way that they largely corresponded to the accounting under IFRS 15. This applies in particular to the determination of the transaction price, taking variable components into account, as well as the realization of revenue in connection with multi-component transactions and system solutions consisting of product and service components. The Vaillant Group applies the option of simplified first-time application and limits the retrospective application of IFRS 15 to contracts which had not yet been fully met at the time of initial application. Contracts that have not yet been fulfilled as of January 1, 2018 are accounted for as if they had been accounted for in accordance with IFRS 15 from the start. The reassessment of the revenue recognition of certain service contracts resulted in an effect of 2.5 million euros, which was recognized as a short-term contractual liability with a simultaneous reduction in retained earnings as of January 1, 2018. On the other hand, there was an adjustment of the revenue reserves in the amount of EUR 0.6 million from the consideration of deferred tax assets. Comparative figures for the same period in the previous year have not been adjusted. Contracts that have not yet been fulfilled in January 2018 are accounted for as if they had been accounted for in accordance with IFRS 15 from the start. The reassessment of the revenue recognition of certain service contracts resulted in an effect of 2.5 million euros, which was recognized as a short-term contractual liability with a simultaneous reduction in retained earnings as of January 1, 2018. On the other hand, there was an adjustment of the revenue reserves in the amount of EUR 0.6 million from the consideration of deferred tax assets. Comparative figures for the same period in the previous year have not been adjusted. Contracts that have not yet been fulfilled in January 2018 are accounted for as if they had been accounted for in accordance with IFRS 15 from the start. The reassessment of the revenue recognition of certain service contracts resulted in an effect of 2.5 million euros, which was recognized as a short-term contractual liability with a simultaneous reduction in retained earnings as of January 1, 2018. On the other hand, there was an adjustment of the revenue reserves in the amount of EUR 0.6 million from the consideration of deferred tax assets. Comparative figures for the same period in the previous year have not been adjusted. The reassessment of the revenue recognition of certain service contracts resulted in an effect of 2.5 million euros, which was recognized as a short-term contractual liability with a simultaneous reduction in retained earnings as of January 1, 2018. On the other hand, there was an adjustment of the revenue reserves in the amount of EUR 0.6 million from the consideration of deferred tax assets. Comparative figures for the same period in the previous year have not been adjusted. The reassessment of the revenue recognition of certain service contracts resulted in an effect of 2.5 million euros, which was recognized as a short-term contractual liability with a simultaneous reduction in retained earnings as of January 1, 2018. On the other hand, there was an adjustment of the revenue reserves in the amount of EUR 0.6 million from the consideration of deferred tax assets. Comparative figures for the same period in the previous year have not been adjusted. 6 million euros from taking into account deferred tax assets. Comparative figures for the same period in the previous year have not been adjusted. 6 million euros from taking into account deferred tax assets. Comparative figures for the same period in the previous year have not been adjusted.

The first-time application of the innovations or changes to existing pronouncements listed below did not have any impact on the net assets, financial position and results of operations of the Vaillant Group:

Announcement	title	Changes	Impact on the asset, financial and earnings position (VFE)
IFRIC 22	Transactions in foreign currency and consideration paid in advance	The interpretation covers foreign currency transactions when a company recognizes a non-monetary asset or liability that arises from prepayment or receipt of consideration in advance before the entity recognizes the related asset, income or expense recorded. The timing of the transaction for the purpose of determining the exchange rate is the initial recognition of the non-monetary asset from the prepayment or the non-monetary liability from deferred income.	The first-time application had no effect on the VFE situation of the Vaillant Group
AIP 2014-2016	Amendment to IFRS 12	The amendment in IFRS 12 already came into force on January 1, 2017 in accordance with the IASB requirements, but due to a lack of EU endorsements, this was not yet binding. In terms of content, IFRS 12 was specified to the effect that the reporting obligations are also to be applied to all companies specified in IFRS 12.5, provided that these are classified as being for sale, for distribution purposes or as discontinued operations i. S. v. Are classified according to IFRS 5.	The first-time application had no effect on the VFE situation of the Vaillant Group

2.3 Accounting regulations that have been published but not yet applicable in the 2018 financial year

The following standards and interpretations that are potentially relevant for the Vaillant Group and published by the IASB and IFRS IC are not mandatory in the past financial year due to the fact that they have not yet been recognized by the EU or that they have not yet been applied for the first time. If recognition by the EU is already available, Vaillant has not applied it early.

Announcement	title	Application time
TAKEN OVER BY THE EU Amendment to IAS 28	Long-term investments in associated companies and joint ventures	01/01/2019
IFRIC 23	Uncertainty regarding income tax treatment	01/01/2019

	title	Application time
Announcement Amendment to IFRS 9	Prepayment rules with negative compensation payments	01/01/2019
IFRS 16	Leases	01/01/2019
NOT YET ADOPTED BY THE EU Amendment to IAS 19	Plan change, reduction or compensation	01/01/2019
AIP 2015-2017	Amendment to IAS 12, IAS 23 and IFRS 3 in connection with IFRS 11	01/01/2019
Change to the financial reporting framework	Framework for financial reporting 2018	01/01/2020
Amendment to IAS 1 and IAS 8	Definition of "material"	01/01/2020
Amendment to IFRS 3	Definition of a business operation	01/01/2020
Announcement TAKEN OVER BY THE EU Amendment to IAS 28	Changes anticipated Investments in associated companies and joint ventures which are accounted for in accordance with IAS 28 Investments in Associates and Joint Ventures are excluded from the scope of IFRS 9 Financial Instruments. However, the IFRS Interpretations Committee received an inquiry as to whether this exclusion from scope should only be applied to investments in associates and joint ventures for which the equity method is applied; this did not seem clear to some users. An additional number 14A has been added to clarify	Impact on the asset, financial and earnings position (VFE) The Vaillant Group does not expect the change to the standard to have any impact on the VFE situation.
IFRIC 23	The interpretation is to be applied to taxable profits (tax losses), tax bases, unused tax losses, unused tax credits and tax rates if there is uncertainty about the income tax treatment according to IAS 12.	The Vaillant Group does not expect the interpretation to have any impact on the VFE situation.
Amendment to IFRS 9	The amendment to IFRS 9 includes both changes to symmetrical termination rights and minor changes to the modification of financial liabilities.	The Vaillant Group does not expect the change to the standard to have any effect on the VFE situation

Announcement
IFRS 16

Changes anticipated

The differentiation between finance and operating leasing contracts previously required under IAS 17 will no longer apply to the lessee. With a few exceptions, the lessee records a lease liability in its balance sheet for all leases for the obligation to make future lease payments. At the same time, the lessee capitalizes a right of use to the underlying asset, which basically corresponds to the present value of the future lease payments plus directly attributable costs. During the term of the lease, the lease liability is updated using financial mathematics, similar to the regulations of IAS 17 for finance leases, while the right of use is amortized as planned. In the case of the lessor, on the other hand, the regulations of the new standard are similar to the previous regulations of IAS 17.

Impact on the asset, financial and earnings position (VFE)

The effects of the standard on the VFE situation of the Vaillant Group were examined and, based on the current status of the analysis, the Vaillant Group expects the first-time application of the standard to have significant effects, in particular on the accounting for leases for land and buildings as well as vehicles.

The first-time application of IFRS 16 will result in an increase in the balance sheet total in the upper double-digit million range, which is due to the capitalization of the rights of use and the recognition of lease liabilities. The increase in lease liabilities will result in a corresponding increase in net financial liabilities, and the operating result (EBIT) will increase in the lower single-digit million range. The cash flow from operating activities will improve through the first-time application of IFRS 16, since the previous operating lease payments - unless they are payments from short-term or low-value leases - will in future be reported in cash flow from financing activities. The Vaillant Group expects an increase in the repayments of long-term financial liabilities from leases in the lower double-digit million range.

The Vaillant Group will use the option for simplified first-time application, according to which comparative figures from the previous year's period generally do not have to be adjusted, but any changeover effects from the first-time application of IFRS 16 at the beginning of the 2019 financial year are to be recognized in the opening balance of retained earnings as of January 1, 2019. The Vaillant Group will make use of the relief options for lessees with regard to short-term leases and agreements on low-value assets.

The Vaillant Group does not apply IFRS 16 early.

Announcement NOT YET ADOPTED BY THE EU Amendment to IAS 19	Changes anticipated	Impact on the asset, financial and earnings position (VFE)
AIP 2015-2017	<p>The background to this change is the finding that after a change, reduction or compensation of a defined benefit pension plan has occurred during the year, a sometimes different accounting practice is currently in place. With this change, the IASB has explicitly regulated that after a planned event during the year, both the current service cost and the net interest must be recalculated for the remainder of the reporting year. On this basis, the net debt must then be reassessed using the actuarial assumptions valid at the time of the plan event.</p> <p>With the amendment to IAS 12, the basic principle is now clearly underlined that the disclosure of tax effects must follow the recognition of the underlying transaction with an impact on earnings or with no impact on earnings.</p> <p>The amendment to IAS 23 concerns the treatment of borrowed funds that were specifically taken out for an asset under construction. The addition to IAS 23.14 makes it clear that when an asset is ready for its intended use, an entity must include any remaining debt that was explicitly taken out in order to preserve that asset as part of the generally borrowed capital in the calculation the capitalization rate of general borrowing is to be treated.</p> <p>The amendment to IFRS 3 / IFRS 11 is intended to clarify the accounting for shares in so-called joint operations in which shares were previously held, specifically in the event that control or joint control is achieved for the first time. Accordingly (according to IFRS 3) a company has to revalue the shares previously held when it gains control over such a business operation. In contrast, a company (in accordance with IFRS 11) does not have to revalue its previously held shares when it gains joint control over such a business operation.</p>	<p>The Vaillant Group does not expect the change to have any material impact on the VFE situation.</p> <p>The Vaillant Group does not expect the changes to the standard to have any impact on the VFE situation.</p>

Announcement	Changes anticipated	Impact on the asset, financial and earnings position (VFE)
Change to the financial reporting framework	The changes primarily concern the definition criteria for assets and liabilities as well as the elimination of separate recognition criteria, which could lead to an expansion of the group of assets and liabilities to be recognized in the balance sheet. It also contains new guidelines on valuation and derecognition as well as identification and information.	The Vaillant Group does not expect the change to have any material impact on the VFE situation.
Amendment to IAS 1 and IAS 8	The IASB has issued a definition of "material" in order to sharpen the definition of "material" and to harmonize the various definitions in the Conceptual Framework and in the standards themselves.	The Vaillant Group does not expect the change to have any impact on the VFE situation.
Amendment to IFRS 3	The narrowly outlined changes to IFRS 3 aim to solve the problems that arise when an entity determines whether it has acquired a business or a group of assets. The problems result from the fact that the accounting rules for goodwill, acquisition costs and deferred taxes when acquiring a business are different than when acquiring a group of assets.	The Vaillant Group does not expect the change to have any impact on the VFE situation.

2.4 Method changes to improve the presentation

In order to better reflect the economic content of those business transactions in which the Vaillant Group has claims against third parties based on corresponding agreements for reimbursement, subsidies or the assumption of expenses, the related income in the functional areas will become profit as part of a voluntary change in the 2018 financial year - and loss statement in which the underlying expenses are incurred. The same is done with the income from the reversal of provisions. These are also shown in the functional areas for which the corresponding provisions were originally set up.

The management is of the opinion that the changed reporting will present the expenses actually incurred for an operational function more accurately. For reasons of comparability, the previous year was adjusted accordingly and a reclassification from other operating income in the amount of EUR 21.0 million was made as follows:

Million Euro	Before reclassification		After reclassification	
	2017	modification		in 2017
Sales	2,359.7	-		2,359.7
Production cost of sales	-1,442.4	5.6		-1,436.8
Gross profit on sales	917.2	5.6		922.9
Research and development costs	-94.4	2.8		-91.6
Marketing and distribution costs	-508.2	9.6		-498.7
administrative expenses	-110.9	1.2		-109.7
Other company income	61.4	-21.0		40.4
Other operating expenses	-33.5	1.8		-31.7
Operating profit (EBIT)	231.5	0.0		231.5

2.5 Summary of Significant Accounting Policies

2.5.1 Business Combinations and Goodwill

Business combinations are accounted for using the purchase method. The acquisition costs of a company acquisition are measured as the sum of the consideration transferred, valued at the fair value at the time of acquisition, and the minority interests in the company acquired. In every business combination, the Vaillant Group measures the minority interests in the acquired company either at fair value or at the corresponding share of the identifiable net assets of the acquired company. Costs incurred as part of the business combination are recognized as an expense.

If the Vaillant Group acquires a company, it assesses the appropriate classification and designation of the financial assets and liabilities assumed in accordance with the contractual terms, economic circumstances and the conditions prevailing at the time of acquisition. This also includes a separation of the derivatives embedded in host contracts.

Goodwill is initially valued at acquisition cost, which is measured as the excess of the consideration transferred over the identifiable assets acquired and liabilities assumed.

After initial recognition, the goodwill is valued at cost less any accumulated impairment losses. For the purpose of the annual impairment test, the goodwill acquired as part of a business combination is allocated to the Vaillant Group from the time of acquisition of the cash-generating unit or groups of cash-generating units (both of which are subsumed under CGU below) that are expected to benefit from the business combination. This applies regardless of whether the assets or liabilities of the acquired company are assigned to these CGUs.

If goodwill has been allocated to a CGU and a business area of this unit is sold, the goodwill attributable to the sold business area is taken into account as part of the book value of the business area when determining the result from the sale of this business area. The value of the sold portion of the goodwill is determined on the basis of the relative values of the sold business area and the remaining part of the CGU, provided that another method does not provide a better allocation of the proportional goodwill to the sold business area.

2.5.2 Shares in associated companies / other investments

The shares of the Vaillant Group in an associated company are generally accounted for using the equity method.

An associated company is a company over which the Vaillant Group has significant influence. Significant influence is the opportunity to participate in the financial and business policy decisions of the company in which the investment is held. This applies to direct or indirect voting shares of 20 percent to 50 percent.

According to the equity method, shares in the associated company are to be included in the consolidated balance sheet at their acquisition costs, which are adjusted for changes in the Group's share of the profit or loss and other income of the associated company after the date of acquisition. Losses incurred by an associated company that exceed the Vaillant Group's stake in this associated company are not recorded. They are only recorded if the Group has entered into legal or factual obligations to absorb losses or makes payments in place of the associated company.

After applying the equity method, it is determined whether it is necessary to record an additional impairment loss for the shares of the Vaillant Group in associated companies. On each balance sheet date, the Vaillant Group determines whether there are objective indications that the share in an associated company may be impaired. If this is the case, the difference between the recoverable amount of the stake in the associated company and the book value of the stake is recognized in profit or loss as an impairment loss.

Shares in non-consolidated affiliated companies and other insignificant investments of the Vaillant Group are classified as financial assets that are measured at fair value through profit or loss. For the sake of simplicity, they are valued at amortized cost, unless a lower fair value can be determined.

2.5.3 Non-current assets held for sale

Non-current assets and disposal groups classified as held for sale are valued at the lower of the carrying amount and fair value less costs to sell. Long-term assets or disposal groups are classified as held for sale if the associated book value is primarily realized through a sale and not through continued use. This is only the case if the sale is highly probable and the asset or disposal group can be sold immediately in its current condition. Management must have decided to sell

Property, plant and equipment and intangible assets classified as held for sale are no longer subject to scheduled depreciation.

2.5.4 Foreign currency conversion

2.5.4.1 Foreign currency transactions and balances

In the individual financial statements of the consolidated subsidiaries, transactions in foreign currencies are converted into the functional currency at the rate on the day of the transaction. On the balance sheet date, monetary items are converted at the closing rate, non-monetary items are converted at the transaction rate. Exchange differences are recognized in profit or loss.

2.5.4.2 Conversion of the financial statements of companies included in the consolidated financial statements

The annual financial statements of companies outside the euro area are converted using the functional currency concept. The functional currency of these companies is currently the respective national currency in all cases, as these companies conduct their business independently from a financial, economic and organizational point of view. Accordingly, the assets and liabilities of these companies are converted using the exchange rate on the reporting date. In principle, expenses and income are converted at the annual average rate. Anything in connection with the acquisition of a foreign business operation after the 1st Goodwill arising from January 1, 2005 and any adjustments to the fair value of assets and liabilities in connection with acquisitions of companies outside the euro area are regarded as assets and liabilities of the reporting company and translated using the exchange rates at the time of the business transactions and in subsequent periods using the closing rate. Exchange rate differences are generally recognized directly in equity.

The exchange rates of the most important currencies for the Vaillant Group to the euro changed as follows:

1		Closing rate		Average rate	
		December 31, 2018	December 31, 2017	2018	2017
euro	currency				
China	CNY	7.88	7.80	7.82	7.64
Great Britain	GBP	0.89	0.89	0.88	0.88
Turkey	TRY	6.03	4.52	5.64	4.15
Russia	RUB	79.72	69.39	74.59	66.65

2.5.5 Intangible Assets

Intangible assets with a determinable useful life that are not acquired as part of a business combination are recognized at acquisition or production cost less accumulated depreciation and impairment losses. The depreciation is recognized in profit or loss on a straight-line basis over the expected useful life. The expected useful life is checked on each balance sheet date and possible changes in estimates are taken into account prospectively.

The cost of intangible assets acquired in a business combination corresponds to their fair value at the time of acquisition.

The respective depreciation is recorded in the income statement under the respective functional area that the intangible asset serves. The useful lives of the intangible assets are between 2 and 15 years.

Research costs are always recorded as an expense in the period in which they are incurred. **Development costs** of individual projects - which in addition to product developments increasingly also include development services that support business processes - are only capitalized as an intangible asset if the Vaillant Group can cumulatively demonstrate the following:

the technical feasibility of completing the intangible asset that enables internal use or sale of the asset;

the intention to complete the intangible asset and the ability to use or sell it;

how the asset will generate future economic benefits;

the availability of resources for the purpose of completing the asset;

the ability to reliably determine the expenditure attributable to the intangible asset during its development.

The amount with which an internally generated intangible asset is capitalized is the sum of the expenses incurred from the day on which the intangible asset first meets the above conditions. After initial recognition, development costs are reported at acquisition or production costs less accumulated depreciation and accumulated impairment losses. If material and if the prerequisites are met, the long-term development projects (> 12 months) include borrowing costs. Scheduled depreciation begins with the completion of the development phase and from the point in time at which the asset can be used. This point in time is determined by submitting a corresponding completion notification. The depreciation period is based on the life cycle or the economic useful life of the respective product or development service. An impairment test is carried out annually from the development phase onwards.

2.5.6 Property, plant and equipment

Tangible assets are valued at acquisition or production cost, reduced by scheduled depreciation and, if necessary, impairments. In addition to the incidental acquisition costs, the acquisition or production costs include the costs of replacing part of a property, plant and equipment as well as borrowing costs, if material, for long-term construction projects (> 12 months) if the recognition criteria are met. Scheduled depreciation is spread over the useful life on a straight-line basis.

The useful lives listed in the table are the useful lives mainly used in the Vaillant Group for each property, plant and equipment class.

Property, plant and equipment are either derecognized when they are disposed of or when no further economic benefits are expected from the continued use or sale of the asset. The gains or losses on disposal resulting from the derecognition of the asset are determined as the difference between the net sales proceeds and the book value of the asset and recognized in other operating income or other operating expenses in the income statement in the period in which the asset is located is booked out.

The residual values, useful lives and depreciation methods of the assets are checked at least at the end of each financial year; If expectations differ from previous estimates, the corresponding changes are treated as changes in estimates in accordance with IAS 8.

Useful life of property, plant and equipment	years
Buildings on their own land	10 to 50
Technical equipment and machinery	5 to 15
Other equipment, factory and office equipment	3 to 18

2.5.7 Leases

The Vaillant Group acts primarily as a lessee. Leases are classified as finance leases if the lease agreement essentially transfers all of the opportunities and risks associated with ownership to the lessee. All other leases are classified as operating leases.

Finance leases, in which essentially all the opportunities and risks associated with ownership of the leased item are transferred to the Vaillant Group as the lessee, result in the leased item being capitalized at the beginning of the lease term. The leased item is valued at its fair value or at the present value of the minimum lease payments, if this value is lower. Lease payments are divided into finance costs and the repayment portion of the remaining debt in such a way that there is a constant interest rate on the remaining lease liability over the term of the lease.

Finance costs are recognized in profit or loss in net interest income. Leased items are depreciated over the useful life of the item. However, if the transfer of ownership to the Vaillant Group is not sufficiently certain at the end of the lease term, the leased item is depreciated in full over the shorter of the two periods of expected useful life and term of the lease.

Lease payments for **operating leases**, in which essentially all the opportunities and risks associated with ownership of the leased item remain with the lessor and are therefore not transferred to the Vaillant Group, are recognized as an expense in the income statement in the amount of the lease payments paid.

2.5.8 Impairment of non-financial assets

The Vaillant Group does not test financial assets for impairment if events or changed circumstances indicate that the book value of an asset may not be recoverable. In addition, the Vaillant Group checks property, plant and equipment and development projects that are not yet ready for use for impairment every year. The Vaillant Group estimates the recoverable amount of the respective asset or, if the individual asset does not generate cash inflows that are largely independent of other assets, of the cash-generating unit (CGU). For the purposes of the impairment test, the recoverable amount is determined as the higher of the fair value less costs to sell and the value in use, and compared with the book value. If the book value exceeds the recoverable amount, an impairment loss in the amount of the difference is recognized in profit or loss. When testing non-financial assets for impairment, the determination of the recoverable amount of the assets is associated with estimates. This can have a significant impact on the respective values as well as on the amount of possible impairment. An impairment in the amount of the difference is recognized in profit or loss. When testing non-financial assets for impairment, the determination of the recoverable amount of the assets is associated with estimates. This can have a significant impact on the respective values as well as on the amount of possible impairment.

2.5.9 Inventories

Inventories are valued at acquisition or production cost or at the lower net realizable value. The net realizable value is the estimated sales proceeds that can be achieved in the normal course of business less the estimated costs up to completion and the estimated sales costs. Devaluations to a lower net realizable value, if applicable, represent impairment losses that are recognized in profit or loss and shown in the cost of sales. If the reason for the devaluation no longer applies, the value is reversed up to a maximum of the original acquisition or production costs.

Raw materials, consumables and supplies and merchandise are capitalized at weighted moving average costs. The unfinished and finished goods are valued at production cost or at the lower current or market price. The production costs are made up of the individual material and production costs plus production-related variable and fixed overheads. Risks that arise either from reduced usability or from lower realizable sales prices of inventories are taken into account by means of value adjustments.

2.5.10 Measurement of the fair value

The Vaillant Group values financial instruments (such as derivatives) at fair value on each balance sheet date. In addition, the fair value of financial instruments is stated, which is measured at amortized cost. For details on the fair values of financial instruments, **please** refer to section 7.16. The fair value is the price that would be received for the sale of an asset or paid for the transfer of a liability in an orderly business transaction between market participants on the measurement date.

All financial instruments for which a fair value is recorded or disclosed are classified as follows in the measurement hierarchy, based on the input factor of the lowest level that is significant for the measurement of the fair value as a whole:

step 1

Quoted (unadjusted) prices in active markets for like assets or liabilities

Level 2

Valuation methods in which the lowest input parameter that has a significant impact on the measurement at fair value can be observed either directly or indirectly

level 3

Valuation methods in which the lowest input parameter, which has a significant effect on the measurement at fair value, is not observable

For the purposes of fair value information, the Vaillant Group has determined appropriate classes of assets and liabilities on the basis of the nature, characteristics and risks of the asset or liability as well as the level of the measurement hierarchy.

2.5.11 Non-derivative financial instruments

2.5.11.1 Initial approach and evaluation

Financial instruments are accounted for and valued in accordance with IFRS 9. According to this, financial instruments are recognized in the consolidated balance sheet if the Vaillant Group has a contractual right to receive cash or other financial assets from another party or has a contractual obligation to transfer cash to another company or give up other financial assets. The Vaillant Group does not make use of the option to classify financial assets or financial liabilities upon initial recognition as at fair value through profit or loss or equity instruments as not affecting profit or loss at fair value (fair value options). All regulations for the classification and accounting of financial liabilities already contained in IAS 39 were adopted unchanged in IFRS 9, including the criteria for the application of the fair value option, which the Vaillant Group does not make use of. Based on their nature, financial instruments can be divided into the following classes:

Financial assets that are valued at amortized cost (financial assets at amortized cost) are assets whose expected cash flows consist exclusively of principal and interest payments on the outstanding capital amount. This assessment is also known as the cash flow condition check and is performed at the financial instrument level. For the purpose of checking the cash flow conditions, the capital amount corresponds to the fair value of the financial asset at the time of acquisition. In addition to the cash flow condition, the classification also depends on the business model under which a company holds the financial asset:

Financial liabilities that are valued at amortized cost (FLAC) are recognized upon addition at the fair value, which generally corresponds to the expected future cash outflow using the effective interest method. This category includes trade payables, loans, and other miscellaneous financial liabilities.

Financial instruments that are valued at fair value with no effect on income (Financial Instruments at Fair Value Through OCI - FAFVOCI, FLFVOCI) are usually held as part of a dual business model, the objective of which is met if contractual cash flows are regularly received and financial instruments are sold will. In addition, the cash flow condition must be met.

Financial instruments that are measured at fair value through profit or loss (Financial Instruments at Fair Value Through Profit or Loss - FAFVPL, FLFVPL) are generally held within the framework of a business model, the objective of which is met if the cash flows are realized through the sale of the assets. For example, business models in which the financial assets are held for trading purposes or managed on a fair value basis lead to an FVPL valuation. Financial liabilities are classified as for trading purposes if they are acquired or issued for the purpose of short-term resale or repayment.

Customary purchases and sales of financial assets are generally accounted for on the settlement date. A financial instrument is initially recognized at fair value. The Vaillant Group only takes transaction costs into account when determining acquisition costs if it does not measure the financial instruments at fair value through profit or loss. Long-term interest-free or low-interest financial instruments are initially recognized at the present value of the expected future cash flows. With regard to the impairment of financial assets, the Vaillant Group follows the simplified approach in accordance with IFRS 9.5.5.15: Financial assets, those that are valued at amortized cost and those that are valued at fair value with no effect on income are valued at the initial recognition and on each subsequent balance sheet date with the total expected credit loss over the term (lifetime expected credit loss model). For this purpose, the assets are summarized in groups of financial assets with comparable default risk profiles and jointly examined for impairment. The Vaillant Group defines the classification of its financial instruments when they are first used. are valued at the initial recognition and on each subsequent balance sheet date with the total expected credit loss over the term (lifetime expected credit loss model). For this purpose, the assets are summarized in groups of financial assets with comparable default risk profiles and jointly examined for impairment. The Vaillant Group defines the classification of its financial instruments when they are first used. are valued at the initial recognition and on each subsequent balance sheet date with the total expected credit loss over the term (lifetime expected credit loss model). For this purpose, the assets are summarized in groups of financial assets with comparable default risk profiles and jointly examined for impairment. The Vaillant Group defines the classification of its financial instruments when they are first used. For this purpose, the assets are summarized in groups of financial assets with comparable default risk profiles and jointly examined for impairment. The Vaillant Group defines the classification of its financial instruments when they are first used. For this purpose, the assets are summarized in groups of financial assets with comparable default risk profiles and jointly examined for impairment. The Vaillant Group defines the classification of its financial instruments when they are first used.

2.5.11.2 Follow-up evaluation

The subsequent valuation of the financial instruments depends on their classification.

Financial assets that are valued at amortized cost are recognized using the effective interest method and less any impairments that correspond to the expected credit default over the life of the asset when it is added. If there are objective indications of further impairment of an individual asset, the amount of the impairment loss results from the difference between the book value of the asset and the present value of the expected future cash flows.

The group of **financial instruments measured at fair value through profit or loss** includes derivative financial instruments entered into by the Vaillant Group that are not designated as hedging instruments in hedging relationships in accordance with IFRS 9, trade receivables that will be sold at a later date as part of the ABS program and Investing in equity instruments from other companies.

The subsequent valuation of other **financial liabilities, which are valued at amortized cost**, is carried out using the effective **interest** method. Effects on profit or loss for the period only occur when the liabilities are written off or in the context of subsequent valuation using the effective interest method. Amortized cost is calculated taking into account a premium or discount upon acquisition as well as fees or costs that represent an integral part of the effective interest rate. The amortization using the effective interest method is included in the income statement as part of interest expenses.

The Vaillant Group only writes off financial assets if the contractual rights to the cash flows from the financial asset expire or if it transfers the financial asset and essentially all the opportunities and risks associated with ownership to a third party.

If the Vaillant Group neither essentially transfers nor retains all of the opportunities and risks associated with ownership, but still has power of disposal over the transferred asset, the Vaillant Group recognizes an asset in the amount of its ongoing commitment and a corresponding liability in the amount of the amount that may be payable Amounts.

A financial liability is derecognized when the obligation on which this liability is based has been fulfilled, canceled or has expired.

Financial assets and liabilities are only shown in the balance sheet as a net amount if there is currently a legal right to offset the recorded amounts and the intention is to settle on a net basis or to redeem the associated liability at the same time as the asset in question is realized.

2.5.12 Derivative financial instruments and hedging relationships

The Vaillant Group uses derivative financial instruments to hedge against exchange rate, interest rate and raw material price risks.

Derivatives are initially recognized at their fair value at the time the contract is concluded and then measured at fair value on each reporting date. If material, the credit default risk is appropriately taken into account in the valuation in accordance with the requirements of IFRS 13. The profit or loss resulting from the valuation is immediately recognized in profit or loss, unless the derivative is designated and effective as a hedging instrument within the framework of a hedge accounting.

As part of its hedging strategy and by designing it as an effective hedging instrument, the Vaillant Group **uses currency forwards** to hedge against exchange **rate** risks, **interest rate** hedges to hedge against the risk of changes in interest rates, and **commodity futures** to hedge against the purchase price of goods. The hedging instruments used by the Vaillant Group basically serve to hedge payment flows (**cash flow hedge**). All hedging instruments are always designated in their entirety, ie in addition to the spot rate component, the forward component is also designated (forward-to-forward method). The Vaillant Group reports the effective part of the changes in the fair value of these instruments after taking deferred income taxes into account in other comprehensive income. The ineffective part is immediately recognized in profit or loss in the consolidated income statement. The amounts accumulated in equity are reported in the consolidated income statement in the same periods in which the hedged underlying transaction is reflected in the consolidated income statement. If the expected transaction or firm commitment is no longer expected to occur, the cumulative gains or losses previously recognized in equity are transferred to the income statement. If the hedging instrument expires, sold, terminated or exercised without the hedging instrument being replaced or rolled over to another hedging instrument or the criteria for hedge accounting are no longer met, the cumulative gains or losses previously recognized in other comprehensive income remain in other comprehensive income until the expected transaction or firm commitment affects the result.

During the valuation, the fair values of the **currency** forwards are determined on the basis of the respective reference rates on the balance sheet date of the European Central Bank (ECB) plus the corresponding forward premiums or discounts. The value of the **commodity futures** is determined on the basis of the forward **prices** determined by the London Metal Exchange. If the fair value cannot be derived from active and liquid markets, the net present value of future cash flows represents the fair value. Derivative financial instruments are shown as financial assets or liabilities if their fair value is positive or negative.

2.5.13 Taxes

Income taxes include both actual income taxes and deferred taxes. Current and deferred taxes are recognized in the income statement, unless they are related to items that are recognized either in other comprehensive income or directly in equity. In this case, the tax is also recognized in other comprehensive income or directly in equity.

The actual tax refund claims and tax liabilities for the current and previous periods are measured at the amount in which a refund from or a payment to the tax authorities is expected. The calculation of the amount is based on the tax rates and tax laws that apply on the reporting date in the countries in which the Vaillant Group operates and generates taxable income.

According to the liability method, deferred tax assets and liabilities are recognized with the future tax effect resulting from the differences between the balance sheet and tax values of asset and liability items. There is an exception for differences that arise from the initial recognition of goodwill and that do not lead to any recognition of

deferred taxes. Deferred tax assets are recognized if sufficient taxable income is available in the future. Among other things, the planned results from operating activities, the effects on earnings from the reversal of taxable temporary differences and possible tax strategies are included.

Deferred tax claims and deferred tax liabilities are offset against each other if the Vaillant Group has an actionable claim to offset the actual tax refund claims against actual tax liabilities and these relate to income taxes of the same taxable entity that are levied by the same tax authority.

2.5.14 Pension commitments

The Vaillant Group's expenses from **defined contribution plans** are recognized within the operating result. The Vaillant Group evaluates the benefit entitlements from **performance-oriented plans** using the regular single premium method, which reflects the actuarial present value of the entitlement already earned. The present value of the defined benefit obligation (DBO) is calculated by the Vaillant Group, taking into account future salary and pension trends, as the benefit entitlement that can be achieved up to the regular retirement age depends on these. The pension obligations are determined on the basis of an actuarial report. Revaluations, Consisting of actuarial gains and losses, for example from the adjustment of the discount rate and the difference between the expected and actual return on plan assets, are recognized directly in other comprehensive income. The revaluations recorded in other comprehensive income will not be reclassified to the consolidated income statement in subsequent periods. The assumptions on which the calculation of the DBO is based on the balance sheet date of the previous year apply to the determination of the current service costs as well as the calculated interest income and interest expenses for the following financial year. The current and past service costs for post-employment benefits and other administrative costs that are not related to the management of plan assets are charged to the operational functional areas. Past service cost is recognized in profit or loss when the plan change occurs.

If the acquired benefit entitlements are not covered by plan assets, the Vaillant Group recognizes a liability from post-employment benefits in the amount of the DBO. If the benefit entitlements are covered by assets, the Vaillant Group offsets the fair value of the plan assets against the DBO. The net amount is shown in the item "Provisions for pensions" or in the item "Long-term assets".

2.5.15 Other provisions

Provisions are recognized if there is a current, legal or constructive obligation towards a third party due to a past event, the outflow of resources with economic benefit to fulfill the obligation is probable and a reliable estimate of the amount of the obligation is possible. These provisions are recognized at the expected settlement amount, taking into account all identifiable risks. The settlement amount reflects the best possible estimate of the expense that is required to meet the current obligation as of the balance sheet date. If individual obligations are assessed, the most likely outcome is the best possible estimate of the liability.

If the Vaillant Group expects a reimbursement, at least in part, for a provision recognized as a liability, the reimbursement is recorded as a separate asset, provided that the receipt of the reimbursement is virtually certain. The expense from the formation of the provision is shown in the income statement less this reimbursement. Long-term provisions are discounted if the resulting effect is significant.

2.5.16 Cash and cash equivalents

Cash and cash equivalents mainly consist of cash and sight deposits at banks and are valued at face value.

2.5.17 Government grants

Government grants are only recognized if there is reasonable assurance that the conditions attached to them will be met and that the grants will be received. Investment grants are recorded as a reduction in the acquisition or production costs of the assets concerned and lead to a corresponding reduction in scheduled depreciation in subsequent periods. Grants that are not related to investments are shown in the functional areas in the consolidated income statement in which the underlying expenses were recorded.

2.5.18 Revenue recognition

The Vaillant Group is an international company in the heating, ventilation and air conditioning industry. The focus is on the sale of heating devices based on natural gas as well as technologies for the use of renewable energies. In addition to the product business, the service business is another focus of business activity. Commissioning, repairs and maintenance are just as much a part of this as warranty extensions, connective services and internet-based applications.

Revenues from the **sale of goods and products** are recognized as soon as the power of disposal over the goods has passed to the buyer. This is the case when the products have been delivered to the customer and the customer has taken on the opportunities and risks associated with ownership of the goods.

In addition to the sale of products, the Vaillant Group also generates revenue from the **provision of services**. Revenues from commissioning and maintenance are recorded when the service has been performed. Income for services that are rendered through several partial services within a certain period of time are recognized on a straight-line basis within this period. This primarily relates to sales from extended warranty services and the realization of sales from remote monitoring and diagnostics in the context of connective services.

Revenue from contracts that contain several service promises (e.g. sales of goods in combination with services) are recognized when the respective contractual element has been delivered or performed. The allocation of the transaction price to the individual services is based on their relative individual selling prices. In particular, the expected cost plus margin approach is used throughout the group.

Sales of goods and products that lead to the granting of bonus points to customers in accordance with the Group's loyalty point program are accounted for as multi-component contracts and the fair value of the consideration received or to be received is divided between the goods sold and the bonus points granted in accordance with the relative individual selling prices. The consideration for the bonus points granted is determined on the basis of the discount granted upon redemption, taking into account the probability of redemption. Such consideration is not realized as sales at the time of the original sales transaction, but is initially deferred as a liability under the contractual liabilities.

When determining the transaction price, financing components are only taken into account if they have a significant impact on the net assets, financial position and results of operations of the Vaillant Group. If the Vaillant Group grants its customers long-term payment terms and the implicit financing effect is material, the transaction price is determined by discounting the promised consideration. The present value determined in this way is compounded over the term agreed with the customer using the effective interest method, whereby the amount from the compounding is shown within the interest income.

In connection with long-term service contracts in particular, customers may make advance payments. However, in accordance with IFRS 15.62 (c), these do not contain any financing components and are therefore recognized as contractual liabilities under other liabilities in the amount of the consideration received.

Directly attributable costs of contract initiation in connection with the conclusion of long-term service contracts are only recognized as other assets and released through profit or loss over the term of the underlying contracts if the resulting effects are material and the Vaillant Group also expects these costs to exceed the Returns from the service contract can be earned again. Here, too, the Vaillant Group makes use of the option of not capitalizing the costs of contract initiation, provided that the depreciation period that would otherwise be used does not exceed 12 months.

The Vaillant Group receives inflows of funds from the sale of goods and products as well as the provision of services in accordance with the payment terms agreed with the customer, which basically correspond to the usual market conditions. With regard to the sale of products, invoicing usually takes place upon delivery of the goods, taking into account the contractually agreed payment terms. In connection with the provision of services, the billing takes place either immediately after the provision of the service or in advance, especially in the case of long-term service contracts, which then leads to the delimitation of contractual obligations. Variable remuneration components primarily relate to bonus agreements, price reductions and other reimbursements. They apply to both direct and indirect customers of the Vaillant Group and are only taken into account when determining the transaction price to the extent that it is highly probable that there will be no significant adjustment to sales in future periods. The Vaillant Group uses several methods to estimate the scope of obligations from variable reimbursements to direct and indirect customers as of the balance sheet date;

For obligations from warranties in the first 24 months after the goods have been placed on the market, provisions are made at the time of sale, which are recognized within the cost of sales. Guarantee agreements that go beyond this period are recognized as an independent performance promise with their own revenue recognition.

Within the Vaillant Group, there are no material take-back or buy-back obligations from the sale of goods. The Vaillant Group basically acts as the principal in its customer relationships.

2.5.19 Special items on the result

If present, special influences on the annual result are shown as a separate item in the income statement. This is done in accordance with IAS 1, which provides for a separate disclosure of significant income or expense items. In this context, items are considered to be material that, from the management's point of view, individually or collectively, could influence the economic decisions made by the addressees on the basis of the financial statements.

3 DISCRETIONAL DECISIONS AND ESTIMATION UNCERTAINTIES

When preparing the consolidated financial statements, management makes certain assumptions and estimates that can have a significant impact on the presentation of the Vaillant Group's net assets, financial position and results of operations. The assumptions and estimates essentially relate to the following issues:

The premises and the underlying methodology for carrying out the impairment test can have a significant influence on the respective values and ultimately on the amount of possible impairment of **goodwill**, **capitalized development costs** and **property, plant and equipment**. In particular, the determination of discounted cash flows is subject to extensive planning assumptions that are sensitive to changes and can thus significantly influence the value. We refer to our explanations in chapters **7.1** to **7.2**.

When determining the transaction price in accordance with IFRS 15 as the basis for **revenue recognition** the Vaillant Group regularly makes estimates of expected variable consideration in the form of bonuses, other price reductions and other reimbursements to direct and indirect customers. In addition to bonuses and discounts, these primarily concern performance-based reimbursement models with customers based on annual target agreements that are linked to the achievement of certain targets (e.g. sales volumes). Even if variable consideration is only taken into account to the extent that it is highly probable that it will exist, subsequent adjustments can in principle always be made.

The stand-alone selling prices, which form the basis of the sales allocation for multi-component contracts, are reviewed annually for appropriateness and - if necessary - adjusted with prospective effect from the time of the change. If stand-alone selling prices cannot be observed directly, they are estimated using the cost surcharge method. In these cases, the determination is associated with uncertainties and requires business judgment.

Depending on the respective country-specific business practices, customer contracts can also contain implicit performance promises. These are derived from the historical empirical values available in each case and taken into account when determining the sales-relevant performance promises.

The determination of the **impairment of financial assets**, in particular for trade receivables and other receivables, includes to a considerable extent assessments and assessments of individual receivables and receivables with comparable default risk profiles with regard to the creditworthiness of customers, current economic developments and the analysis of historical bad debts. For further information we refer to chapter **7.4**.

With **income taxes** there are uncertainties regarding the interpretation of complex tax regulations and the amount and timing of future taxable results. This applies to both actual and deferred taxes. Current income taxes in the Vaillant Group are determined taking into account the legal requirements applicable in the respective countries. Insofar as legal discretion has been exercised in the recognition and valuation of the tax items presented in the financial statements, the local tax authorities can generally position themselves differently. Deferred tax assets are recognized to the extent that it is probable that they can be used. The use of deferred tax assets depends on the possibility of generating sufficient taxable income within the framework of the respective tax type and tax jurisdiction. For this purpose, the planned operating business results and the effects on earnings from the reversal of taxable temporary differences are taken into account. However, since future business developments are uncertain and in some cases cannot be influenced by the Vaillant Group, the valuation of deferred taxes is associated with uncertainties. Uncertain income tax items on the balance sheet are valued at the expected value. Further information can be found under Chapter to achieve sufficient taxable income within the framework of the respective tax type and tax jurisdiction. For this purpose, the planned operating business results and the effects on earnings from the reversal of taxable temporary differences are taken into account. However, since future business developments are uncertain and in some cases cannot be influenced by the Vaillant Group, the valuation of deferred taxes is associated with uncertainties. Uncertain income tax items on the balance sheet are valued at the expected value. Further information can be found under Chapter to achieve sufficient taxable income within the framework of the respective tax type and tax jurisdiction. For this purpose, the planned operating business results and the effects on earnings from the reversal of taxable temporary differences are taken into account. However, since future business developments are uncertain and in some cases cannot be influenced by the Vaillant Group, the valuation of deferred taxes is associated with uncertainties. Uncertain income tax items on the balance sheet are valued at the expected value. Further information can be found under Chapter For this purpose, the planned operating business results and the effects on earnings from the reversal of taxable temporary differences are taken into account. However, since future business developments are uncertain and in some cases cannot be influenced by the Vaillant Group, the valuation of deferred taxes is associated with uncertainties. Uncertain income tax items on the balance sheet are valued at the expected value. Further information can be found under Chapter For this purpose, the planned operating business results and the effects on earnings from the reversal of taxable temporary differences are taken into account. However, since future business developments are uncertain and in some cases cannot be influenced by the Vaillant Group, the valuation of deferred taxes is associated with uncertainties. Uncertain income tax items on the balance sheet are valued at the expected value. Further information can be found under Chapter the valuation of deferred taxes is associated with uncertainties. Uncertain income tax items on the balance sheet are valued at the expected value. Further information can be found under Chapter the valuation of deferred taxes is associated with uncertainties. Uncertain income tax items on the balance sheet are valued at the expected value. Further information can be found under Chapter **5.9**.

Obligations for pensions and related expenses are determined in accordance with actuarial valuations. These valuations are based on assumptions, including discount rates, expected inflation rates, and mortality rates. The discount rates used are determined on the basis of the yields that are achieved at the end of the reporting period for high-quality fixed-income corporate bonds with a corresponding term and currency. If such yields are not available, the discount rates are based on market yields on government bonds. Sensitivity analyzes of the key actuarial assumptions made can be found in Section **7.8**.

The **contingent liabilities** and the recognition and measurement of **provisions** are subject to significant estimates made by the Vaillant Group. In addition to assessing the likelihood of the outflow of resources to meet the obligation, this also applies to a reliable estimate of the amount of the obligation. These assessments may change as more recent information becomes available, and this may affect the Vaillant Group's net assets, financial position and results of operations. Further information can be found in chapters **7.9** and **7.14**.

4 SCOPE OF CONSOLIDATION

In the consolidated financial statements of the Vaillant Group as of December 31, 2018, 15 domestic (2017: 15) and 91 foreign (2017: 91) subsidiaries were included in the form of full consolidation in addition to Joh. Vaillant GmbH & Co KG as the parent company.

The scope of consolidation changed as follows in the past fiscal year:

Reconciliation	inland	abroad	total
Fully consolidated companies 01/01/2018	15th	91	106
Accesses	0	1	1
Departures	0	1	1
Fully consolidated companies December 31, 2018	15th	91	106

In the 2018 financial year, the Vaillant Group increased its shares in the Spanish service company Red Ofisar Zaragoza SLU, based in Zaragoza, to 100 percent. Since the Vaillant Group had already exercised control before acquiring the additional shares, the transaction was treated as an equity transaction. Therefore, the difference between

the consideration and the fair value of the shares acquired in the amount of EUR 0.5 million was shown as a reduction in retained earnings.

In addition, the new company Vaillant Dutch Holdings BV, based in Amsterdam, Netherlands, was founded. The Italian service company E-Training Srl, based in Milan, was merged within the group into Vaillant Group Italia SpA.

Although the voting rights share in Sematec-Burgos SL, Burgos, Spain, is only 45 percent, this company belongs to the group of fully consolidated affiliated companies. Despite the lack of a majority of the voting rights, the management believes that there is a control relationship, as the Vaillant Group can determine the company's business and financial policy through the entirety of its substantial rights.

In the case of the fully consolidated subsidiaries in which the Vaillant Group holds 50 percent of the voting rights, control also results from the ability to determine the relevant operational and financial activities of the companies concerned when the substantial rights are exercised. In addition to voting rights, the possibility of control is based in particular on existing contractual agreements between the Vaillant Group and other investors and the economic dependence of the subsidiaries on the Vaillant Group.

The Vaillant Corporation, Cinnaminson, USA, and Vaillant Ltd., Hong Kong, China are not included in the consolidated financial statements, as these companies ceased their operating activities several years ago and are therefore used for assessing the asset, financial and earnings position of the Group are of minor importance.

As of December 31, 2018, there were restrictions in the Vaillant Group for various Group companies in the form of prohibitions on disposal, obligations and burdens, which were agreed in connection with the existing defined benefit pension plans in Great Britain (so-called negative pledge subgroups). The aim of the agreement is basically to preserve the value of the companies concerned to secure the claims from the plan. This results in numerous restrictions, for example with regard to the taking out of loans, the issuing / taking up of guarantees and the transfer of participations and other assets. **7.8** .

There are further general restrictions on the disposal of assets that have been capitalized under property, plant and equipment on the basis of finance **leases** (see Section **7.11.1**).

No assets were pledged as security for debts. With regard to the minority interests, there are no property rights or restrictions on disposal that go beyond the usual extent.

The following table contains details on the directly and indirectly associated companies of the Vaillant Group.

Name of the company	Seat	Headquarters in the country of establishment	Participation and voting rights quota (in%)	Type of relationship	Valuation method
Tianjin Vaillant Gas Water Heater Ltd.	Tianjin	CN	47	Sales company	At amortized cost
TechnoCargo Logistik GmbH & Co. KG	Neuss	DE	39	Logistics service provider	Equity method
TechnoCargo Logistik Beteiligungsgesellschaft mbH	Neuss	DE	39	Logistics service provider	Equity method
TechnoCargo Logistics Ltd.	Denby	GB	39	Logistics service provider	Equity method
TechnoCargo Logistik Slovakia sro	Trencianske Stankovce	SK	39	Logistics service provider	Equity method
Manuel J. Monteiro & Co. Lda.	Barcarena	PT	26th	Sales company	Equity method

If shares in subsidiaries or associated companies are of minor importance from a group perspective, they are accounted for using the cost method.

The balance sheet date of all companies included in the consolidated financial statements is December 31, 2018.

The following companies included in the consolidated financial statements in the form of full consolidation are exempt from the application of the provisions for corporations pursuant to Sections 264 ff. Of the German Commercial Code (HGB) based on Section 264 (3) and Section 264b of the German Commercial Code:

Vaillant Verwaltungs-GmbH, Remscheid

Vaillant Group International GmbH, Remscheid

Vaillant Group Business Services GmbH, Remscheid

Vaillant Deutschland GmbH & Co. KG, Remscheid

tecbytel GmbH, Gelsenkirchen

PowerPlus Technologies GmbH, Wilsdruff

HKR GmbH & Co. KG, Roding

The following information on shareholdings meets the requirements of Section 313 of the German Commercial Code (HGB).

The following table lists the fully consolidated, direct and indirect affiliated companies of Joh.Vaillant GmbH & Co KG:

Fully consolidated holding companies

society	Seat	country	Share in%
VBV Vaillant Beteiligungsverwaltung GmbH	Haan	DE	100
Vaillant GmbH	Remscheid	DE	100
Cogenon GmbH	Remscheid	DE	100
Heiztechnik Roding Verwaltungs GmbH	Roding	DE	100
HKR GmbH & Co. KG	Roding	DE	100
OB Bergsicherung GmbH	Remscheid	DE	100
PowerPlus Technologies GmbH	Wilsdruff	DE	100
tecbytel GmbH	Gelsenkirchen	DE	100
Vaillant Germany GmbH & Co. KG	Remscheid	DE	100
Vaillant Group Business Services GmbH	Remscheid	DE	100
Vaillant Group International GmbH	Remscheid	DE	100
Vaillant Marketing GmbH	Remscheid	DE	100
Vaillant North America Holding GmbH	Remscheid	DE	100
Vaillant Verwaltungs-GmbH	Remscheid	DE	100

society	Seat	country	Share in%
Vesta GmbH	Remscheid	DE	100
Vaillant Group Austria GmbH	Vienna	AT	100
Vaillant doo	Sarajevo	BA	100
Bulex Services NV	Drug abuse	BE	100
Saunier Duval Belgique SA	Destelbergen	BE	100
Vaillant NV	Drug abuse	BE	100
Vaillant GmbH	Dietikon	CH	100
Tianjin Demrad International Trading Co.Ltd.	Tianjin	CN	100
Vaillant Group (China) Heating, Cooling and Environmental Technology Co. Ltd.	Shanghai	CN	100
Vaillant (Beijing) Heating Equipment Trading Co. Ltd.	Beijing	CN	100
Vaillant (Wuxi) Heating Equipment Co. Ltd.	Wuxi	CN	100
Vaillant Group Czech sro	Chrásťany	CZ	100
Vaillant A / S	Karlsunde	DK	100
Astursat SLU	Tremañes-Gijón	IT	100
Ateca SL	Albacete	IT	50
Avisat SLU	Avila	IT	100
Catemanp SL	Toledo	IT	50
Dicomán Vizcaya SL	Basauri	IT	75
Red Ofisat SLU	Zamudio	IT	100
Red Ofisat Elisosat SLU	Seville	IT	100
Red Ofisat La Rioja SLU	Logroño	IT	100
Red Ofisat Zaragoza SLU	Zaragoza	IT	100
Satastur SLU	Gijón	IT	100
Satec SA	Madrid	IT	50
SAT SURE SL	Palencia	IT	70
Saunier Duval Clima SAU	Vitoria	IT	100
Saunier Duval Dicosá SAU	Zamudio	IT	100
Sauniersat Alacant SLU	Alicante	IT	100
Sauniersat Tarragona SL	Tarragona	IT	50
Saunier-Tec SL	Madrid	IT	60
Sematec Burgos SL	Burgos	IT	45
Sematec Guipúzcoa SL	San Sebastian	IT	55
Sematec Pealber SL	Lleida	IT	60
Sematec Zaragoza SLU	Zaragoza	IT	100
Serviat SL	Madrid	IT	50
Vaillant SLU	Vitoria	IT	100
Vaillant Saunier Duval Ibérica SL	Vitoria	IT	100
Vaillant Servi Tecnic Girona SL	Girona	IT	70
Vaillant Servicio Técnico Levante 2009 SLU	Valencia	IT	100
Vatec SL	Valladolid	IT	75
Garanka Ile De France SAS	Paris	FR	100
Garanka Center Ouest SAS	Chambray-lès-Tours	FR	100
Garanka Holding SAS	Fontenay-sous-Bois	FR	100
Garanka Nord Ouest SAS	Le Mans	FR	100
Garanka Sud Est SAS	Seynod	FR	100
Garanka Sud Ouest SAS	Toulouse	FR	100
Saunier Duval Eau Chaude Chauffage SAS	Fontenay-sous-Bois	FR	100
Saunier Duval Eau Chaude Chauffage Industrie SAS	Nantes	FR	100
Saunier Duval Pièces De Rechange SAS	Nantes	FR	100
Societe Financiere Saunier Duval SAS	Nantes	FR	100
Vaillant Group France Gestion SARL	Fontenay-sous-Bois	FR	100
DD Heating Ltd.	Belper	GB	100
Vaillant Ltd.	Belper	GB	100
Vaillant European Holdings Ltd.	Belper	GB	100
Vaillant Group UK Ltd.	Belper	GB	100
Vaillant Holdings Ltd.	Belper	GB	100
Vaillant Home Products Ltd.	Belper	GB	100
Vaillant Industrial UK Ltd.	Belper	GB	100
Vaillant Management Ltd.	Belper	GB	100
Vaillant Netherlands Holdings Ltd.	Belper	GB	100
Vaillant R&M Ltd.	Belper	GB	100
Vaillant doo	Zagreb	MR	100
Vaillant Saunier Duval Kft.	Budapest	HU	100

society	Seat	country	Share in%
Hermann Srl	Milan	IT	100
Vaillant Group Italia SpA	Milan	IT	100
Vaillant Group Korea Ltd.	Seoul	KR	100
Vaillant Group Norge AS	Vestby	NO	100
Vaillant Group Netherlands BV	Amsterdam	NL	100
Vaillant Dutch Holdings BV	Amsterdam	NL	100
Center Serwis Dariusz Ciupak Sp.K.	Rzeszów	PL	50
Partner Serwis Cezary Mielczrek Sp.K.	Szczecin	PL	50
Przedsiębiorstwo Usłogo-Handlowe Feston Waldemar Królski Sp.K.	Obernigk	PL	50
Regional Center Serwisowe Kazimierz Besz Sp.K.	Wroclaw	PL	50
SEBIK Piotr Kuklinski Sp.K.	Bialystok	PL	50
Serwis partner Antoni Kita Sp.K.	Krakow	PL	50
Serwis Pomorskie Eugeniusz Słowik Sp.K.	Sopot	PL	50
Serwis System Eugeniusz Słowik Sp.K.	Koenigshütte	PL	50
Serwis Warszawa Dariusz Klos Sp.K.	Kobyłka	PL	50
Thermoserwis Szymon Wozniak Sp.K.	Zielona Góra	PL	50
Vaillant Saunier Duval Sp.zoo	Warsaw	PL	100
Vaillant Group Romania Srl	Bucharest	RO	100
Vaillant doo	Belgrade	RS	100
Vaillant Group Rus Ltd.	Moscow	RU	100
Protherm Production sro	Skalica	SK	100
Vaillant Group Slovakia sro	Skalica	SK	100
Vaillant Industrial Slovakia sro	Skalica	SK	100
Vaillant Group Gaseres AB	Svedala	SE	100
Vaillant doo	Ljubljana	SI	100
Panel Radyatör Sanayi ve Ticaret AS	Istanbul	TR	100
Türk Demir Döküm Fabrikalari AS	Istanbul	TR	100
Vaillant Isi Sanayi ve Ticaret Limited Sirketi	Istanbul	TR	100
Daughter Enterprise "Vaillant Group Ukraine"	Kiev	UA	100

The general partner of HKR GmbH & Co. KG, based in Roding, Germany, is Heiztechnik Roding Verwaltungs GmbH, Roding, Germany. Vaillant Marketing GmbH, based in Remscheid, Germany, is the general partner of Vaillant Deutschland GmbH & Co. KG, Remscheid, Germany.

Subsidiaries of minor importance

society	Seat	country	Share in%
Vaillant Corporation	Cinnaminson	US	100
Vaillant Ltd.	Hong Kong	CN	100

The following tables contain details of the Group's subsidiaries in which there are minority interests. In terms of materiality, the presentation focuses on the Spanish service companies (hereinafter referred to as the Red Ofisat Group):

Name of the company	Head office / country of establishment	Ownership		Main business activities
		share held by the Vaillant Group (in%)		
Red Ofisat Group				
Ateca SL	IT	50		Customer service
Catemanp SL	IT	50		Customer service
Dicomán Vizcaya SL	IT	75		Customer service
Satec SA	IT	50		Customer service
SAT SURE SL	IT	70		Customer service
Sauniersat Tarragona SL	IT	50		Customer service
Saunier-Tec SL	IT	60		Customer service
Sematec Burgos SL	IT	45		Customer service
Sematec Guipúzcoa SL	IT	55		Customer service
Sematec Pealber SL	IT	60		Customer service
Serviat SL	IT	50		Customer service
Vaillant Servi Tecnic Girona SL	IT	70		Customer service
Vatec SL	IT	75		Customer service

The summarizing financial information regarding the subsidiaries of the group in which there are significant minority interests is given below. These correspond to the amounts before internal eliminations.

Million Euro	Red Ofisat Group	
	December 31, 2018	December 31, 2017
Short-term assets	82.0	79.9
Short term debt	60.2	59.7
Short-term net worth	21.8	20.2
Long-term assets	12.4	12.9

	Red Ofisat Group	
Long term debt	1.2	1.1
Long-term net worth	11.2	11.7
Net worth	33.0	31.9
Share of equity attributable to the shareholders of the parent company	27.7	26.7
Share without controlling influence	5.3	5.3
Sales	117.1	110.7
expenditure	-92.9	-87.2
Annual surplus / deficit (-)	24.2	23.6
Share attributable to the shareholders of the parent company	18.8	18.3
Share without controlling influence	5.4	5.3
Overall result	24.2	23.6
Share attributable to the shareholders of the parent company	18.8	18.3
Share without controlling influence	5.4	5.3
Dividends paid to minorities	5.1	4.8
Cash flow from operating activities	25.5	29.3
Cash flow from investments	-2.3	-5.2
Cash flow from financing activities	-23.3	-20.2
Net increase / decrease (-) in cash funds	-0.1	3.9

The summarizing financial information for the main associated company TechnoCargo Logistik GmbH & Co. KG, which is accounted for using the equity method, is shown below.

Million Euro	TechnoCargo Logistik GmbH & Co. KG	
	December 31, 2018	December 31, 2017
Long-term assets	2.0	2.2
Short-term assets	6.7	10.7
Long-term liabilities	2.1	3.7
Short term liabilities	5.4	4.7
Net worth	1.2	4.6
Sales	60.7	69.3
Annual surplus / deficit (-)	-0.7	3.1
Overall result	-0.7	3.1
Dividends received from associates	-	1.2
Net assets of the associate	1.2	4.6
Participation rate of the group (in%)	39.0	39.0
Book value of the group investment	0.3	1.8

As in the previous year, as of December 31, 2018, there were no restrictions on the ability of associated companies to transfer funds to the Vaillant Group in the form of cash dividends or loan repayments.

5 EXPLANATIONS TO THE CONSOLIDATED INCOME STATEMENT

The main items in the income statement are explained below.

5.1 Sales

Sales in the 2018 financial year amounted to EUR 2,500.9 million and were made up as follows:

Million Euro	2018
Southern Europe	620.5
Central Europe	587.2
Northern Europe	560.8
Asia / export	463.0
Eastern Europe	269.4
total	2,500.9

The balances of the contractual assets and contractual liabilities still outstanding as of the balance sheet date are as follows:

Million Euro	01/01/2018	December 31, 2018
contractual assets	284.4	266.0
contractual obligations	-160.7	-173.7
Net assets (+) / net liabilities (-)	123.7	92.3

The Vaillant Group receives inflows of funds from the sale of goods and products as well as the provision of services in accordance with the terms and conditions of the contracts and payment methods. Contractual assets represent the right to receive the agreed consideration for deliveries and services already performed by the Vaillant Group, 1 million euros for which an invoice has not yet been issued. Contractual liabilities relate to the Vaillant Group's existing performance obligations, for which he has already received or has yet to receive consideration from the customer. The contractual liabilities as of January 1, 2018 were adjusted by 2.5 million euros in connection with the reassessment of the revenue recognition of certain service contracts as part of the introduction of IFRS 15. Changes to the contractual assets and contractual liabilities result from the fulfillment of the respective contractual obligations. With regard to the development of value adjustments on the contractual assets, we refer at this point to the explanations in Section 7.4. Return or

In the financial year, sales of 97.7 million euros were recorded from contractual liabilities, which were included in the balance of liabilities at the beginning of the financial year. In the year under review, no subsequent changes to existing contracts were agreed with customers that would have led to a reassessment of the contractual liabilities and thus to a revision of the associated sales. Adjustments to expected variable consideration in the form of bonuses, other price reductions and other reimbursements based on sales in the previous year resulted in an overall increase in sales of 6.4 million euros in the reporting year.

Significant financing components from existing customer contracts were not available as of the balance sheet date.

As of December 31, 2018, there were no assets from directly attributable costs of contract initiation in connection with the conclusion of long-term customer contracts.

The contractual liabilities from services still to be provided as of December 31, 2018 are broken down as follows:

Million Euro	December 31, 2018
Due within one year	104.6
Due in 1 to 5 years	65.3
Due after 5 years	3.8
Contractual Liabilities	173.7

The contractual liabilities relate to outstanding services in connection with the bonus point programs and from service contracts. Deliveries and services from the bonus point programs are expected within 12 months after the balance sheet date, the remaining term of the service contracts ranges from 1 month to 120 months. Contractual liabilities from long-term service contracts result from prepayments from customers to whom the Vaillant Group has outstanding performance obligations. Over time, these liabilities are reduced in accordance with the proportionate performance progress of the respective performance obligation. For obligations from outstanding deliveries and services,

5.2 Production cost of sales

The cost of sales in the financial year was 1,510.0 million euros (2017: 1,436.8 million euros). This item includes the manufacturing costs of the products sold, the purchase costs of the merchandise sold and the costs that can be allocated to service sales. In addition to the directly attributable costs such as material and personnel costs, they also include production-related variable and fixed overheads. In addition, the cost of sales includes income from government grants for personnel measures in the amount of 1.3 million euros (2017: 1.2 million euros).

5.3 Research and Development Costs

Research and development costs amounted to 97.8 million euros in the financial year (2017: 91.6 million euros). For the 2018 financial year, government grants of 1.8 million euros (2017: 2.8 million euros) were included in research and development costs.

Research costs are generally recognized as an expense in the period in which they are incurred. Development costs are capitalized as soon as the criteria listed in Section 2.5.5 are met on a cumulative basis. Research and development costs included EUR 1.2 million in impairment losses on capitalized development costs (2017: EUR 0 million) (see Section 7.1.2).

5.4 Marketing and Distribution Expenses

Marketing and sales costs amounted to EUR 523.7 million in the financial year (2017: EUR 498.7 million). In addition to the costs of sales promotion measures, marketing costs also include costs for advertising measures and external training. Selling costs include the costs of the sales-related units of the Vaillant Group as well as the logistics costs including customs duties for the physical distribution and warehousing of the salable products. In addition, marketing and selling expenses included government grants for personnel measures in the amount of EUR 0.5 million (2017: EUR 0.0 million).

5.5 Administration costs

Administrative costs in the financial year amounted to EUR 130.4 million (2017: EUR 109.7 million). The increase compared to the previous year is mainly due to increased expenses in the context of digitization projects. The administrative costs generally include the personnel and material costs of the central administrative organization. These staff functions mainly include the management, strategy department, legal department, human resources department, corporate communication, quality and the central finance department as well as projects supported throughout the group that cannot be assigned to any of the other areas. Also included are those expenses of the Group's manufacturing units that are neither product-related, that is, incurred in connection with production, still represent research and development expenses. Administrative costs include government grants for personnel measures in the amount of EUR 40 thousand (2017: EUR 0 thousand).

5.6 Other operating result

Million Euro	2018	2017 *
Other company income	15.6	40.4
Other operating expenses	33.3	31.7
total	-17.7	8.7

* Values adjusted, see explanation under Section 2.4 of the Notes to the Consolidated Financial Statements

Other operating income was lower than in the previous year, mainly due to 14.9 million euros lower income from the reversal of provisions. In the previous year, this item still largely contained the release amounts for sales-reducing discounts and bonuses, which will only be shown as variable remuneration components within net sales with the initial application of IFRS 15 in the 2018 financial year. In addition, income from the disposal of property, plant and equipment decreased to EUR 1.3 million (2017: EUR 7.3 million). Government grants totaled 1.5 million euros (2017: 0.8 million euros).

Although the other operating expenses in the past financial year included 11.0 million euros from past service costs (see Section 7.8), the expenses were basically at the previous year's level, as overhead costs relevant to cost centers were reduced by almost the same amount. The losses from the disposal of fixed assets included in other operating expenses amounted to EUR 0.2 million (2017: EUR 0.4 million).

5.7 Result from other financial assets and investments accounted for using the equity method

As in the previous year, the result from other financial assets was immaterial.

The at equity results are made up as follows:

Million Euro	2018	2017
TechnoCargo Logistik GmbH & Co. KG	-0.2	1.2
Manuel J. Monteiro & Co. Lda.	-	-
total	-0.2	1.2

5.8 Interest income

Million Euro	2018	2017
Interest income and similar income	4.7	56.3
Interest expense and similar expenses	-19.6	-61.4
total	-14.9	-5.0

Interest expenses included the net interest expense for the defined benefit pension plans (see section 7.8) at 7.4 million euros (2017: 9.2 million euros). In 2018, there were no expenses from the foreign currency valuation of loans that were not taken out in the functional currency (2017: EUR 4.8 million). The application of the effective interest method resulted in interest expenses of EUR 1.3 million (2017: EUR 6.6 million). Of this, EUR 0.2 million (2017: EUR 0.1 million) relate to the compounding of provisions. The interest income from the application of the effective interest method includes EUR 1.9 million (2017: EUR 9.0 million).

In connection with the implementation of the ABS program (see section 7.4), interest expenses and fees totaling EUR 0.3 million (2017: EUR 0.8 million) were recorded. In addition, the interest income still includes 1.9 million euros (2017: 9.0 million euros) from the application of the effective interest method.

5.9 Income taxes

Million Euro	2018	2017
Actual tax expense	48.4	41.3
Expense (+) or income (-) from deferred taxes	-2.0	10.0
total	46.4	51.2

The taxes on earnings before taxes differ from the theoretical taxes using the tax rates applicable in Germany as follows:

Million Euro	2018	2017
Earnings before taxes	206.2	227.7
Tax calculation at the rate of 32.55% (2017: 32.55%)	67.1	74.1
Effect from different tax rates in other countries	-15.4	-15.6
Effect from different tax rates in Germany	-0.2	-
Effect of change in tax rate on deferred taxes	1.5	-0.1
Tax effects from tax-free income	-5.4	-5.4
Tax effects from tax goodwill write-ups	1.4	-
Tax effects from non-tax-deductible expenses	7.9	5.3
Tax effects from losses for which no deferred taxes are / have been recognized	-7.4	-10.3
Tax effect from interest expense (not tax deductible)	0.7	1.9
Tax previous years	-2.9	-2.2
Deferred tax previous year	-1.0	3.5
Income tax expense according to the income statement	46.4	51.2

The applicable tax rate in the reconciliation of 32.55 percent (2017: 32.55 percent) consists of corporation tax (15.0 percent), solidarity surcharge (0.8 percent) and trade tax (16.75 percent).

The development of the netted items of deferred tax assets and liabilities was as follows:

Million Euro	2018	2017
As of 01.01. (as previously reported)	89.9	110.4
Adjustments from retrospective application	0.6	-
As of 01.01.	90.6	110.4
Currency differences	-0.1	-1.6
Expense (-) / income (+) in the income statement	2.0	-10.0
Taxes recognized directly in other comprehensive income	1.0	-8.9
As at 31.12.	93.5	89.9

The tax effects on the components of other comprehensive income are as follows:

Million Euro	2018			2017		
	Before tax	Tax share	After tax	Before tax	Tax share	After tax
Currency differences from the translation of the financial statements of foreign subsidiaries	-36.7	-	-36.7	-24.7	-	-24.7
Change in the revaluation reserve from defined benefit pension commitments	7.7	-1.5	6.2	42.8	-8.6	34.3
Profits and losses from hedging instruments used to hedge cash flows	-8.5	2.5	-6.0	0.7	-0.3	0.4
total	-37.5	1.0	-36.5	18.8	-8.9	10.0

Deferred taxes are recognized for tax loss carryforwards for which the realization of the corresponding tax advantage is probable due to future taxable income. On this basis, 24.4 million euros (2017: 20.0 million euros) have been capitalized in deferred taxes for tax losses of various companies in the Vaillant Group. The deferred tax assets include an amount of EUR 7.0 million (2017: EUR 1.6 million), which relates to loss carryforwards from Vaillant GmbH. The company has made tax losses and has capitalized deferred tax assets on the basis of a five-year tax planning calculation. Management assumes that future offsettable income will be available against which the loss carryforwards can be offset. The Vaillant Group also has unrecognized tax loss carryforwards amounting to EUR 34.6 million (2017: EUR 79.9 million), which can be offset against future taxable income. Of the Vaillant Group's total tax loss carryforwards, EUR 65.8 million will expire between 2044 and 2047 (2017: EUR 91.5 million between 2024 and 2031), which can be offset against future taxable income. Of the Vaillant Group's total tax loss carryforwards, EUR 65.8 million will expire between 2044 and 2047 (2017: EUR 91.5 million between 2024 and 2031), which can be offset against future taxable income. Of the Vaillant Group's total tax loss carryforwards, EUR 65.8 million will expire between 2044 and 2047 (2017: EUR 91.5 million between 2024 and 2031).

In addition, the Group has tax loss carry-forwards that have not been offset from the sale of mainly company shares in the amount of EUR 111.2 million (2017: EUR 112.1 million). These tax loss carryforwards can only be offset against certain future profits from the sale of, for example, intangible assets or land and have not resulted in deferred tax assets. The tax loss carryforwards can be carried forward indefinitely.

No deferred tax liabilities were recognized for temporary differences in connection with affiliated companies and investments in the amount of EUR 341.8 million (2017: EUR 334.7 million), as it is not likely that these temporary differences will reverse in the foreseeable future and the Vaillant Group is able to control the reverse.

The development of deferred tax assets and liabilities (before offsetting the balances within the same tax jurisdiction) in the reporting period was as follows:

Deferred tax assets EUR million	Provisions / inventories / receivables	pensions	Loss carryforwards	Intangible assets / derivatives	total	
As of 01/01/2018 (as previously reported)	46.6	60.2	20.0	0.1	126.9	
Adjustments from retrospective application	0.6	-	-	-	0.6	
As of 01/01/2018	47.2	60.2	20.0	0.1	127.5	
Reduction / increase in net income	2.6	-2.5	4.4	-0.8	3.7	
Currency conversion	-1.1	-0.4	-0.0	0.1	-1.3	
Success-neutral change	-	-1.5	-	2.5	1.0	
As of December 31, 2018	48.8	55.8	24.4	1.9	131.0	
Deferred tax liabilities in millions of euros	Intangible assets / property, plant and equipment	Reassessment	Provisions / inventories / receivables	Capital gain	pensions	total
As of 01/01/2018	26.8	-	10.1	-	-	36.9

Deferred tax liabilities in millions of euros	Intangible assets / property, plant and equipment	Reassessment	Provisions / inventories / receivables	Capital gain	pensions	total
Reduction / increase in net income	4.7	-	-3.0	-	-	1.7
Currency conversion	-1.2	-	-	-	-	-1.2
As of December 31, 2018	30.3	-	7.1	-	-	37.4

The following amounts for deferred tax assets and liabilities are shown in the consolidated balance sheet after proper offsetting:

Million Euro	December 31, 2018		December 31, 2017	
	Deferred tax assets	Deferred tax liabilities	Deferred tax assets	Deferred tax liabilities
Status before settlement	131.0	37.4	126.9	36.9
billing	-33.7	-33.6	-30.6	-30.6
Balance sheet approach	97.3	3.8	96.3	6.4
of which in the long term	61.8	2.5	66.7	6.0

5.10 Personnel expenses / employees

The following personnel expenses were included in the expense items in the consolidated income statement:

Million Euro	2018	2017
Wages and salaries	539.4	523.1
Social security and pension and support expenses	123.6	111.9
Of which for defined benefit pension schemes	16.3	6.2
Thereof for defined contribution and other pension schemes	30.6	30.2
Total personnel expenses	663.1	635.0
Number of employees (annual average without temporary workers)	12,406	12,070
Employed in production	3,508	3,533

The social security contributions and expenses for pensions and support include employer contributions to state pension plans in the amount of EUR 28.9 million (2017: EUR 29.4 million). The expense from defined contribution pension plans was distributed across all functional areas of the Group. With regard to the increase in expenses from defined benefit pension schemes in the reporting year, we refer to the explanations in Section 7.8.

5.11 Other result

In addition to the income statement, the other result is the second component of the statement of comprehensive income. The table shows the values recognized directly in equity in 2018 and 2017 and the amounts reclassified to the income statement.

Million Euro	2018	2017
Currency differences from the translation of the financial statements of foreign subsidiaries	-36.7	-24.7
Changes not affecting profit	-36.7	-24.7
Change in the revaluation reserve from defined benefit pension commitments	6.2	34.3
Profits and losses from hedging instruments used to hedge cash flows	-6.0	0.4
Changes not affecting profit	-4.6	6.5
Changes from reclassification affecting net income	-1.4	-6.2
Other result	-36.5	10.0

6 INFORMATION ON THE GROUP CASH FLOW STATEMENT

The financial resources included in the consolidated cash flow statement include liquid funds and cash equivalents. These include cash and sight deposits at banks, as well as short-term, highly liquid financial investments with a remaining term of no more than three months, which can be converted into fixed amounts of cash at any time and are only subject to insignificant fluctuations in value. The returns on such short-term deposits were between 0.00 and 0.15 percent (2017: 0.00 and 0.2 percent) for EUR deposits and 0.4 percent for GBP deposits (2017: 0.3 percent).

The financial resources are made up as follows:

Million Euro	2018	2017
Liquid funds	192.2	252.3
Cash equivalents	39.6	12.0
Cash and cash equivalents	231.8	264.3

The cash inflows and outflows shown for the individual areas of activity resulted in cash and cash equivalents of EUR 231.8 million (2017: EUR 264.3 million).

Compared to the previous year, the inventory has decreased by 32.5 million euros. This reduction included currency conversion differences of 5.9 million euros that reduce the financial resources (2017: currency conversion differences that reduce the financial resources of 9.6 million euros).

The reconciliation of financial debts, the cash flows of which are shown as financing activities in the consolidated cash flow statement, is as follows:

Million Euro	01/01/2018	Cash change	non-cash changes	
			Change in the scope of consolidation	
Finance lease liabilities	5.0	2.9	-	-
Long-term finance leasing	2.5	0.0	-	-
Short-term finance leasing	2.5	2.9	-	-
Financial liabilities	177.2	63.3	-	-
longterm financial obligations	57.4	87.5	-	-
Short-term financial liabilities	119.8	-24.2	-	-
total	182.2	66.2	-	-
		non-cash changes		

Million Euro	Current changes	Others	December 31, 2018
Finance lease liabilities	-0.1	1.8	3.9
Million Euro	Currency conversion	Others	December 31, 2018
Long-term finance leasing	-	-	1.8
Short-term finance leasing	-0.0	2.7	2.3
Financial liabilities	-0.4	-	240.0
longterm financial obligations	-0.2	-	144.6
Short-term financial liabilities	-0.2	-	95.4
total	-0.5	1.8	243.9

The financial liabilities listed in the table are valued at amortized cost. The liabilities from derivatives with a hedging relationship are generally non-cash and are therefore not listed in the table above.

7 NOTES TO THE CONSOLIDATED BALANCE SHEET

7.1 Goodwill and other intangible assets

The intangible assets developed as follows in the 2018 reporting year:

Million Euro	Company Value	Other intangible assets		total
		Concessions, Industrial Rights and Similar	Development projects	
Acquisition and production costs				
As of 01.01.	793.1	99.9	170.0	1,063.1
Currency conversion	-17.0	-6.3	-0.4	-23.7
Accesses	-	10.1	34.5	44.7
Departures	-	1.4	-	1.4
Rebooking	-	0.2	-	0.2
As at 31.12.	776.1	102.6	204.2	1,082.9
Depreciation				
As of 01.01.	137.1	46.0	114.7	297.8
Currency conversion	-0.0	-1.9	-0.1	-2.1
Accesses	-	9.2	15.4	24.6
according to plan	-	7.9	14.2	22.1
unscheduled	-	1.4	1.2	2.6
Departures	-	1.4	-	1.4
Attributions	-	-	-	-
Rebooking	-	0.0	-	0.0
As at 31.12.	137.1	51.9	130.0	319.0
Book value December 31, 2017	656.0	54.0	55.3	765.3
Book value 31.12.	639.0	50.7	74.2	763.9
2017				
Million Euro	Company Value	Other intangible assets		total
		Concessions, Industrial Rights and Similar	Development projects	
Acquisition and production costs				
As of 01.01.	808.0	88.8	146.7	1,043.5
Currency conversion	-14.8	-5.8	-0.3	-20.9
Accesses	-	18.0	23.6	41.6
Departures	-	1.2	-	1.2
Rebooking	-	0.1	-	0.1
As at 31.12.	793.1	99.9	170.0	1,063.1
Depreciation				
As of 01.01.	137.2	43.2	102.9	283.3
Currency conversion	-0.1	-1.9	-0.1	-2.1
Accesses	-	5.8	11.9	17.7
according to plan	-	5.8	11.9	17.7
unscheduled	-	-	-	-
Departures	-	1.2	-	1.2
Attributions	-	-	-	-
Rebooking	-	-	-	-
As at 31.12.	137.1	46.0	114.7	297.8
Book value December 31, 2016	670.8	45.6	43.8	760.2
Book value 31.12.	656.0	54.0	55.3	765.3

7.1.1 Concessions, Commercial Rights and Similar Rights

A key component of this item is the DemirDöküm brand, which was capitalized in 2007 with 61.6 million euros. This is amortized on a straight-line basis over 40 years and was still valued at 12.5 million euros at the end of 2018 (2017: 17.3 million euros). In addition to the scheduled depreciation, which was recorded in marketing and selling expenses, the book value changed due to the exchange rate.

The additions to concessions, commercial rights and similar rights in the 2018 financial year include EUR 5.7 million (2017: EUR 7.9 million) for internally generated intangible assets for the implementation of new ERP and planning system modules. Internally generated intangible assets amounting to EUR 1.2 million were amortized as

planned. In addition, there were impairments of 1.4 million euros, which were recognized in the income statement under administrative costs. The book value of the self-generated assets at the end of 2018 was 15.3 million euros (2017: 12.3 million euros).

In the reporting period, there was an order commitment for intangible assets in the amount of 1.2 million euros (2017: 1.3 million euros).

7.1.2 Development projects

The impairment in the past fiscal year of 1.2 million euros (2017: 0 million euros) mainly related to a development project for which relevant market parameters have deteriorated. This impairment was recognized in the income statement under research and development costs.

The useful life of all development projects capitalized in 2018 was five years.

7.1.3 Goodwill

The goodwill essentially consists of the goodwill arising from the British Hepworth acquisition in the amount of EUR 531.7 million and the goodwill arising from the Turkish Türk-Demir-Döküm acquisition in the amount of 51.0 million euros (2017: 68.0 million euros). While the goodwill from the British acquisition is fixed in euros, the goodwill from the Turkish acquisition decreased by EUR 17.0 million in the year under review due to currency effects (2017: decrease by EUR 14.7 million).

The following table provides an overview of the book values of the goodwill and their allocation to the CGU:

Million Euro	2018	2017
ZGE heating technology	619.5	636.5
CGU service activities France	19.5	19.5
total	639.0	656.0

For all CGUs, the recoverable amount was determined based on the value in use. The Vaillant Group generally determines this value using valuation methods based on discounted cash flows. These discounted cash flows are based on forecasts based on financial plans approved by management. The forecasts take into account past experience and are based on management's best estimate of future developments. The most important assumptions on which the determination of the value in use is based include the assessment of future margin development and the amount of the discount rates used:

Discount rate (before taxes) %	2018	2017
ZGE heating technology	9.9	9.7
CGU service activities France	9.2	9.2

The discount rates were determined based on the average, weighted cost of capital customary in the industry. These interest rates were further adjusted to reflect the market assessment with regard to all CGU-specific risks for which the estimates of future cash flows were not adjusted. When extrapolating the future cash flows beyond the detailed planning period of five years, a growth rate of 1.4 percent (2017: 1.4 percent) for the CGU heating technology and a growth rate of 0.9 percent (2017: 0, 9 percent).

This year's impairment test for goodwill did not reveal an impairment requirement for any CGU (2017: EUR 0 million). In addition to the impairment test, two sensitivity analyzes were carried out for both CGUs. In the first sensitivity analysis, the expected future cash flows were reduced by 10 percent. As part of the second sensitivity analysis, the discount rate was increased by 10 percent. These two changes in the underlying assumptions would not result in an impairment loss on goodwill for either of the two CGUs.

7.2 Property, plant and equipment

Property, plant and equipment developed as follows in the 2018 financial year:

2018 million euros	Land, leasehold rights and buildings	Technical equipment and machinery	Other equipment, factory and office equipment	Payments on account and assets under construction	total
Acquisition and production costs					
As of 01.01.	306.3	212.2	353.6	42.4	914.6
Currency conversion	-5.1	-5.5	-4.6	-0.8	-16.1
Accesses	3.2	10.4	15.3	57.0	85.8
Departures	2.1	10.6	23.8	-	36.5
Rebooking	4.7	6.2	11.4	-23.1	-0.9
As at 31.12.	307.0	212.6	351.9	75.4	946.9
Depreciation					
As of 01.01.	175.4	159.3	272.2	-	606.9
Currency conversion	-2.7	-3.5	-3.2	-	-9.4
Accesses	9.8	13.3	28.3	-	51.3
according to plan	9.8	12.8	27.0	-	49.5
unscheduled	0.1	0.5	1.3	-	1.8
Departures	1.6	10.4	23.3	-	35.3
Rebooking	-0.5	0.1	-0.4	-	-0.7
As at 31.12.	180.4	158.8	273.6	-	612.8
Book value December 31, 2017	131.0	53.0	81.4	42.4	307.7
Book value 31.12.	126.6	53.9	78.3	75.4	334.2
2017 million euros			Other equipment, factory and office equipment	Payments on account and assets under construction	total
Acquisition and production costs					
As of 01.01.	327.0	217.8	369.7	45.7	960.2
Currency conversion	-4.7	-4.6	-4.9	-0.7	-14.9
Accesses	7.0	8.5	15.7	33.0	64.1
Departures	37.8	20.8	42.1	0.0	100.7

2017 million euros	Land, leasehold rights and buildings	Technical equipment and machinery	Other equipment, factory and office equipment	Payments on account and assets under construction	total
Rebooking	14.9	11.3	15.1	-35.6	5.7
As at 31.12.	306.3	212.2	353.6	42.4	914.6
Depreciation					
As of 01.01.	198.0	169.6	283.0	0.3	650.9
Currency conversion	-2.5	-3.1	-3.6	-	-9.3
Accesses	10.5	12.2	29.2	-	52.0
according to plan	10.5	12.2	28.3	-	51.0
unscheduled	0.1	-	0.9	-	1.0
Attributions	-	-	0.1	0.3	0.3
Departures	31.6	19.8	40.6	-	92.1
Rebooking	1.1	0.4	4.4	-	5.8
As at 31.12.	175.4	159.3	272.2	-	606.9
Book value December 31, 2016	129.0	48.3	86.7	45.4	309.4
Book value 31.12.	131.0	53.0	81.4	42.4	307.7

In 2018, property, plant and equipment were impaired by EUR 1.8 million (2017: EUR 1.0 million). Since assets will no longer be used by the Vaillant Group in the future, there was an impairment requirement of 0.1 million euros (2017: 0.1 million euros) for land, leasehold rights and buildings. In addition, there was an impairment loss of EUR 0.5 million (2017: EUR 0 million) for technical equipment and EUR 1.3 million for operating and office equipment (2017: EUR 0.9 million). These impairments were mainly taken into account in the cost of sales with 1.2 million euros (2017: 0.8 million euros) and in research and development costs with 0.6 million euros (2017: 0 million euros).

At the reporting date, there was an order commitment for property, plant and equipment in the amount of EUR 34.8 million (2017: EUR 32.1 million).

Restrictions on the disposal of fixed assets existed both as of December 31, 2018 and for the previous year only to the extent of the assets that were capitalized under property, plant and equipment due to finance leases (see Section 7.11.1), as these assets cannot be encumbered, pledged or resold.

As in the previous year, no property, plant and equipment were pledged as collateral for debts.

7.3 Other financial assets

The other financial assets are made up as follows:

Million Euro	December 31, 2018		December 31, 2017	
	total	Of which in the short term	total	Of which in the short term
Financial assets that are measured at fair value through profit or loss	0.2	-	0.2	-
Loans to affiliated, non-consolidated companies	-	-	-	-
Financial assets at amortized cost	2.5	-	3.1	-
Receivables from derivatives with a hedging relationship	1.4	1.3	8.5	6.1
Receivables from derivatives without a hedging relationship	0.1	0.1	-	-
total	4.2	1.4	11.8	6.1

The "financial assets at amortized cost" are, in particular, loans to employees and third parties; these are essentially held without any collateral.

7.4 Trade accounts receivable

Million Euro	December 31, 2018		December 31, 2017	
	total	Of which in the short term	total	Of which in the short term
Trade accounts receivable from third parties	299.2	299.1	326.0	325.7
Cumulative value adjustment	-34.6	-34.6	-42.5	-42.5
Book value	264.6	264.5	283.6	283.2
Trade accounts receivable from:				
a) affiliated companies	0.0	0.0	0.0	0.0
b) Companies with which there is a participation relationship	1.4	1.4	0.8	0.8
total	266.0	265.9	284.4	284.0

The trade receivables contain contractual assets from sales transactions in the amount of EUR 1.1 million (see Section 5.1).

Since 2007, the Vaillant Group has been selling trade accounts receivable as part of an ABS program. As of December 31, 2018, the nominal volume of the receivables sold was EUR 50.2 million (2017: EUR 50.1 million). The sales of receivables associated with the ABS program are - insofar as all opportunities and risks have been transferred - to be treated as partial disposals, as the Vaillant Group is obliged to pass on the payments from the respective receivables (pass-through arrangements). The obligations from the pass-through arrangements are reported under other liabilities.

The portion of the underlying customer receivables that has not been disposed of, less any discounts to be expected, is reported under other receivables. The remaining financial assets as of December 31, 2018 amounted to EUR 0.9 million (2017: EUR 1.2 million). The valuation corresponds to the fair value and reflects the maximum default risk. The execution of the program resulted in expenses totaling EUR 0.3 million in the financial year (2017: EUR 0.4 million).

The value adjustments on trade receivables developed as follows:

Million Euro	2018	2017
As of 01.01.	42.5	49.0
Exchange rate effects on the opening balance	-7.6	-6.5
Feed	1.2	4.9
consumption	-0.4	-0.6
resolution	-1.2	-4.4

Million Euro	2018	2017
As at 31.12.	34.6	42.5

Maturity analysis of trade receivables:

Million Euro	Gross book value December 31, 2018	Value adjustment December 31, 2018	Net book value December 31, 2018
Trade accounts receivable	300.6	-34.6	266.0
Age analysis			
0-30 days	256.0	-1.3	254.7
31-60 days	4.4	-0.1	4.3
61-90 days	0.9	-0.0	0.9
91-120 days	0.5	-0.0	0.5
over 120 days	38.7	-33.1	5.6

The non-impaired receivables portfolio was considered valuable based on established credit management processes and individual assessment of the individual customer risks. The default risk of the receivables as of the balance sheet date was adequately taken into account in the value adjustments.

7.5 Other claims

Million Euro	December 31, 2018		December 31, 2017	
	total	Of which in the short term	total	Of which in the short term
Sales tax receivables	26.8	26.8	27.8	27.8
Other receivables from ABS	0.9	0.9	1.2	1.2
Prepaid expenses	8.4	8.2	8.6	8.5
other demands	25.3	19.7	23.6	18.0
Including non-financial claims	8.5	8.4	7.6	7.1
total	61.3	55.5	61.1	55.4

The other receivables mainly include creditors with debit balances and restricted cash equivalents. The other receivables also include valuation allowances of EUR 0.8 million (2017: EUR 0.4 million), which are made up as follows:

Million Euro	2018	2017
As of 01.01.	0.4	0.4
Exchange rate effect on the opening balance	-0.0	-0.0
Feed	0.4	0.0
consumption	0.1	-
resolution	0.0	0.0
total	0.8	0.4

Maturity analysis of other financial receivables:

Million Euro	Gross book value December 31, 2018	Value adjustment December 31, 2018	Net book value December 31, 2018
Other financial receivables	17.7	-	17.7
Age analysis			
0-30 days	16.6	-	16.6
31-60 days	0.0	-	0.0
61-90 days	0.1	-	0.1
91-120 days	0.1	-	0.1
over 121 days	0.9	-	0.9

7.6 Inventories

Million Euro	December 31, 2018			December 31, 2017		
	Gross	devaluation	net	Gross	devaluation	net
Raw materials and supplies	111.4	-1.8	109.6	87.7	-1.8	85.9
Unfinished products	31.6	-1.7	29.9	30.0	-2.2	27.8
Finished products and goods	235.9	-25.3	210.5	204.2	-23.4	180.8
Prepayments made	0.9	-	0.9	1.3	-	1.3
total	379.8	-28.9	350.9	323.3	-27.4	295.9

Inventories of 1,029.6 million euros (2017: 985.4 million euros) were recognized as an expense in the reporting period. In 2018, the impairment loss was EUR 8.0 million (2017: EUR 7.8 million). Reversing this, reversals of impairment losses due to changed risk assessments with regard to assumptions about the net selling price as well as a better inventory structure in the sense of an increased inventory turnover rate of 3.0 million euros (2017: 5.0 million euros) had a positive effect.

As of December 31, 2018, as in the previous year, no inventories were pledged for security purposes.

7.7 Equity

The development of equity is shown in the consolidated statement of changes in equity.

By a resolution of the shareholders' meeting, part of the net profit can be transferred to the retained earnings within the framework of the appropriation of profit.

The fully paid-in capital shares of the limited partners of Joh. Vaillant GmbH & Co KG amounted to 14.0 million euros on the balance sheet date.

The equity of the shareholders of Joh. Vaillant GmbH & Co KG of 624.0 million euros (2017: 614.8 million euros) is shown in the consolidated balance sheet, contrary to IAS 32 (rev. 2008), as equity and not as debt. Accordingly, the profit allocation to the limited partners (credits to the liability accounts of the shareholders) is shown as appropriation of profit and not as expense in the consolidated income statement. In addition, the valuation is carried out at nominal values and not at the present value of the severance payment obligation stipulated in the articles of association. The present value of the severance payment obligation was not determined at any time. Since the shareholders are not expected to terminate the shares,

The other equity components show the differences from the currency translation of the annual financial statements of foreign subsidiaries that do not have the euro as their functional currency, as well as the valuation effects of hedging instruments that are included in cash flow hedge accounting. Furthermore, the revaluation effects in the context of accounting for defined benefit pension plans are shown here.

The minority interests are mainly attributable to the non-group shareholders in the Spanish Red Ofisat Group.

7.8 Provisions for pensions

The defined benefit plans comprised 19,024 beneficiaries (2017: 19,219), including 7,003 active employees (2017: 7,280), 4,932 former employees with vested benefits (2017: 4,925) and 7,089 retirees and surviving dependents (2017: 7,014). The characteristics and associated risks of the defined benefit plans vary depending on the legal, tax and economic framework in the respective country. The characteristics of the defined benefit plans that are important for the Vaillant Group are described below.

Great Britain

Vaillant Holdings Ltd. in Great Britain, together with the Vaillant Group UK Ltd. and Vaillant Industrial UK Ltd. the Vaillant Group Pension Scheme.

This pension plan has been closed for new entrants after April 5, 2013, and after consultation between the company, the trustees and the employees concerned, the entitlements from the Vaillant Group pension plan were frozen with effect from April 5, 2015. Active employees cannot earn any further claims beyond this point in time. After this date, the company's employees will be offered membership in a defined contribution pension plan.

The plan is administered by a trust company, whose board of trustees is solely committed to the benefit of the beneficiaries by virtue of the trust agreement and the law. On the basis of local regulations, a so-called technical assessment is carried out every three years to determine any funding deficit in order, if necessary, to coordinate planning for coverage.

Germany

In Germany, the companies listed below grant pension benefits either in accordance with the general pension scheme or in accordance with individual commitments:

society	Seat
Joh. Vaillant GmbH & Co KG	Haan
Vaillant GmbH	Remscheid
Vaillant Germany GmbH & Co. KG	Remscheid
HKR GmbH & Co. KG	Roding
tecbytel GmbH	Gelsenkirchen
Vaillant Group Business Services GmbH	Remscheid
Vaillant Group International GmbH	Remscheid

The majority of Vaillant's active employees in Germany participate in the general pension scheme introduced in the 1980 financial year. The amount of benefits essentially corresponds to a fixed amount commitment, as the amount of benefits depends on a salary level that has not been adjusted since 1980.

In addition, the Vaillant company grants selected managers individual commitments in the form of fixed-amount commitments that grant a lifelong pension. The amount of individual pension benefits is based on the labor value of the position.

The general pension scheme as well as the respective individual commitments are defined benefit plans that are exclusively financed by provisions. In both pension plans, the company bears the actuarial risks such as financing risk, inflation risk, interest rate risk and longevity risk.

For the entire Vaillant Group, the defined benefit plans for post-employment benefits resulted in the following amounts in the consolidated financial statements:

Million Euro	Performance-Based Obligation (DBO)		Fair value of plan assets		Net balance from defined benefit plans	
	December 31, 2018	December 31, 2017	December 31, 2018	December 31, 2017	December 31, 2018	December 31, 2017
Great Britain	826.0	895.0	675.4	718.9	150.7	176.1
Germany	135.2	132.6	-	-	135.2	132.6
Others	49.0	49.4	20.5	19.9	28.5	29.5
total	1,010.3	1,077.0	695.8	738.8	314.4	338.2

The net balance sheet from defined benefit plans of EUR 314.4 million (2017: EUR 338.2 million) consisted of a net liability of EUR 314.4 million (2017: EUR 338.2 million) and a net asset value of EUR 8 thousand (2017: 25 thousand euros) together.

The expenses for the net obligation from defined benefit plans are made up as follows:

Million Euro	2018	2017
Ongoing service cost	6.2	6.7
Past service costs	10.7	0.0
Profits (-) / losses from plan settlement	-0.6	-0.4
Net interest expense	7.4	9.2
Obligation-related administrative costs	0.0	0.0
Expenses recognized in the income statement	23.7	15.5
Actuarial gains (-) / losses	-50.4	9.3
Income (-) / losses on plan assets (excluding amounts included in net interest expenses and income)	42.7	-52.1
Revaluations recorded in the statement of comprehensive income	-7.7	-42.8
Expense / Income (-) for defined benefit plans	16.0	-27.3

On October 26, 2018, the High Court in England ruled that men and women must not be treated unequally in company pension commitments. The unequal treatment resulting from the different standard age limits (men: 65 years of age, women: 60 years of age) must be compensated by the pension fund in terms of value. The above decision relates to the group of people whose original state pension commitment was transferred to today's Vaillant Trust UK. This adjustment resulted in past service costs in the amount of 11.0 million euros, which were reported under other operating expenses.

The actuarial result results in particular from the adjustment of the financial assumptions when assessing the scope of the obligation.

The pension expenses for defined benefit plans recognized in the income statement are distributed across the functional areas as follows:

Million Euro	2018	2017
Production cost of sales	2.3	2.4
Research and development costs	0.7	0.6
Marketing and distribution costs	1.0	2.1
administrative expenses	1.0	1.0
Other operating result	11.4	0.2

Million Euro	2018	2017
Financial result	7.4	9.3
Expenses recognized in the income statement	23.7	15.5

The transition from the financing status to the provisions for pensions shown in the consolidated balance sheet was as follows:

Million Euro	December 31, 2018	December 31, 2017
DBO of the pension plans	1,010.3	1,077.0
Fair value of plan assets for pension plans	695.8	738.8
Funding status of the pension plans	314.5	338.2

The company's defined benefit plans are described in more detail in the following sections:

a. Reconciliation of the DBO and plan assets

b. Actuarial Assumptions

c. Sensitivity analysis

d. Asset-liability matching strategies

e. Breakdown of plan assets

f. Future cash flows

a. Reconciliation of the DBO and plan assets

The following tables show the development of the DBO in detail:

Million Euro	December 31, 2018	December 31, 2017
DBO at the beginning of the financial year	1,077.0	1,112.7
Ongoing service cost	6.2	6.7
Past service costs	10.7	-
Profits (-) / losses from plan settlement	-0.6	-0.4
Interest expenses	26.2	28.0
Reassessment		
Actuarial gains (-) / losses due to changes in financial assumptions	-46.3	21.9
Actuarial gains (-) / losses due to changes in demographic assumptions	-3.3	-9.3
Profits (-) / losses based on experience	-0.9	-3.4
Contributions from beneficiary employees	0.8	0.8
Payment of benefits directly by the company	-5.0	-4.8
Benefit payments from plan assets	-46.5	-41.4
Exchange rate changes	-8.0	-33.8
DBO at the end of the financial year	1,010.3	1,077.0

A detailed reconciliation of the change in the fair value of plan assets can be found in the following table:

Million Euro	December 31, 2018	December 31, 2017
Fair value of plan assets at the beginning of the financial year	738.8	712.9
Interest income	18.8	18.8
Reassessment		
Loss (-) / income from plan assets excluding amounts included in net interest expense and income	-42.7	52.1
Employer contributions	33.0	20.2
Contributions from beneficiary employees	0.8	0.8
Benefit payments from plan assets	-46.5	-41.4
Payments for compensation	-0.6	-
Obligation-related administrative costs	-0.0	-0.0
Exchange rate changes	-5.7	-24.5
Fair value of plan assets at the end of the financial year	695.8	738.8

b. Actuarial Assumptions

The assumptions on which the calculation of the DBO is based on discount rates, salary and pension trends and mortality rates vary depending on the economic and other framework conditions of the country in which the plans exist.

The weighted average discount rate and the mortality tables on which the actuarial calculation of the DBO was based on the balance sheet date are as follows:

Calculation bases and parameters	Great Britain		Germany	
	December 31, 2018	December 31, 2017	December 31, 2018	December 31, 2017
%				
Discount rate	2.9	2.6	1.9	1.9
inflation rate	2.2	2.2	2.0	2.0
Life tables	S2PxA		Heubeck mortality tables 2018 G	Heubeck mortality tables 2005 G

The conversion of the mortality tables for the valuation of German pension plans to the Heubeck mortality tables 2018 G resulted in a total loss of EUR 1.2 million, which was recognized as part of the actuarial result from the change in demographic assumptions in other comprehensive income .

In addition, the DBO is influenced by assumptions about future wage trends, pension trends and fluctuation rates. These effects are taken into account in the above assumptions (if applicable).

c. Sensitivity analysis

A change in the above assumptions used to determine the DBO as of December 31, 2018 would increase or decrease the DBO as follows:

Million Euro	Change in DBO as of December 31, 2018		Change in DBO as of December 31, 2017	
	rise	decline	rise	decline

Million Euro	Change in DBO as of December 31, 2018		Change in DBO as of December 31, 2017	
	rise	decline	rise	decline
Discount rate variation by half a percentage point	-83.6	91.2	-89.6	99.2
Inflation rate variation by half a percentage point	29.6	-28.8	30.9	-30.0
Life expectancy + / - 1 year	33.7	-35.3	37.3	-36.1

The increase in the discount rate by half a percentage point, for example, results in a reduction in the DBO of 83.6 million euros.

When calculating the sensitivity of the DBO for the relevant actuarial assumptions, the same method was used (determination of the present value using the method of recurring single premiums) as for the calculation of the DBO in the amount of 1,010.3 million euros, which is recorded in the consolidated balance sheet. Increases and decreases in the discount rate, the inflation rate and the mortality rate do not have the same absolute value when determining the DBO - mainly due to the compound interest effect when calculating the present value of future benefits. If several assumptions are changed at the same time, the overall effect does not necessarily have to correspond to the sum of the individual effects due to the changes in the assumptions. In addition, that the sensitivities reflect a change in the DBO only for the respective specific magnitude of the change in assumptions (e.g. 0.5 percent). If the assumptions change by any other magnitude, this does not necessarily have a linear effect on the DBO.

d. Asset-liability matching strategies

A strategic asset-liability management exists only for the English final salary-related pension plan, which is financed and administered by the Vaillant Trust UK. The direct responsibility for the financing and administration of the Vaillant Trust lies with the trustees of the Vaillant Trust UK. However, there is ongoing, very close coordination between the trustees and the Vaillant Group.

The Vaillant Group has identified the deterioration in the financing status due to the unplanned development of plan assets and / or the liability side as a major risk from the final salary pension plan financed by the Vaillant Trust UK. As part of asset / liability management, the development of the liability side is regularly compared with the development of the associated plan assets. Significant risks on the obligation side can be seen in the development of the discount rate, inflation and life expectancy. With regard to the development of plan assets, the main risk factors result from the development of the respective stock and bond markets.

With regard to suitable risk minimization, the trustees coordinate intensively with the Vaillant Group as well as with external investment specialists and external actuaries. The primary goal is to restore a balanced financing status as quickly as possible and thereby maximize the return on investments with the lowest possible risk. A broadly diversified investment of assets can be guaranteed on the basis of the control principles and framework for action agreed between the trustees and the Vaillant Group. A concentration of investments in certain areas, sectors or branches can be avoided. Derivatives are only used to the extent that

The Vaillant Group expects that the investments of the final salary pension plan will generate a return in the medium to long term in line with the actuarial assumptions under which the financing plan was agreed. The Vaillant Group is aware of the fact that short-term success can differ significantly from long-term goals.

e. Breakdown of plan assets

The breakdown of the plan assets of the pension plans is as follows:

Asset category Million Euro	Fair values to	
	December 31, 2018	December 31, 2017
Debt instruments	282.0	301.1
Equity instruments	281.7	326.9
Investment funds	-	52.0
Cash and cash equivalents	60.1	10.8
Qualifying Insurance Policies	20.5	19.9
property	51.6	28.1
total	695.8	738.8

With the exception of the qualifying insurance policies, all asset categories had price quotations on an active market. In addition, most of the cash and cash equivalents are intended for investment in corporate bonds.

The plan assets did not include any of the Vaillant Group's own transferable financial instruments, and the real estate contained in the plan assets was not used by the Vaillant Group itself.

f. Future cash flows

On February 15, 2017, the trustees of the Vaillant Trust in Great Britain and the Vaillant Group adopted a new plan to cover the existing funding deficit (recovery plan). The basis for determining the amount of the recovery plan payments was the actuarial assessment of April 5, 2016. According to this, the Vaillant Group is obliged to make contributions to compensate for existing underfunding underfunding totaling GBP 167.4 million by October 2024. In the past financial year, funds amounting to GBP 28.3 million (2017: GBP 16.7 million) were made available. According to legal regulations, the Vaillant Trust in Great Britain has to carry out an actuarial assessment every three years. The next actuarial assessment will take place in 2019.

The total expected employer contributions to the Vaillant Group's defined benefit plans for post-employment benefits for the 2019 financial year amount to 35.3 million euros (payments expected in 2017 for 2018: 33.8 million euros).

From the perspective of the balance sheet date, future payments to the service recipients were as follows:

Expected benefit payments in millions of euros	December 31, 2018	
	2019	52.0
2020	53.0	
2021	54.1	
2022	56.2	
2023	57.3	
Expected benefit payments in millions of euros	December 31, 2017	
	2018	47.1
2019	48.0	
2020	49.0	
2021	50.7	
2022	51.8	

The weighted average duration of the DBO for the Vaillant Group's defined benefit plans was 17.9 years (2017: 18.0 years).

7.9 Other provisions

Million Euro	Total 01/01/2018	Currency conversion	Feedings	Consumption
Provisions for				
Taxes on income and earnings	23.8	0.0	-	4.7
Discounts / bonuses	126.0	-1.1	103.6	110.2
staff	82.6	-0.7	51.3	58.4
Other provisions	124.6	-2.6	58.7	49.0
total	356.9	-4.4	213.6	222.3
			Total December 31,	Of which in the short
Million Euro		Resolutions	2018	term
Provisions for				
Taxes on income and earnings		-	19.0	-
Discounts / bonuses		6.4	111.9	111.9
staff		2.1	72.7	54.7
Other provisions		11.6	120.1	86.1
total		20.1	323.7	252.7

The provision for taxes includes provisions for income taxes in the amount of 19.0 million euros (2017: 23.8 million euros). Further income tax liabilities, which are shown separately in the balance sheet, existed at the end of the reporting year in the amount of the income tax liability of EUR 11.7 million (2017: EUR 12.7 million).

The provisions for personnel include obligations from severance payments, from partial retirement, from remaining vacation wages and salaries and other personnel obligations. The additions to the other provisions in the year included interest expense of EUR 0.1 million (2017: EUR 0.1 million). The other provisions essentially contain risks from warranties and possible impending losses.

The provisions were not matched by any reimbursement claims (2017: EUR 0.6 million). The previous year's figure was shown under other receivables.

For the other long-term provisions recognized in the financial year, the following cash outflows are expected:

Million Euro	2018	Expected cash outflows (present values)		
Provisions for		2019	2020	2021
Taxes on income and earnings	19.0	6.5	2.0	2.7
staff	18.0	-	4.1	2.6
Other provisions	34.1	-	26.1	4.2
total	71.0	6.5	32.2	9.5
Million Euro		Expected cash outflows (present values)		
Provisions for		2022	2023	2024ff
Taxes on income and earnings		2.7	5.1	-
staff		1.4	1.0	8.9
Other provisions		2.0	0.8	1.0
total		6.1	6.8	9.9

7.10 Financial Liabilities

Million Euro	Final maturity	Book values	
		December 31, 2018	December 31, 2017
Syndicated loan (totaling EUR 250.0 million)	December 15, 2021	-	18.3
US private placement (total EUR 27.5 million)	08/15/2018	-	27.5
US private placement (total £ 27.1m)	08/15/2018	-	30.5
Finance lease liabilities	December 31, 2019	2.3	2.5
Other liabilities to banks	January 31, 2019	94.1	41.6
Other short term loans		1.4	1.9
Liabilities from derivatives		1.6	1.4
Of which derivatives with a hedging relationship		1.6	1.2
Of which derivatives without a hedging relationship		-	0.2
Total short-term financial liabilities		99.3	123.7
Syndicated loan (totaling EUR 250.0 million)	December 15, 2021	87.3	-
US private placement (total EUR 27.5 million)	08/15/2021	27.5	27.5
US private placement (total £ 27.1m)	08/15/2021	30.3	30.5
Finance lease liabilities	December 31, 2021	1.6	2.5
Other liabilities to banks		-0.5	-0.6
Liabilities from derivatives		1.4	-
Of which derivatives with a hedging relationship		1.4	-
Total long-term financial liabilities		147.6	59.9
Total financial liabilities		246.9	183.6

The **syndicated loan that** has existed since November 2011 (revolving credit facility) in the amount of EUR 250.0 million bears interest on the basis of EURIBOR / LIBOR plus margin, whereby the interest margins are based on the ratio of net debt to EBITDA. In 2016, the revolving credit facility was prematurely extended by a further year until December 15, 2021 and adjusted to the current market situation. The fees paid in connection with the loan are reported under long-term loan liabilities. Of the credit facility of EUR 250.0 million, a partial amount of EUR 87.3 million (2017: EUR 18.3 million) had been used on December 31, 2018, a repayment of the line that was still short-term in the previous year expected did not take place.

In August 2006, the Vaillant Group issued a **US private placement** in the currencies USD, GBP and EUR. These papers were acquired by institutional investors. These are seven series with terms of 10, 12 and 15 years, with the tranches with terms of 10 and 12 years being redeemed in August 2016 and August 2018, respectively.

The cash flows from the Vaillant Group's financial liabilities are as follows:

Million Euro	Book value December 31, 2018	Cash flows 2019 Interest + repayment	Cash flows 2020 Interest + repayment	Cash flows 2021-2026 Interest + repayment	Cash flows 2027 ff. Interest + repayment
Original financial liabilities					
liabilities from goods and services	298.3	298.2	0.2	-	-
Liabilities to banks	180.9	96.2	1.0	88.3	-
Other short term loans	1.4	1.4			
US private placement	57.8	3.0	3.0	59.7	-
Finance lease liabilities	3.9	2.6	1.4	0.3	-
Other liabilities	52.0	51.6	0.3	-	-
Liabilities from derivatives					
Derivatives with a hedging relationship	3.0	1.6	1.0	0.4	-
Derivatives without a hedging relationship	-	-	-	-	-

The table shows all financial liabilities that were in existence on December 31, 2018 and for which payments are contractually agreed. In addition to the repayment, the cash flows also contain the interest component.

The Vaillant Group controls the liquidity risk mainly using the key figure net debt to EBITDA, as this is decisive for the debt capacity of the group of companies. Particular attention is paid to a balanced maturity structure for external debt. The remaining terms of the individual financing instruments are spread over a period of one to three years. In addition to cash and cash equivalents of EUR 231.8 million (2017: EUR 264.3 million), unused, committed credit lines of EUR 162.7 million (2017: EUR 231.7 million) were available at the end of the year to cover short-term financing requirements Disposal. In addition, the Vaillant Group ensures that Avoid concentrations on individual lenders. The main financing instruments are the revolving credit facility, the US private placement and bilateral loan agreements. In detail, the liquidity planning takes place in the long term as part of the business plan, in the medium term as part of the budget planning and the related interim updates, and in the short term as part of the liquidity requirement calculation to determine short-term borrowings or

-Investments.

7.11 Leasing

7.11.1 Finance Leases as Lessee

The assets recognized in the balance sheet as part of finance leases mainly relate to long-term rental agreements for IT equipment and service technician vehicles. Some of the contracts contain extension and purchase options. The net book value for each class of the assets concerned is:

Million Euro	Net book value	
	2018	2017
Land and buildings	-	0.0
Other equipment, factory and office equipment	3.6	4.7
total	3.6	4.7

The sum of the minimum lease payments and the reconciliation to their present value are shown in the following tables. The corresponding liabilities amounted to 3.9 million euros at the end of the financial year (2017: 5.0 million euros).

Million Euro	December 31, 2018		December 31, 2017	
	Remaining term <1 year	Remaining term of 1-5 years	Remaining term <1 year	Remaining term of 1-5 years
Sum of the minimum lease payments	4.2	5.7	3.9	5.0
Present value thereof	2.3	2.5	1.6	2.5
Due within one year				
Due in 1 to 5 years				

As in the previous year, no conditional rent payments were recorded in the financial year, and there were no non-terminable subleases.

7.11.2 Operating Leases as Lessee

The operating leases mainly relate to rented office buildings and vehicles. The sum of the future minimum lease payments due to non-cancellable operating leases is shown in the following table:

Million Euro	December 31, 2018	December 31, 2017
Operating lease expenses	95.7	91.8
Due within one year	28.5	27.8
Due in 1 to 5 years	52.1	51.2
Due after 5 years	15.1	12.8

These future minimum lease payments from operating leases would generally be taken into account as lease liabilities in the balance sheet in the 2019 financial year when IFRS 16 was first applied. However, the approach would be both the necessary discounting, since the valuation has to be at present value, and the options then used by the Vaillant Group with regard to short-term leases, services that are not to be taken into account and agreements on low-value assets (see p. Chapter 2.3) reduce accordingly.

Payments from leases that were recognized in profit or loss were incurred in the reporting year in the amount of 45.0 million euros (2017: 43.8 million euros) for minimum lease payments. As in the previous year, no conditional lease payments were made for the 2018 financial year.

The Vaillant Group has concluded non-terminable subleases for various operating leases. The minimum lease payments to be expected from this as income in the future are as follows:

Million Euro	December 31, 2018	December 31, 2017
Operating lease income	1.1	1.0
Due within one year	0.8	0.8
Due in 1 to 5 years	0.1	0.1

Million Euro	December 31, 2018	December 31, 2017
Due after 5 years	0.2	0.1

The underlying operating leases essentially relate to the subletting of buildings to third parties outside the Group.

Payments of EUR 0.8 million (2017: EUR 1.3 million) were received from subleases.

7.12 Trade payables

Million Euro	December 31, 2018		December 31, 2017	
	total	Of which in the short term	total	Of which in the short term
Trade payables to third parties	295.9	295.8	300.6	300.4
Trade payables to:				
a) affiliated, non-consolidated companies	-	-	-	-
b) Companies with which there is a participation relationship	2.4	2.4	3.4	3.4
total	298.3	298.1	304.1	303.9

7.13 Other liabilities

Million Euro	December 31, 2018		December 31, 2017	
	total	Of which in the short term	total	Of which in the short term
Liabilities from accepting bills of exchange	0.0	0.0	0.0	0.0
Payments received	10.0	10.0	10.7	10.7
Contractual performance obligations and accruals	176.3	107.1	161.1	98.1
Tax liabilities	9.4	9.4	12.7	12.7
Social security liabilities	12.6	12.6	11.6	11.6
Other miscellaneous liabilities	52.0	51.6	53.7	53.4
Sales tax liabilities	27.7	27.7	25.6	25.6
total	288.0	218.5	275.4	212.1

The contractual performance liabilities from sales transactions amount to 173.7 million euros (see Chapter 5.1), the other other liabilities include liabilities in connection with the pass-through arrangement from the ABS program in the amount of 20.0 million euros (2017: 20, 9 million euros).

7.14 Contingent Liabilities and Other Financial Obligations

Million Euro	December 31, 2018	December 31, 2017
Other financial obligations	25.7	43.4
Contingent liabilities from guarantees	17.8	16.2

The Vaillant Group has entered into future financial obligations of EUR 13.5 million (2017: EUR 20.9 million) by concluding contracts for comprehensive services in the administrative area. These services will be paid evenly over the period up to December 31, 2020. Furthermore, the future financial obligations include EUR 12.2 million (2017: EUR 22.4 million) arising from contractually agreed purchase obligations for steel in Turkey result. These services will be paid by April 1, 2019. The contingent liabilities from guarantees in the amount of 17.8 million euros (2017: 16.2 million euros) mainly relate to bills of exchange drawn in Turkey.

7.15 Contingent Claims

There are contingent claims in the amount of 6.5 million euros (2017: 2.5 million euros), which relate to possible claims for damages from defective deliveries.

7.16 Additional information on financial instruments

Financial assets and liabilities are valued either at (amortized) cost or at fair value in the balance sheet. This takes place in accordance with the assessment categories according to IFRS 9.

The following tables contain information on book values, measurement categories of IFRS 9 and fair values:

December 31, 2018	Valued at amortized cost		Measured at fair value through profit or loss	Measured at fair value with no effect on income	Not assigned to any evaluation category	
	Book value	Informational: fair value	Book value	Book value	Book value	Book value in the balance sheet
Requests from deliveries and services	266.0	265.8	-	-	-	266.0
Other financial assets	2.5	2.5	0.3	1.4	-	4.2
Other financial receivables	5.9	5.9	-	-	-	5.9
Investments in equity instruments	-	-	0.2	-	-	0.2
Derivatives with a hedging relationship	-	-	-	1.4	-	1.4
Derivatives without a hedging relationship	-	-	0.1	-	-	0.1
Other claims	17.7	17.7	-	-	43.6	61.3
Other financial receivables	17.7	17.7	-	-	-	17.7
Non financial assets	-	-	-	-	43.6	43.6
Cash and cash equivalents	231.8	231.8	-	-	-	231.8
Total financial assets	518.0	517.7	0.3	1.4	-	519.7
December 31, 2018	Valued at amortized cost		Measured at fair value through profit or loss	Measured at fair value with no effect on income	Not assigned to any evaluation category	
Million Euro	Book value	Informational: fair value	Book value	Book value	Book value	Book value in the balance sheet
Financial liabilities	243.9	246.9	-	3.0	-	246.9

December 31, 2018	Valued at amortized cost		Measured at fair value through profit or loss	Measured at fair value with no effect on income	Not assigned to any evaluation category	
	Book value	Informational: fair value	Book value	Book value	Book value	Book value in the balance sheet
Million Euro						
Other financial liabilities	243.9	246.9	-	-	-	243.9
Derivatives with a hedging relationship	-	-	-	3.0	-	3.0
Derivatives without a hedging relationship	-	-	-	-	-	-
liabilities from goods and services	298.3	298.3	-	-	-	298.3
Other liabilities	52.0	52.0	-	-	236.0	287.9
Other financial liabilities	52.0	52.0	-	-	-	52.0
Non-financial liabilities	-	-	-	-	236.0	236.0
Total financial liabilities	594.2	597.1	-	3.0	-	597.2

The reconciliation of the previous year's figures in accordance with IAS 39 is as follows:

December 31, 2017	Valued at amortized cost		Measured at fair value	Non financial assets	
	Book value	Informational: fair value	Book value	Book value	Book value in the balance sheet
Million Euro					
Requests from deliveries and services	284.4	-	-	-	284.4
Loans and Receivables	284.4	-	-	-	284.4
Other financial assets	3.1	-	8.7	-	11.8
Loans and Receivables	3.1	-	-	-	3.1
Available-for-sale financial assets	-	-	0.2	-	0.2
Derivatives with a hedging relationship	-	-	8.5	-	8.5
Freestanding derivatives	-	-	-	-	-
Other claims	17.1	-	-	44.0	61.1
Loans and Receivables	17.1	-	-	-	17.1
Non financial assets	-	-	-	44.0	44.0
Cash and cash equivalents	264.3	-	-	-	264.3
Loans and Receivables	264.3	-	-	-	264.3
Total financial assets	568.9	-	8.7	-	577.6
Thereof loans and receivables	568.9	-	-	-	568.9
December 31, 2017	Valued at amortized cost		Measured at fair value	Non-financial liabilities	
Million Euro	Book value	Informational: fair value	Book value	Book value	Book value in the balance sheet
Financial liabilities	182.2	185.5	1.4	-	183.6
Valued at amortized cost	182.2	185.5	-	-	182.2
Derivatives with a hedging relationship	-	-	1.2	-	1.2
Freestanding derivatives	-	-	0.2	-	0.2
liabilities from goods and services	304.1	-	-	-	304.1
Valued at amortized cost	304.1	-	-	-	304.1
Other liabilities	53.7	-	-	221.5	275.4
Valued at amortized cost	53.7	-	-	-	53.7
Non-financial liabilities	-	-	-	221.5	221.7
Total financial liabilities	540.0	185.5	1.4	-	541.4
Of which valued at amortized cost	540.0	185.5	-	-	540.0

A fair value measurement of outstanding trade receivables that can still be sold in subsequent months under the existing ABS program would have resulted in a reduction in the book value of EUR 0.3 million affecting earnings. The effect was not recorded on the basis of materiality considerations.

The financial liabilities measured at amortized cost include liabilities from finance leases in the amount of EUR 3.9 million (2017: EUR 5.0 million), which are valued in accordance with the provisions of IAS 17.

If a measurement is made at fair value or is provided for information purposes, these financial instruments must be assigned to one of the three levels of the fair value hierarchy (for the fair value hierarchy, see also Section 2.5.10).

Financial assets	December 31, 2018		
	Fair value classified in		
Million Euro	Level 1	Level 2	Level 3
Non-derivative financial assets			
Investing in Equity Instruments - Exchange Traded	0.2	-	-
Derivative financial assets with a hedging relationship			
Commodity futures - copper	-	0.5	-
Foreign Currency Forwards - GBP	-	0.7	-
Foreign Currency Forwards - Other	-	0.1	-
Derivative financial assets without a hedging relationship			
Foreign currency swaps	-	0.1	-
Assets for which the fair value is given for information only			
Valued at amortized cost	-	265.8	-

Financial liabilities		December 31, 2018		
		Fair value classified in		
Million Euro		Level 1	Level 2	Level 3
Derivative financial liabilities with a hedging relationship				
Commodity futures - copper		-	2.4	-
Foreign Currency Forwards - GBP		-	0.4	-
Foreign Currency Forwards - Other		-	0.1	-
Derivative financial liabilities without a hedging relationship				
Foreign Currency Forwards - GBP		-	-	-
Liabilities for which the fair value only needs to be stated				
Valued at amortized cost		-	245.5	-
The previous year's figures in accordance with IAS 39 are as follows:				
Financial assets		December 31, 2017		
		Fair value classified in		
Million Euro		Level 1	Level 2	Level 3
Available-for-sale financial assets				
Real estate funds - traded on the stock exchange		0.2	-	-
Derivative financial assets in a hedging relationship				
Commodity futures - copper		-	6.9	-
Foreign Currency Forwards - GBP		-	1.3	-
Foreign Currency Forwards - Other		-	0.3	-
Freestanding derivative financial assets				
Foreign currency swaps - TRY		-	-	-
Financial liabilities		December 31, 2017		
		Fair value classified in		
Million Euro		Level 1	Level 2	Level 3
Derivative financial liabilities in a hedging relationship				
Commodity futures - copper		-	-	-
Foreign Currency Forwards - GBP		-	0.7	-
Foreign Currency Forwards - Other		-	0.5	-
Standalone derivative financial liabilities				
Foreign Currency Forwards - GBP		-	0.2	-
Liabilities for which the fair value only needs to be stated				
Valued at amortized cost		-	185.5	-

For some financial instruments, such as cash, short-term trade receivables and payables, the carrying amount is a reasonable approximation of the fair value. In accordance with IFRS 7.29 (a), disclosure of the fair value is not required for such financial instruments.

Evaluation process

The DCF method was used to determine the fair value of the liability from the US private placement. The discounting factors used were the interest rates of government bonds and listed bonds with corresponding remaining terms plus the current market interest margins.

The other long-term liabilities are interest-free and have been discounted according to their remaining term at the current market interest rate.

The financial assets are either short-term assets (trade receivables) or variable-interest values or assets for which the agreed nominal interest rate differs only insignificantly from the interest rates of the corresponding remaining terms. For outstanding trade receivables that will be sold in subsequent months under the ABS program, the fair value is only given for information. This is based on the purchase price discount agreed with the program partner on the book value of the items in question.

There were no changes to the carrying amounts for any of the other financial liabilities, as these are either short-term (trade payables) or variable interest rates. In some cases, the market interest rates for the corresponding remaining terms differed only insignificantly from the agreed nominal interest rates.

The determination of the fair values recognized in the balance sheet for derivative financial instruments depends on the type of instrument:

The fair value of interest rate derivatives is determined by comparing the current market prices in terms of currency and term with the contracted prices based on currency and remaining term (marked to market).

The fair value of currency derivatives is determined on the basis of the current ECB reference rates plus a premium or discount based on the interest rate differentials.

The fair values of commodity derivatives are determined on the basis of quotations from the LME (London Metal Exchange).

In the case of derivative financial instruments, when the valuation techniques are used, the contractual partner's credit risk is taken into account by calculating credit valuation adjustments.

The net gains (+) and net losses (-) from financial instruments resulted as follows:

Million Euro	Valuation categories according to IFRS 9	2018
Trade accounts receivable from the ABS program	FAFVPL	-0.3
Financial assets valued at amortized cost	FAAC	1.2
Financial liabilities valued at amortized cost	FLAC	-5.1
Derivatives without a hedging relationship	FAFVPL / FLFVPL	0.3
The previous year's figures in accordance with IAS 39 are as follows:		
Million Euro		2017
Valuation categories in accordance with IAS 39		
Loans and receivables valued at amortized cost expense (-) / income (+)	LaR	-0.3
Liabilities valued at amortized cost expense (-) / income (+)	FLAC	-2.5

Million Euro		2017
Financial assets held for trading	FAFVPL	-0.1
Financial liabilities held for trading	FLFVPL	0.4

Net gains and losses from "Financial assets valued at amortized cost" and "Financial liabilities valued at amortized cost" contain changes in value adjustments as well as incoming payments and reversals of impairments on loans and receivables that were previously written off. It also includes gains or losses from foreign currency translation and the sale of assets.

With regard to the interest expenses or income resulting from the application of the effective interest method, we refer to the corresponding comments on the interest result in Section 5.8.

8 RISK AND CAPITAL MANAGEMENT AND SECURITY INSTRUMENTS

8.1 Risk management policy in general

The globalization of marketplaces forces the economy to react flexibly to changes in financial and other market parameters such as exchange rates, interest rates or metal prices. As an international company, the Vaillant Group is also exposed to these risks. The Vaillant Group uses over-the-counter derivative financial instruments to eliminate or reduce the risks resulting from operating business and its financial support. Interest rate, metal price and exchange rate risks are hedged through the use of compensatory derivatives for direct relationships between the underlying and the hedging transaction (micro-hedges).

The conclusion, processing and control of the use of financial derivatives are centrally controlled by the Group Treasury department on the basis of a group-wide treasury guideline. The use of foreign exchange and non-ferrous metal derivatives is limited exclusively to the hedging of operational business.

The maximum default risk of the derivative financial instruments recognized in the balance sheet is reflected by their book values, which correspond to their fair values.

8.2 Capital management

Sustainable profitable growth is the central goal of the long-term strategy of the Vaillant Group. This ensures the continuation of the company so that benefits can also be generated for other interest groups. In addition, an adequate return for the shareholders is ensured in accordance with the company's risk situation.

Sales and EBIT are the key indicators with which the Vaillant Group measures and controls the company's growth.

The primary goal of the Vaillant Group's capital management is to ensure that the Group's ability to repay debt and its financial substance are maintained in the future and that sufficient free cash flow is available. That is why the Vaillant Group's capital management is geared in particular to safeguarding equity on the balance sheet.

A stable financial structure is therefore essential and thus forms the basis for compliance with the financial covenants. In the worst case, non-compliance with the financial covenants leads to the loan becoming due immediately.

The treasury department therefore constantly and continuously monitors the following two financial covenants, the components of which are determined in accordance with the definitions of the loan agreement clauses and which must be met cumulatively:

- Net debt ratio, defined as the quotient of net debt to EBITDA (operating profit before depreciation on property, plant and equipment and intangible assets); this ratio should not exceed a value of 3.0; and the
- Interest coverage ratio, defined as the quotient of EBITDA to net interest expense; this key figure should reach a value of at least 3.0.

The following quotients were obtained on the last three previous balance sheet dates:

	December 31, 2017	December 31, 2016	December 31, 2015
Net debt ratio	-0.29	-0.13	0.03
Interest coverage ratio	37.41	18.01	13.34

The financial covenants for the past financial year must be reported to the respective lender no later than 120 days after the closing date. The Vaillant Group expects to meet the financial covenants for the 2018 financial year, as in previous years.

8.3.1 Currency Risks

The Vaillant Group's exchange rate risks result from its operating business (transaction risks).

The underlying transactions on which the currency hedging considerations are based are defined as the balance of receivables and liabilities as well as expected sales and costs for the next twelve months. The Vaillant Group attaches particular importance to the natural hedge, which means that sales in individual currencies should, if possible, also offset expenses (costs for materials, personnel, etc.) in the same currency. The cash flows from foreign currency transactions are due in 2019 and 2020 and have a nominal value of EUR 294.9 million (2017: EUR 243.3 million) as of the balance sheet date. Of this nominal amount, around 42 percent (2017: 42 percent)

The most important currency relation for the Vaillant Group is EUR / GBP. The fair value of these currency forwards was EUR 0.3 million as of the balance sheet date (2017: EUR 0.6 million).

The currency sensitivity analysis is based on the following assumption:

The basis is the net cash flow of a currency including other expenses plus liabilities / minus receivables in the corresponding currency from borrowing or investments plus receivables / minus liabilities in this currency from forward exchange transactions. For the hedged portion of the cash flow, changes in exchange rates do not affect income. The sensitivity analysis in accordance with IFRS 7 for determining the market risk results in a theoretical fair value of EUR -12.6 million (2017: EUR -13.0 million) based on GBP forward sales for a GBP 10 percent stronger.

8.3.2 Raw material risks

As an industrial company, the Vaillant Group is also exposed to the risk of price changes for raw materials. In the case of unlisted raw materials, attempts are made to hedge the price risk through long-term purchase contracts. Of the raw materials listed on the stock exchange, copper is mainly used. The Vaillant Group has concluded appropriate purchase futures contracts (OTC swaps) here. The fair values of the raw material contracts with a hedging connection as of December 31, 2018 were EUR -1.9 million (2017: EUR 6.9 million).

The table below shows the expected cash flows for copper purchases:

Nominal values of the cash flows	Million Euro
Due in 2019	25.9
Due in 2020	15.3
Due in 2021	6.7

The raw material sensitivity analyzes are based on the assumption that non-ferrous metals of consistent quality can be bought in advance on the commodity futures exchanges. Although there is no physical delivery of the metals here, the profit or loss resulting from these transactions is offset against the cost of sales when due. Fluctuations in metal prices do not affect the results of the hedged transactions.

The sensitivity analysis shows that if the market price had been 10 percent lower, the fair value of the corresponding contracts would have been EUR -6.7 million (2017: EUR 2.3 million).

8.3.3 Interest rate risks

Interest rate risks essentially result from variable interest-bearing financial debts. Fixed-interest financial debts such as the US private placement are recognized at amortized cost and not at fair value, so that a change in the market interest rate did not have any effect on the profit or loss for the period. The interest rate risks relate mainly to the variable-interest liabilities to banks. The sensitivity analysis carried out resulted in an increase in interest expenses of EUR 0 million (2017: EUR 0 million) for liabilities to banks with a 10 percent higher interest rate.

8.3.4 Risks of Default

The Vaillant Group is exposed to a risk of default, particularly in its operational business. In the operative business, the outstanding accounts for deliveries and services are monitored decentrally. Default risks are taken into account by means of individual value adjustments and flat-rate individual value adjustments. The Vaillant Group sold some of the trade receivables as part of an ABS program and booked them out in the amount of the risks and opportunities transferred. There remains a risk of default in the amount of the recognized financial assets.

In order to minimize the default risk of trade receivables, non-cash collateral (mainly trade credit insurance, bank guarantees and letters of credit as well as mortgages) has been taken out to cover part of the default risk.

The maximum default risk of the financial assets recognized in the balance sheet (including derivative financial instruments with a positive fair value) is reflected in the book values.

8.4 Additional information on derivatives in hedging relationships

The following overview contains information about the cash flows of the derivative financial instruments used in hedging relationships:

2018	Commodity futures		Forward foreign exchange transactions	
	Nominal volume million euros	Ø secured price per ton (in euros)	Nominal volume million euros	Ø forward rate *
Due in 2019	25.9	5,255	120.1	0.9
Due in 2020	15.3	5,369	0.9	-
Due in 2021	6.7	5,177	-	-

* The indication of the average forward rate relates to the hedging of the GBP exchange rate risk as the only essential currency hedging component

The hedging instruments that the Vaillant Group has designated in hedging relationships have the following effects on the consolidated balance sheet and consolidated statement of comprehensive income (in million euros, unless otherwise stated):

2018	Book value of the hedging instruments used			Change in fair value for measuring ineffectiveness in the reporting year
	Million Euro	Other financial assets	Financial liabilities	
Forward foreign exchange transactions		0.8	0.6	0.2
Commodity futures		0.5	2.4	-1.9

2018	Million Euro	Amount recorded in other result (+ = profit, - = loss)	Amount reclassified from other income to the income statement (+ = profit, - = loss)	Item in the group income statement
Commodity futures		-4.2	1.7	Production cost of sales

The losses from hedging transactions recognized in other comprehensive income in the financial year amounted to EUR 4.6 million. The amount of 0.4 million euros attributable to foreign currency forwards will, as expected, largely be released to income within the next twelve months and the amount attributable to commodity futures contracts within the next 36 months.

Results from the currency forwards were shown in the sales revenue, insofar as the underlying transactions concerned the sale of goods. If, on the other hand, it was a purchase transaction, it was shown in the cost of sales. Amounts for commodity futures were also included in the cost of sales.

Since the underlying transactions designated in hedging relationships for ongoing hedges are only expected transactions with a high probability of occurrence, which are pending in nature as of the balance sheet date, they have no impact on the consolidated balance sheet. There were also no inefficiencies from the hedging relationships affecting net income in the reporting period. Remaining balances from hedging relationships, in which the accounting of hedging transactions is no longer applied, result exclusively from hedging of net investments in foreign businesses at the time and are, after a remaining balance of -20,

The development of the reserve for the time valuation of hedging instruments contained in the other equity components and their influence on the other result in the reporting period are shown as follows:

2018	Forward foreign exchange transactions	Commodity futures	total
million euros			
As of 01.01.	1.1	5.0	6.1
Amount recorded in other comprehensive income (+ = profit, - = loss)	-0.4	-4.2	-4.6
Amounts that were transferred to the income statement because the secured underlying transaction was entered in the income statement (- = profit, + = loss)	0.3	-1.7	-1.4
As at 31.12.	0.9	-0.8	0.1

9 RELATIONSHIPS WITH AFFILIATED COMPANIES AND PERSONS

Related companies and persons within the meaning of IAS 24 are legal and natural persons who can exert an influence on Joh.Vaillant GmbH & Co KG and its subsidiaries or are subject to the control or significant influence of Joh.Vaillant GmbH & Co KG or its subsidiaries. These include in particular non-consolidated subsidiaries, joint ventures and associated companies, pension plans and also the members of the executive bodies of Joh. Vaillant GmbH & Co KG and their close relatives. The remuneration of the members of the governing bodies is set out in Chapter 10 below. The information on the payment obligations in defined benefit plans can be found in section 7.8. Transactions with unconsolidated subsidiaries, joint ventures and associated companies are carried out on terms that are customary between unrelated third parties.

Transactions with these related companies result from the normal exchange of supplies and services; the scope of business relationships is shown in the following table:

Million Euro	Type of relationship	Services to related companies	Services from related companies	Receivables from related companies	Liabilities to related companies	
	TechnoCargo Logistik GmbH & Co. KG	Transport of 2018	0.5	51.9	1.3	2.4

Million Euro	Type of relationship		Services to related companies	Services from related companies	Receivables from related companies	Liabilities to related companies
	Finished products	2017	0.2	50.0	0.6	2.7
TechnoCargo Logistics Ltd.	Transport of	2018	-	6.0	-	-
	Finished products	2017	-	5.4	-	0.8
TechnoCargo Logistik Slovakia sro	Transport of	2018	0.1	-	0.0	-
	Finished products	2017	-	-	-	-
Manuel J. Monteiro & Co. Lda.	Distribution of	2018	1.3	0.0	0.0	0.0
	Finished products	2017	0.7	-	0.2	-
Vaillant Cooperation	Processing of warranty claims	2018	-	-	0.0	0.5
		2017	-	-	-	0.5

Accounts receivable from Vaillant Ltd., Hong Kong, China, which are not included in the consolidated financial statements, are still fully written down in the amount of EUR 0.4 million (2017: EUR 0.4 million).

10 TOTAL REMUNERATION OF THE MANAGEMENT AND THE ADVISORY BOARD

There is no mention of the total remuneration of the management and the advisory board, as individual salaries can be read off from the information.

11 AUDITOR FEES AND SERVICES

The following fees (including expenses) were recorded as expenses for the services provided by the group auditor in the 2018 financial year:

Million Euro	2018	2017
Audit services	0.7	0.7
Other certification services	0.4	0.3
Tax advisory services	0.0	0.1
Other services	1.6	0.4
total	2.7	1.5

The increase in expenses for other services results primarily from cross-project consulting services in connection with existing digitization initiatives.

12 EVENTS AFTER THE BALANCE SHEET DATE

In May 2019, Vaillant GmbH issued a promissory note worth EUR 140.0 million in two tranches with terms of 5.5 and 7.5 years.

Otherwise, after the balance sheet date, no events of major importance for the net assets, financial position and results of operations of the Vaillant Group have occurred that would have required separate disclosure outside of the information in the notes above.

Haan, June 14, 2019

Joh. Vaillant GmbH & Co KG

The Board

Holger Schulz

INDEPENDENT AUDITOR'S REPORT

To Joh. Vaillant GmbH & Co KG, Haan

Examination Opinions

We have the consolidated financial statements of Joh. Vaillant GmbH & Co KG, Haan, and its subsidiaries (the Group) - consisting of the consolidated balance sheet as of December 31, 2018, the consolidated statement of comprehensive income, the consolidated income statement and the consolidated statement of changes in equity and the consolidated cash flow statement for the financial year from January 1 to December 31, 2018 and the notes to the consolidated financial statements, including a summary of significant accounting methods. In addition, we have audited the group management report of Joh. Vaillant GmbH & Co KG for the financial year from January 1 to December 31, 2018.

According to our assessment based on the knowledge gained during the audit

- The attached consolidated financial statements comply in all material respects with the IFRS as they are to be applied in the EU, and the additional German legal regulations to be applied according to § 315e Abs. 1 HGB and give a true and fair view of the asset and financial situation in compliance with these regulations of the group as of December 31, 2018 and its earnings position for the financial year from January 1 to December 31, 2018 and
- the attached group management report gives an overall accurate picture of the group's position. In all material respects, this group management report is consistent with the consolidated financial statements, complies with German legal requirements and accurately presents the opportunities and risks of future development.

In accordance with Section 322 (3) sentence 1 of the German Commercial Code (HGB), we declare that our audit has not led to any objections to the correctness of the consolidated financial statements and the group management report.

Basis for the examination results

We carried out our audit of the consolidated financial statements and the group management report in accordance with Section 317 of the German Commercial Code (HGB) and in compliance with the generally accepted German auditing principles established by the Institut der Wirtschaftsprüfer (IDW). Our responsibility in accordance with these regulations and principles is further described in the section "Responsibility of the auditor for the audit of the consolidated financial statements and the group management report" of our auditor's report. We are independent of the group companies in accordance with the German commercial and professional regulations and have fulfilled our other German professional obligations in accordance with these requirements.

Responsibility of the legal representatives for the consolidated financial statements and the group management report

The legal representatives are responsible for the preparation of the consolidated financial statements, which comply with the IFRS as they are to be applied in the EU, and the additional German legal regulations to be applied according to § 315e Abs. 1 HGB in all essential respects, and for that the consolidated financial statements under Compliance with these regulations provides a true and fair view of the Group's asset, financial and earnings position. Furthermore, the legal representatives are responsible for the internal controls that they have determined to be necessary to enable the preparation of consolidated financial statements that are free from material misstatements, whether intended or not.

When preparing the consolidated financial statements, the legal representatives are responsible for assessing the Group's ability to continue as a going concern. Furthermore, they are responsible for disclosing matters relating to the going concern of the company, if relevant. In addition, they are responsible for the going concern basis of accounting, unless the intention is to liquidate the group or to cease operations or there is no realistic alternative to doing so.

In addition, the legal representatives are responsible for the preparation of the group management report, which as a whole provides an accurate picture of the group's position, is consistent with the consolidated financial statements in all material respects, complies with German legal requirements and appropriately presents the opportunities and risks of future development. Furthermore, the legal representatives are responsible for the precautions and measures (systems) that they have deemed necessary to enable the preparation of a group management report in accordance with the applicable German legal regulations and to provide sufficient suitable evidence for the statements in the group management report to be able.

Auditor's responsibility for the audit of the consolidated financial statements and the group management report

Our aim is to obtain sufficient certainty as to whether the consolidated financial statements as a whole are free from material - intended or unintentional - misrepresentation and whether the group management report as a whole gives an accurate picture of the Group's position and, in all material matters, with the consolidated financial statements as well is in line with the knowledge gained during the audit, complies with German legal requirements and correctly presents the opportunities and risks of future development, as well as issuing an auditor's report that includes our audit opinions on the consolidated financial statements and the group management report.

Sufficient security is a high level of security, but no guarantee that an audit carried out in accordance with Section 317 of the German Commercial Code (HGB) and in compliance with the German principles of proper auditing established by the Institute of Auditors (IDW) will always reveal a material misrepresentation.

Misrepresentations can result from violations or inaccuracies and are regarded as material if it could reasonably be expected that they individually or collectively influence the economic decisions of the addressees made on the basis of these consolidated financial statements and the group management report.

During the examination, we exercise our due discretion and maintain a critical attitude. Furthermore

- We identify and assess the risks of material - intentional or unintentional - misrepresentations in the consolidated financial statements and in the group management report, plan and carry out audit procedures in response to these risks and obtain audit evidence that is sufficient and suitable to serve as a basis for our audit opinions. The risk that material misrepresentations are not detected is higher in the case of violations than inaccuracies, since violations can involve fraudulent cooperation, forgeries, intentional incompleteness, misleading representations or the overriding of internal controls.
- We gain an understanding of the internal control system relevant to the audit of the consolidated financial statements and the provisions and measures relevant to the audit of the group management report in order to plan audit procedures that are appropriate under the given circumstances, but not with the aim of providing an audit opinion on the effectiveness of these Systems.
- we assess the appropriateness of the accounting methods used by the legal representatives as well as the acceptability of the estimated values presented by the legal representatives and the related information.
- we draw conclusions about the appropriateness of the going concern accounting principle applied by the legal representatives and, on the basis of the audit evidence obtained, whether there is any material uncertainty in connection with events or circumstances, the significant doubts about the ability of the group to continue business operations can raise. If we come to the conclusion that there is material uncertainty, we are obliged to draw attention to the relevant information in the consolidated financial statements and in the group management report in the auditor's report or, if this information is inappropriate, to modify our respective audit opinion. We draw our conclusions based on the audit evidence obtained up to the date of our auditor's report. Future events or circumstances can, however, mean that the Group can no longer continue its business activities.
- We assess the overall presentation, structure and content of the consolidated financial statements, including the information, as well as whether the consolidated financial statements present the underlying business transactions and events in such a way that the consolidated financial statements take into account the IFRS, as they are to be applied in the EU, and the supplementary according to § 315e Paragraph 1 of the German Commercial Code (HGB) provides a true and fair view of the Group's asset, financial and earnings position.
- We obtain sufficient suitable audit evidence for the accounting information of the companies or business activities within the group in order to issue audit opinions on the consolidated financial statements and the group management report. We are responsible for the direction, supervision and execution of the group audit. We are solely responsible for our audit opinions.
- We assess the consistency of the group management report with the consolidated financial statements, its compliance with the law and the picture it provides of the group's position.
- we perform audit procedures on the future-oriented information presented by the legal representatives in the group management report. On the basis of sufficient, suitable audit evidence, we particularly review the significant assumptions on which the future-oriented information is based on the legal representatives and assess the appropriate derivation of the future-oriented information from these assumptions. We do not issue an independent audit opinion on the future-oriented information or the underlying assumptions. There is a significant unavoidable risk

Among other things, we discuss with those responsible for monitoring the planned scope and timing of the audit as well as significant audit findings, including any deficiencies in the internal control system that we discover during our audit.

Düsseldorf, June 14, 2019

**PricewaterhouseCoopers GmbH
auditing company**

Matthias Mühlenfeld, auditor

Anke Rink, ppa., Auditor

The consolidated financial statements of December 31, 2018 were adopted on August 10, 2019.