Annual Report 2019

DRIVING RESPONSIBILITY

KNORR-BREMSE

PROFILE

Knorr-Bremse is the global market leader for braking systems and other systems for the rail and commercial vehicle industries. We drive forward innovations for sustainable system solutions in the mobility sector. Every day, we make a decisive contribution to greater safety, efficiency and reliability on rail tracks and roads around the world.

DIVISIONS

Knorr-Bremse has a global market share of approximately 50% in the rail vehicle braking systems segment and a 42% share in pneumatic braking systems for commercial vehicles. The Company also holds leading positions in the markets for other systems, including entrance and HVAC systems for rail vehicles or driver assistance systems for commercial vehicles.

29,000

EMPLOYEES

100

AT OVER ONE HUNDRED LOCATIONS

30

IN MORE THAN THIRTY COUNTRIES

KEY PERFORMANCE INDICATORS

		2019	2018	+ / -
Revenues	**In € million**	**6,936.5**	**6,615.8**	**+4.8%**
EBITDA	In € million	1,328.7	1,178.0	+12.8%
EBITDA margin	%	19.2	17.8	
EBIT	In € million	1,062.9	972.5	+9.3%
EBIT margin	%	15.3	14.7	
EBT	In € million	907.1	875.5	+3.6%
EBT margin	%	13.1	13.2	
Net income	In € million	632.0	629.4	+0.4%
Return on sales after taxes	%	9.1	9.5	
Earnings per share	€	3.65	3.68	-0.7%
Incoming orders	**In € million**	**7,065.9**	**7,001.4**	**+0.9%**
Order book (31.12.)	In € million	4,692.0	4,562.6	+2.8%
Free Cash flow	**In € million**	**860.6**	**430.9**	**+99.7%**
Operating Cash flow	In € million	985.8	725.5	+35.9%
Capital expenditure	In € million	331.8	308.4	+7.6%
Capital expenditure in % of sales	%	4.8	4.7	
R&D costs	In € million	396.9	363.6	+9.1%
R&D costs in % of sales	%	5.7	5.5	
Total assets	**In € million**	**6,846.8**	**6,262.2**	**+9.3%**
Equity	In € million	1,901.5	1,607.1	+18.3%
Equity ratio	%	27.8	25.7	
ROCE	%	34.1	36.4	
Net Working Capital	days´sales	42.0	46.9	-4.9
Knorr-Bremse share				
Number of shares		161,200,000	161,200,000	
Dividend per share	€	1.80	1.75	+2.9%
Employees		28,905	28,452	+1.6%

RAIL VEHICLE SYSTEMS

		2019	2018	+ / -
Revenues	**In € million**	**3,656.1**	**3,461.9**	**+5.6%**
EBITDA	In € million	814.9	693.1	+17.6%
EBITDA margin	%	22.3	20.0	
Capital expenditure	In € million	120.9	113.4	+6.6%
R&D costs	In € million	210.0	197.1	+6.5%
R&D costs in % of sales	%	5.7	5.7	
Employees		16,094	15,886	+1.3%

COMMERCIAL VEHICLE SYSTEMS

		2019	2018	+ / -
Revenues	**In € million**	**3,280.2**	**3,160.1**	**+3.8%**
EBITDA	In € million	503.7	516.4	-2.5%
EBITDA margin	%	15.4	16.3	
Capital expenditure	In € million	179.2	154.7	+15.9%
R&D costs	In € million	187.0	166.6	+12.3%
R&D costs in % of sales	%	5.7	5.3	
Employees		12,084	11,906	+1.5%

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DRIVING RESPONSIBILITY

Responsibility is deeply embedded in the set of values embraced by our company, as indeed it must be, given that we have 29,000 employees around the world. Particularly in such challenging times as these, their welfare is our top priority. Because without our employees, factors such as growth, reliability and service-orientation would all be inconceivable. Together we ensure that both the needs of our employees and the interests of our shareholders, our customers and our business partners can all be met.

As we see it, responsible governance also includes a sustainable approach to the use of natural resources. The responsibility we bear is not only for ourselves but also for the impacts of our actions on the environment. For the past ten years, this self-image has been firmly integrated into our corporate strategy. In keeping with the global Sustainable Development Goals of the United Nations, we aim for climate neutrality at Knorr-Bremse and we harmonize this requirement with our products at the design stage. The outcome is a business that is both sustainable and profitable. This is one reason why, from a business perspective, 2019 was an outstanding year for Knorr-Bremse. At the start of 2020, we now find ourselves facing unforeseen challenges. As we work to overcome these challenges, as the past year has shown we do so on very firm foundations. And it is our responsibility to ensure that remains the case.

Disc Brakes
in the Knorr-Bremse Forum

01

TO OUR SHAREHOLDERS

Letter from the CEO

Dear Readers,

Already, in the early spring of 2020, it has become clear that this will not be a normal year for any of us. We are living in extraordinary times, through a period that poses major challenges not just for our company, but for our society as a whole. The spread of Covid-19 and its effects on our business processes have gained considerable momentum in March. The protection of our employees and ensuring the ability to deliver have top priority for us. At the same time, we will use a consistent program of measures to keep the economic impact for Knorr-Bremse as low as possible, thus demonstrating the robustness of our business model.

Despite all the uncertainties of the last few weeks and coming months, now is also a good opportunity to take a step back and reflect on the past year. 2019 was an exceptionally positive year for our Group. We achieved all the goals we set ourselves, and I am confident that this success has given us a solid foundation for tackling the challenges facing us in the months ahead.

We won a large number of prestigious international tenders. Projects include an RVS contract to equip Alstom's new high-speed trains with brake and HVAC systems, and a multi-year contract for the supply of three million brake cylinders won by CVS in Europe. I am especially proud of the many innovative developments we have added to our product portfolio. Not only are they helping us to build on our leading market position – they are also adding significant social value, as the basis for sustainable mobility solutions.

Our company had another reason for celebrating in 2019: the 50th anniversary of Heinz Hermann Thiele's involvement in our business. It is his strategic vision that has turned the Company into a global market leader and an industrial enterprise on an international scale, and his foresight that has perfectly positioned the Company for success on the capital market, further enhancing Knorr-Bremse's financial flexibility.

Operationally, we have also continued to make very satisfactory progress. Our pleasing results for 2019 have reaffirmed the resilience of our business model. Our revenues for the year rose by 4.8% to € 6.9 billion, while our EBITDA margin climbed by 140 basis points to 19.2%. And thanks to an especially strong fourth quarter, our order intake also rose by 1% to € 7.1 billion. In view of these good results, the Executive Board and Supervisory Board are proposing to the Annual General Meeting that we should pay a dividend per share of € 1.80.

»We are living in extraordinary times, through a period that poses major challenges not just to our company, but to our society as a whole.«

BERND EULITZ CHAIRMAN OF THE EXECUTIVE BOARD

In short, we have attained the goals we set ourselves in our outlook for 2019, despite challenging market conditions. Every single member of our workforce contributed to these excellent results. This success would not have come about without the dedication and commitment of our colleagues across the Group. So on behalf of the entire Executive Board, I would like to thank all 29,000 of our employees at all of our 100+ locations around the world.

In our Rail Vehicle Systems (RVS) division, revenues rose by 5.6% to € 3,656 million, while incoming orders increased by 5.8% to € 4,017 million. The main growth drivers were regional and freight business. In Asia in particular, RVS enjoyed a surge of business in the passenger, freight and regional rail segments, accompanied by robust aftermarket business. Demand in Europe temporarily normalized, while regional business showed positive development in North America. We were also able to sell our Powertech business toward the end of the third quarter of 2019.

Our Commercial Vehicle Systems (CVS) division saw revenues grew by 3.8% to € 3,280 million. Incoming orders showed a decline of -4.9% to € 3,051 million. In view of the – 5.0% decline in global commercial vehicle production over the past fiscal year, these results clearly demonstrate how we continue to outperform the market. As in the RVS sector, the European CVS market normalized during the year. In China, we saw further growth despite the decline in commercial vehicle production. Meanwhile, in North America, the anticipated market downturn began in the fourth quarter, accelerated by customers' destocking.

During the 2019 fiscal year, we boosted our investment in research and development by 9.1% to € 397 million; our revenue growth meant that our R&D ratio only rose moderately by 5.7%. With more than 3,600 employees now involved in R&D, we continue to strengthen our position as a leading innovator, putting us well ahead of the competition. Key areas of RVS development activity include eco-friendly CO_2 HVAC systems, digital products, and braking distance management. Meanwhile, our CVS division is increasingly focused on next-generation air disk brakes and autonomous driving.

At our annual press conference in March 2020, we were able to announce two ambitious targets: to become climate neutral by 2021, and to halve our CO_2 emissions by 2030. Social responsibility is a duty that we have always considered and continue to regard as an integral part of our activities. I am convinced that our ongoing efforts will not only have a positive impact on society and the environment, but also generate financial returns in the long term.

The global pandemic makes it very difficult to provide a detailed business development forecast for 2020. We cannot yet predict with any certainty just exactly how the current situation will impact our sales markets and we expect to see a significant decrease of revenues and EBITDA compared to 2019.

Responsibility, reliability, innovation – these values are deeply embedded in our corporate culture and, at times like these, more in demand than ever. I am confident that we, both as a business and as a society, will overcome the challenge currently confronting us and emerge all the stronger.

We are determined to continue our profitable growth strategy into 2022 and beyond. Knorr-Bremse is steadily evolving and we should be delighted if you would continue to accompany us on our journey into the future.

Munich, April 23, 2020

Yours,

BERND EULITZ

CHAIRMAN OF THE EXECUTIVE BOARD

The Executive Board

RALPH HEUWING
MEMBER OF THE EXECUTIVE BOARD
Finance, Legal, IT

DR. PETER LAIER
MEMBER OF THE EXECUTIVE BOARD
Commercial Vehicle Systems Division

BERND EULITZ
CHAIRMAN OF THE EXECUTIVE BOARD
HR, Business Development, Communications, Digitalization

DR. JÜRGEN WILDER
MEMBER OF THE EXECUTIVE BOARD
Rail Vehicle Systems Division

Report of the Supervisory Board

Dear Shareholders,

As Chairman of the Supervisory Board, I am pleased to present the Report of the Supervisory Board for the fiscal year just ended.

Knorr-Bremse can look back on an eventful and financially successful 2019, marked in particular by its listing on MDAX and the first ever public Annual General Meeting in the Company's history. The Supervisory Board considered a number of key acquisition and divestment projects. The departure of Klaus Deller as CEO and the associated discussions and decisions on his succession dominated the agendas of several board meetings. In all Supervisory Board meetings with the Executive Board, the latter presented the current status of the Company's business activities in great detail. Supervisory Board discussions consequently focused on how to further improve earnings, productivity and efficiency.

In a total of nine plenary meetings, the Supervisory Board regularly reviewed the ongoing business performance and strategic development of the Knorr-Bremse Group, in consultation with the Executive Board. Following intensive scrutiny and debate, the Supervisory Board approved the implementation of important acquisition and divestment projects. Of particular note are the purchase of Hitachi's commercial vehicle steering systems business, which was completed in the first quarter, as well as purchases by the RVS division, including the acquisition of minority stakes in Israeli startup RailVision and Belgian company Railnova SA. The latter two holdings in particular will extend our competencies in the fields of sensor technology, software development and artificial intelligence. The Supervisory Board has also made it a priority to follow up all such investment decisions in in-depth discussions. The Supervisory Board has likewise taken a very close interest in the sale of Knorr-Bremse's loss-making Powertech division, resolved with the aim of aligning the Rail division's business activities even more systematically with the Group's core competencies as a key supplier of systems, components and services to the rail vehicle industry. The restructuring of the Wülfrath plant, where a socially responsible plan for discontinuing production of steering systems was agreed after intensive negotiations with the Works Council, was also reviewed a number of times by the Supervisory Board.

Cooperation between the Supervisory Board and the Executive Board

The Supervisory Board of Knorr-Bremse AG performed its duties with diligence and due care as required by law, the Company's Articles of Association and the board's terms of reference. As well as advising the Executive Board on management, planned acquisitions, divestments and other strategic projects, it also continually monitored the Executive Board's management of the Company. It was greatly assisted in the fulfillment of its statutory duties by regular reports from the Executive Board, who provided the Supervisory Board with regular updates on business performance, planning and the risk situation.

PROF. DR. KLAUS MANGOLD,
CHAIRMAN OF THE SUPERVISORY BOARD

The Supervisory Board was at all times guided by the principles of good and responsible corporate governance. In terms of supervision and advice, it focused primarily on ensuring that the management of business operations and the Group as a whole was lawful, proper, effective and commercially robust. The individual advisory and oversight duties of the Supervisory Board are set out in the terms of reference of the Supervisory Board and the Executive Board. In accordance with the latter, the Supervisory Board is, for instance, closely involved in the business planning and review of strategic projects and issues. There is also a list of specific Executive Board decisions requiring the consent of the Supervisory Board, some of which call for detailed scrutiny in advance and require consideration of complex facts and circumstances from a supervisory and advisory perspective, according to members' own business judgment. Several matters requiring its approval were brought before the Supervisory Board in the 2019 fiscal year.

The Executive Board provided us with regular, timely and comprehensive information at and between meetings in written and oral reports. These reports encompassed all material facts relating to the Group's strategic development, planning, business performance and position during the year, as well as details of the Group's risk situation and risk management, **compliance** **[p. 202]**, Knorr-Bremse AG's direct competitors (peers), feedback from analysts and investors, and current events. We discussed with the Executive Board all significant business transactions and the further development of the Company. Any instances where business performance diverged from the approved plans were explained to us in detail, and countermeasures were discussed where necessary. The Supervisory Board was involved in a timely manner in all decisions of fundamental importance to the Company. We were also swiftly informed of any urgent matters arising between scheduled meetings. Between meetings of the Supervisory Board, as Chairman of the Supervisory Board I was also regularly updated by the Executive Board – in an in-depth, intensive dialogue – on the current business situation of and key business developments within the Company.

The attendance table below, which shows the above-average participation rates of the members of the Supervisory Board and its committees, attests to their high level of commitment to our work as a Supervisory Board.

Deliberations in the Supervisory Board and its Committees

Prior to Supervisory Board meetings, shareholder representatives and employee representatives regularly met in separate preliminary meetings, which were usually also attended by the Chairman of the Executive Board (CEO) and other Executive Board members.

The meetings and resolutions of the full board are prepared by the Executive Committee and the Audit Committee. The Supervisory Board has also set up a Mediation Committee and a Nominations Committee, but it did not prove necessary to convene either body during the reporting period. As Chairs of the Audit Committee and Executive Committee respectively, Ms. Dahnke and I regularly submitted detailed reports to the Supervisory Board.

We recorded a consistently high participation rate at our meetings in fiscal 2019. The average attendance at full board meetings was 98.2%, even higher than the already high attendance rate of the previous year (91.7%). Only two Supervisory Board members were unable to attend one meeting in each case.

Any Supervisory Board or committee members who were unable to attend meetings usually participated in the voting via proxies. The timely advance distribution of documents by the Executive Board facilitated preparation for meetings by Supervisory Board members and largely obviated the need for handouts on the day.

1.01 SUPERVISORY BOARD MEMBERS' ATTENDANCE AT MEETINGS IN FY 2019

Name	Supervisory Board (plenary)	Executive Committee	Audit Committee
Prof. Dr. Klaus Mangold (Chairman)	9 (9)	10 (10)	5 (5)
Kathrin Dahnke (Deputy Chair)	9 (9)	8 (10)	5 (5)
Dr. Wolfram Mörsdorf	8 (9)		
Julia Thiele-Schürhoff	9 (9)		
Wolfgang Tölsner	9 (9)		
Georg Weiberg	9 (9)		
Franz-Josef Birkeneder (Deputy Chair)	9 (9)	10 (10)	5 (5)
Michael Jell	9 (9)	10 (10)	
Werner Ratzisberger	9 (9)		5 (5)
Annemarie Sedlmair (from April 1)	8 (8)		
Sebastian Roloff (until March 31)	1 (1)		
Erich Starkl	8 (9)		
Günter Wiese	9 (9)		
Meeting attendance as %	98.15%	95%	100%

(In brackets: number of meetings held during the term of office of the respective Supervisory Board or committee member)

Key Topics Discussed by the Supervisory Board

The Supervisory Board met for a total of nine meetings during the reporting period, of which eight took place in Munich, while one strategy meeting was held in Aldersbach. Apart from the meetings, the Supervisory Board used the established document circulation procedure to take decisions relating to particularly urgent matters on three occasions. Here is a summary of the main topics of discussion at the individual meetings:

1. At the beginning of the year, on February 7, 2019, the Supervisory Board deliberated on IPO bonuses for Messrs. Deller and Heuwing and Dr. Laier, along with their STI financial targets and performance-related LTI targets. Details are provided in the Compensation Report. By awarding an IPO bonus, the Supervisory Board recognizes the great personal commitment of these three Executive Board members ahead of the IPO (Dr. Wilder was not appointed to the Executive Board until shortly before the stock market flotation).

2. On April 30, 2019, the Supervisory Board considered the audit of the annual financial statements and the Executive Board's proposed dividend of € 1.75 per Knorr-Bremse AG share. Both were approved following extensive deliberations, together with the other resolutions to be put to the Annual General Meeting. Further topics discussed at this Supervisory Board meeting were the premature departure of Klaus Deller from the Executive Board of Knorr-Bremse AG, the terms of his departure, the interim reallocation of Mr. Deller's responsibilities to the remaining board members and the initiation of the search to find a successor as CEO. The Supervisory Board furthermore discussed various strategic issues, in particular in relation to future options for the Powertech Group and the post-merger integration (PMI) status of the commercial vehicle steering systems business acquired from Hitachi. Along with these strategic issues, the cost restructuring programs imposed in both divisions were regular topics of discussion.

3. The Supervisory Board session on June 17, 2019 focused on preparations for the first general shareholders' meeting of Knorr-Bremse AG following its stock market flotation. Together with some 250 shareholders who attended in person, the Supervisory Board and the Executive Board successfully held the Annual General Meeting on June 18, 2019. A further important topic of discussion was the Chairman's presentation on succession arrangements for the Company's CEO.

4. At its annual strategy meeting on July 10–12, 2019, the Supervisory Board discussed the strategic direction of the Knorr-Bremse Group, focusing in particular on the key innovation projects of the two divisions; together, the Supervisory Board and Executive Board agreed on the best way forward. Among other things, these deliberations included an update on the implementation of the cash & profit optimization program aimed at achieving total savings of € 90 million in 2019, and also reflected on the capital market's view of Knorr-Bremse, share price movements since the IPO, the market's perception of ZF's takeover of Wabco, and Knorr-Bremse's investor communications. Another priority addressed by the Supervisory Board was the development of e-mobility in the commercial vehicle market, and especially the environmental and economic relevance of e-mobility, its importance for Knorr-Bremse's product portfolio, and the related development activities of its Truck division. In addition, the Supervisory Board reviewed the Truck division's global steering strategy and any related centrally planned or implemented M&A projects, the PMI status of the most recent acquisitions – especially of the steering business

acquired from Hitachi – and the global distribution of R&D responsibilities, as well as control and coordination of global development activities. Further matters covered at the strategy meeting were the Knorr-Bremse Group's global innovation management, the overarching theme of Digitalization, and the Group's strategy for extending its market position in China, especially in the high-speed train (HST) segment. With reference to the results of the latest employee survey, the Supervisory Board discussed career development, leadership and cooperation, along with relevant planned initiatives. The follow-up items specified at the strategy meeting were implemented over the course of the year.

5. In multiple meetings in 2019 – held on September 18, October 17 and December 10 – the Supervisory Board spent some time examining the acquisition of R.H. Sheppard Co., a leading manufacturer of recirculating ball steering (RCB) systems on the U.S. market, in greater depth, and following this detailed examination gave its approval. The purchase agreement was signed on January 30, 2020. Following the purchase of Hitachi's commercial vehicle steering system business, this acquisition represents a further key milestone for Knorr-Bremse in its quest to become a global provider of integrated steering and braking systems for commercial vehicles.

At the meeting on September 18, 2019, the Supervisory Board appointed Bernd Eulitz as a member of the Executive Board and CEO for a period of five years with effect from November 1, 2019. Mr. Eulitz is responsible for Corporate Business Development, Corporate Communications, Knorr Excellence, Digitalization, KB Media GmbH and, in his capacity as board member responsible for labor relations, Human Resources. The Supervisory Board thanks Mr. Heuwing, Dr. Laier and Dr. Wilder for assuming these additional responsibilities during the interim period from May to October. The election of Bernd Eulitz was preceded by intensive headhunting using the services of an external HR consultancy. This afforded the Supervisory Board an opportunity to carefully analyze the market and make a decision on the basis of the resulting requirements profile.

6. On October 17, 2019, as part of implementing the provisions of the revised Shareholder Rights Directive Implementation Act (ARUG II) as well as the recommendations of the revised German Corporate Governance Code (GCGC), the Supervisory Board engaged in detailed discussion of the Knorr-Bremse Group's sustainability strategy and the new remuneration system proposed for the Executive Board. With the coming into force of the new remuneration system on January 1, 2020, the long-term incentive (LTI) for Executive Board members is now linked to long-term movements in the Company's absolute and relative stock market value (total shareholder return – TSR) and earnings per share (EPS), as already announced when Knorr-Bremse AG was floated on the stock market at the end of 2018 (details are summarized on page 60 of the Compensation Report).

The Supervisory Board also deliberated on the sale and lease-back of the "north sector" of the Company's Munich headquarters, which involved selling the land and buildings to OPES Business Park am Oberwiesenfeld GmbH – a company indirectly controlled by Mr. Thiele and thus related with Knorr-Bremse AG – and immediately leasing them back on a long-term basis. An independent expert confirmed that the purchase price and rental agreed for the individual buildings and pieces of land were reasonable and in line with market expectations. In two extraordinary meetings, which were also attended by the valuation expert and our auditor KPMG, the Audit Committee scrutinized the details of the related-party transaction, market pricing and resulting benefits to Knorr-Bremse. The Supervisory Board also subjected the transaction to an extensive review in the course of two meetings and – following the Audit Committee's recommendation – approved it at an extraordinary meeting on November 25, 2019. As a result of the transaction, Knorr-Bremse is able to disclose hidden reserves in the order of approximately € 45 million (IFRS EBITDA). The Company will receive a two-stage net cash inflow of around € 200 million, which can be invested in more profitable projects associated with the KB Group's core business.

7. On November 6, 2019 the Supervisory Board considered the premature termination by mutual agreement of Ralph Heuwing's Executive Board appointment; he will be leaving the Company at his own request on April 30, 2020. On March 2, 2020, the Supervisory Board appointed Frank Markus Weber to succeed Mr. Heuwing as the new CFO of Knorr-Bremse AG with effect from July 1, 2020. At this point, the Supervisory Board would like to take the opportunity to thank Mr. Heuwing for his successful tenure as CFO, especially in connection with the lead-up to and handling of the IPO in autumn 2018.

8. Matters covered at the last meeting of the year on December 10, 2019, included plans for the year ahead and in the medium term (2020-2022) for the Group and its two divisions, which the Supervisory Board approved after intensive scrutiny and discussion. Other topics included Digitalization and cybersecurity, the Board's discussion and approval of the new Executive Board remuneration system which has since come into effect on January 1, 2020, as well as a further update on the PMI status of the commercial vehicle steering systems business acquired from Hitachi and the Knorr-Bremse Group's global steering business strategy.

Executive Committee

The Executive Committee coordinates the work of the Supervisory Board, prepares its meetings and supervises implementation of resolutions passed by the Supervisory Board and its committees. It is further charged with drafting resolutions on business dealings with Executive Board members pursuant to Section 112 AktG, with approving contracts with Supervisory Board members in compliance with Section 114 AktG, and with long-term succession planning for the Executive Board, as well as preparations for the appointment of Executive Board members (including the terms of their employment contracts).

The Executive Committee met on ten occasions during the reporting period, in particular to prepare agendas for plenary Supervisory Board meetings and resolutions requiring plenary board approval. One matter that occupied the Executive Committee during the fiscal year just ended was the premature departure of Klaus Deller as CEO and the resulting search for a successor, as well as the arrangements for reallocating his executive and divisional responsibilities in the interim; a further topic was the early departure by mutual agreement of Ralph Heuwing with effect from April 30, 2020 and the concomitant search for his successor as CFO, including the preparation of a requirements profile for the new CFO. Along with the conditions applying to contract termination, which are set out in detail in the Compensation Report, the Executive Committee also discussed related capital market issues.

Other issues examined in detail by the Executive Committee included the formulation of key points in the new Executive Board remuneration system, both to align it with the revised Shareholder Rights Directive Implementation Act (ARUG II) and the recommendations of the revised German Corporate Governance Code (GCGC), and to link the long-term incentive for Executive Board members to long-term trends in the Group's absolute and relative stock market value (total shareholder return – TSR) and earnings per share (EPS). Following the Supervisory Board's approval of the new remuneration system, the Executive Committee arranged for its contractual implementation as of January 1, 2020.

The Executive Committee repeatedly carried out detailed examinations of the M&A transactions and divestment projects completed in 2019, in particular the acquisition of the commercial vehicle steering systems business from Hitachi (Japan) in the first quarter and the purchase of steering systems manufacturer Sheppard (USA) at the end of the year. It also considered the preparation and execution of the sale of the Powertech Group, completed at the end of September, along with the impact of this sale on the balance sheet, and finally the restructuring measures at the Wülfrath plant, as well as the associated negotiations with the Works Council concerning the reconciliation of interests and social planning. The Executive Committee also reviewed the above-mentioned sale-and-lease-back transaction relating to the "north sector" of the Group's Munich headquarters. The Executive Committee concluded each of its meetings by making a recommendation to the Supervisory Board.

The Executive Committee includes the following members:

- Professor Dr. Klaus Mangold (Chairman)
- Franz-Josef Birkeneder
- Kathrin Dahnke
- Michael Jell

Audit Committee

The Audit Committee submits a recommendation to the Supervisory Board for the appointment of an auditor. It prepares Supervisory Board resolutions for the approval of the annual financial statements, the proposed distribution of net earnings, and the Declaration of Compliance. It also appoints the auditor on behalf of the Supervisory Board. Furthermore, the Audit Committee is responsible for supervising the auditor, approving any additional non-audit services provided by the auditor, scrutinizing interim and quarterly financial reports, monitoring the accounting process, and monitoring risk management issues. The latter includes monitoring the effectiveness of the internal control system (ICS), the risk management system, the internal audit system, and the compliance management system. The Chair of the Audit Committee, Kathrin Dahnke, regularly reports to the Supervisory Board on the work of the committee.

The Audit Committee held a total of four meetings during the year under review and also, prior to their publication, reviewed the quarterly and half-yearly figures, as well as the provisional figures for the preceding fiscal year. At its meeting on April 29, 2019, the Audit Committee focused in particular on the presentation of the annual financial statements and consolidated financial statements for fiscal 2018, as well as the audited, consolidated non-financial report, the presentation of the dependent company report – including a discussion of the transactions with Knorr-Bremse AG's majority shareholder listed therein –, the appropriation of net profits proposed by the Executive Board for approval by the Supervisory Board, the above-mentioned regular reports on the KB Group's internal control system and compliance management system, and the status of major legal disputes in which the KB Group is involved.

At two meetings on November 11 and 19, 2019, the Audit Committee discussed the sale-and-lease-back transaction relating to the "north sector" mentioned above in the Supervisory Board section, both with respect to the expert's verified and confirmed opinion that the terms agreed with the buyer and lessor are reasonable and in line with market expectations, and in terms of the benefits of the transaction to Knorr-Bremse. The committee consequently recommended that the Supervisory Board should approve the transaction.

Discussions at the meeting of the Audit Committee held on December 10, 2019 centered in particular on preparations for the audit of the annual and consolidated financial statements, the determination of key audit areas, the status of and further steps toward the Group-wide conversion of systems to International Financial Reporting Standards (IFRS), regular reports on risk management and internal auditing, an update on the status of major legal disputes, a report by Corporate Treasury on currency management and the hedging of foreign currency risks, and a proposal to invest the KB Group's strategic liquidity more profitably by launching a special fund.

The Audit Committee includes the following members:
- Kathrin Dahnke (Chairwoman)
- Franz-Josef Birkeneder
- Prof. Dr. Klaus Mangold
- Werner Ratzisberger

Nominations Committee

The remit of the Nominations Committee is to propose, whenever required, suitable candidates for the Supervisory Board to nominate for election as new Supervisory Board members at a General Meeting. The Nominations Committee was not convened during the reporting period.

The Nominations Committee includes the following members:
- Professor Dr. Klaus Mangold (Chairman)
- Kathrin Dahnke
- Julia Thiele-Schürhoff

Mediation Committee

The Mediation Committee proposes candidates for appointment to the Executive Board if a resolution on the appointment of such a board member does not obtain a two-thirds majority of votes as required by Section 31 (3) 1 of the German Codetermination Act (MitbestG). The Mediation Committee was not convened during the reporting period.

The Mediation Committee includes the following members:

- Professor Dr. Klaus Mangold (Chairman)
- Franz-Josef Birkeneder
- Kathrin Dahnke
- Michael Jell

Corporate Governance

The Supervisory Board attaches great importance to good corporate governance. This includes regularly and comprehensively considering the corporate governance requirements for German listed companies, in particular the requirements of the Stock Corporation Act (AktG), the German Codetermination Act (MitbestG), and the German Corporate Governance Code (GCGC – version dated February 7, 2017). Jointly with the Executive Board, the Supervisory Board issued the Declaration of Compliance for the reporting period as required by Section 161 AktG. The declaration was published on the Company's website (see also page 191 of the Annual Report). Knorr-Bremse currently complies with all GCGC recommendations, with the exception of the recommendation to make the consolidated financial statements and Group management report publicly accessible within 90 days, and to make the mandatory interim financial information accessible within 45 days from the end of the reporting period (Section 7.1.2 GCGC). This departure is due to the Group's ongoing transition to International Financial Reporting Standards (IFRS), which was initiated during the preparatory phase preceding Knorr-Bremse AG's stock market flotation. The Group-wide changeover of all systems to IFRS will be continued and further optimised in the coming financial year. This is intended to further speed up processes and facilitate earlier completion of the audited annual and consolidated financial statements. Details of the Company's corporate governance may be found in the Corporate Governance Statement (page 57) and the Corporate Governance Report (page 40 of the Annual Report).

Conflicts of Interest

The Supervisory Board watched out for potential conflicts of interest throughout the reporting period and found that no conflict of interest occurred in the 2019 fiscal year.

Annual and Consolidated Financial Statements

The Supervisory Board took the necessary steps to ensure that the annual and consolidated financial statements and other financial reporting for the 2019 fiscal year were properly audited in compliance with the statutory requirements.

KPMG AG Wirtschaftsprüfungsgesellschaft, Munich (KPMG) audited the annual financial statements of Knorr-Bremse AG prepared by the Executive Board in accordance with German GAAP (the German Commercial Code – HGB), the combined management report of Knorr-Bremse AG and the Knorr-Bremse Group, and the consolidated financial statements for the 2019 fiscal year prepared according to International Financial Reporting Standards (IFRS), and issued an unqualified audit opinion in each case. KPMG had been appointed auditor for the 2019 fiscal year at the General Meeting held on June 18, 2019. KPMG has acted as auditor for the Knorr-Bremse Group for over ten years. The independent auditors responsible for the audit within the meaning of Section 319a (1) 4 HGB were Professor Dr. Kai Andrejewski and Johannes Hanshen.

The auditor also reviewed the report of the Executive Board on relations with affiliated companies (Section 312 AktG), issuing the following statement on the report: "Based on our audit, duly carried out in accordance with professional standards, we confirm that: 1. the factual statements made in the report are correct; 2. the payments made by the Company in relation to the legal transactions listed in the report were not unreasonably high, or else the negative factors were offset; 3. the measures cited in the report do not indicate any circumstances that would give rise to an assessment differing substantially from that of the Executive Board."

The above-mentioned documents, the Executive Board's proposal for the distribution of net earnings, and the auditor's reports, were submitted in good time to all members of the Supervisory Board. At its meetings on April 15 and April 21, 2020, the Audit Committee examined these documents in advance and committee chair Kathrin Dahnke reported on them to the Supervisory Board at its scheduled meeting on April 21, 2020. The Executive Board then presented the annual statements and reports to the Supervisory Board where they were discussed in detail. The independent auditors, who were present at both meetings, reported on their findings. The key audit areas for the fiscal year under review had been determined beforehand by the Audit Committee: the process of preparing the annual financial statements, the deconsolidation of the Powertech Group, the value of specific holdings in affiliated companies and the associated receivables (for the 2019 financial statements), along with the process of preparing the consolidated financial statements, the deconsolidation of the Powertech Group, the recognition of revenues from project business pursuant to IFRS 15, the sale-and-lease-back transaction relating to the "north sector", fraud risk in connection with revenue recognition, the appropriate conditions for hedge accounting, the acquisition of IPS from Hitachi Automotive Systems Ltd., and reporting on the project-related system changeover for the 2019 consolidated financial statements.

The Audit Committee did not identify any weaknesses in the risk management system, the internal control system, the internal audit system or the compliance management system. On the basis of our own examination of the annual financial statements, the consolidated financial statements and the combined Group management report, we did not find any grounds for objections and therefore concur with the Executive Board's evaluation of the position of Knorr-Bremse AG and the Knorr-Bremse Group. At the Audit Committee's recommendation, we approve the financial statements for 2019; the annual financial statements of Knorr-Bremse AG are thereby adopted. We discussed in detail the proposal for the distribution of net earnings with the Executive Board and are in agreement with the Executive Board's proposed dividend of € 1.80 per eligible share for the 2019 fiscal year. This year's Annual General Meeting will pass a resolution on whether to accept this proposal on June 30, 2020 in Munich.

Changes on the Supervisory Board and Executive Board

The composition of the Supervisory Board and Executive Board as at December 31, 2019, is detailed on page 19 and page 7 respectively.

Supervisory Board

Owing to a career change, Sebastian Roloff, employee representative since 2014, resigned his membership of the Supervisory Board with effect from March 31, 2019. His successor, Annemarie Sedlmair, was appointed to the Supervisory Board by court order with effect from April 1, 2019; her term of office will run until the 2021 Annual General Meeting.

Executive Board

With effect from November 1, 2019, the Supervisory Board appointed Bernd Eulitz as member and Chairman of the Executive Board for a five-year term. Mr. Eulitz is responsible for Corporate Strategy, M&A, Corporate Communications, Knorr Excellence, Digitalization, KB Media GmbH and, in his capacity as board member responsible for labor relations, Human Resources.

Ralph Heuwing is leaving the Company at his own request with effect from April 30, 2020. On March 2, 2020, the Supervisory Board appointed Frank Markus Weber as the new CFO of Knorr-Bremse AG with effect from July 1, 2020. The Supervisory Board thanks Mr. Heuwing for his deep commitment – he has made a significant contribution to the ongoing development of the Company's vigorous growth strategy and financial strength. We are indebted to him above all for the successful IPO and the impressive positioning of Knorr-Bremse AG on the capital market. During the period from May 1, 2020 until Mr. Weber is able to take up his role as CFO, Mr. Eulitz will assume the duties of CFO in addition to his own duties.

Thanks

2019 was a financially and strategically important year for Knorr-Bremse. It was also the first full year of our listing on the capital market. This proved successful, with a solid share price performance and an MDAX listing despite a comparatively low free-float ratio. The Supervisory Board would like to thank the members of the Executive Board and all the employees of the Knorr-Bremse Group for their enormous commitment, and for contributing once again to a very successful fiscal year overall despite some challenging economic conditions.

Munich, April 23, 2020

Best regards and all
the best
yours Klaus Mangold

PROF. DR. KLAUS MANGOLD,
CHAIRMAN OF THE SUPERVISORY BOARD

Supervisory board of Knorr-Bremse AG

Heinz Hermann Thiele, Munich
Honorary chairman
Entrepreneur

Prof. Dr. Klaus Mangold, Stuttgart
Chairman of the Supervisory Board
Independent Contractor

- Chairman of Mangold Consulting GmbH, Stuttgart
- Member of the Administrative Board of Baiterek National Managing Holding JSC, Nur-Sultan, Kasachstan
- Chairman of the Advisory Board of Lürssen Maritime Beteiligungen GmbH & Co. KG, Bremen
- Chairman of the Advisory Board of Cortec GmbH, Freiburg

Franz-Josef Birkeneder*, Aldersbach
1. Deputy Chairman of the Supervisory Board
Plant Manager Knorr-Bremse Systeme für Nutzfahrzeuge GmbH, Aldersbach location

Kathrin Dahnke, Bielefeld
Additional Deputy to the Chair of the Supervisory Board
Management Consultant

- Member of the Executive Board of Osram Licht AG (from April 16, 2020)
- Member of the management board of Wilh. Werhahn KG (until December 31, 2019)
- Member of the Supervisory Board of Fraport AG
- Member of the Supervisory Board of B. Braun Melsungen AG

Michael Jell*, Munich
Full time Chair of Works Council of the Knorr-Bremse Systeme für Schienenfahrzeuge GmbH, Knorr-Bremse AG, KB Media GmbH, Knorr-Bremse Services GmbH

Dr. Wolfram Mörsdorf, Essen
Member of the Executive Board of ThyssenKrupp AG, i. R.

- Chairman of the Supervisory Board of FRITZ Winter Eisengießerei GmbH & Co. KG
- Member of the Supervisory Board of PWK Automotive GmbH
- Chairman of the Supervisory Board of Gienanth GmbH
- Chairman of the Supervisory Board of Silbitz Group GmbH
- Chairman of the Supervisory Board of SISTEMA Finance GmbH

Werner Ratzisberger*, Aldersbach
Project Engineer for mechanical processing/surfaces

- Knorr-Bremse Systeme für Nutzfahrzeuge GmbH

Sebastian Roloff*, Munich (until March 31, 2019)
Attorney at IG Metall, Munich office

Annemarie Sedlmair*, Munich (from April 1, 2019)
Head of Legal department at IG Metall, Munich office

- Member of the Supervisory Board of Bosch Sicherheitssysteme GmbH

Erich Starkl*, Passau
2nd Authorized Representative of IG Metall, Passau office

- Deputy Chairman of IG Metall, Frankfurt am Main

Julia Thiele-Schürhoff, Munich
Chairwoman of the management board of Knorr-Bremse Global Care e.V.

Wolfgang Tölsner, Uetersen
Management Consultant

- Member of the Supervisory Board of Knorr-Bremse Systeme für Schienenfahrzeuge GmbH
- Chairman of the Administrative Board of Selectron AG, Lyss/Switzerland
- Chairman of the Supervisory Board of Bombardier Trans-portation Deutschland GmbH
- Member of fhe Administrative Board of 4PL Central Station AG

Georg Weiberg, Stuttgart
Retired Head of Development at Daimler Trucks, i. R.

- Member of the Supervisory Board of Mahle Behr GmbH & Co. KG
- Member of the Supervisory Board of MAG GmbH
- Member of the Advisory Board of VOSS Automotive GmbH
- Member of the Supervisory Board of FRITZ Winter Eisengießerei GmbH & Co. KG

Günter Wiese*, Berlin
Full time Works Council of Knorr-Bremse Systeme für Schienenfahrzeuge GmbH, Berlin location

- Member of the Supervisory Board of Knorr-Bremse Systeme für Schienenfahrzeuge GmbH

* Employee representatives

The Supervisory Board

PROF. DR. KLAUS MANGOLD

Chairman of the Supervisory Board,
Independent Contractor, Suttgart

KATHRIN DAHNKE

Deputy to the Chair of the Supervisory Board,
Management Consultant, Bielefeld

FRANZ-JOSEF BIRKENEDER *

Deputy to the Chair of the Supervisory Board,
Plant Manager Aldersbach

MICHAEL JELL *

Chair of the Works Council of Knorr-Bremse Systeme für Schienenfahrzeuge GmbH, Knorr-Bremse AG, KB Media GmbH, Knorr-Bremse Services GmbH, Munich

ERICH STARKL *

2nd Authorized Representative of IG Metall,
Passau Office

JULIA THIELE-SCHÜRHOFF

Chairwoman of the Management Board of Knorr-Bremse Global Care e.V., Munich

GEORG WEIBERG

Retired Head of Development at Daimler Truck, i.R., Stuttgart

WERNER RATZISBERGER *

Project Engineer, Knorr-Bremse Systeme für Nutzfahrzeuge GmbH, Aldersbach

DR. WOLFRAM MÖRSDORF

Retired Member of the Executive Board of ThyssenKrupp AG, i.R., Essen

WOLFGANG TÖLSNER

Management Consultant, Uetersen

GÜNTER WIESE *

Works Council of Knorr-Bremse Systeme für Schienenfahrzeuge GmbH, Berlin

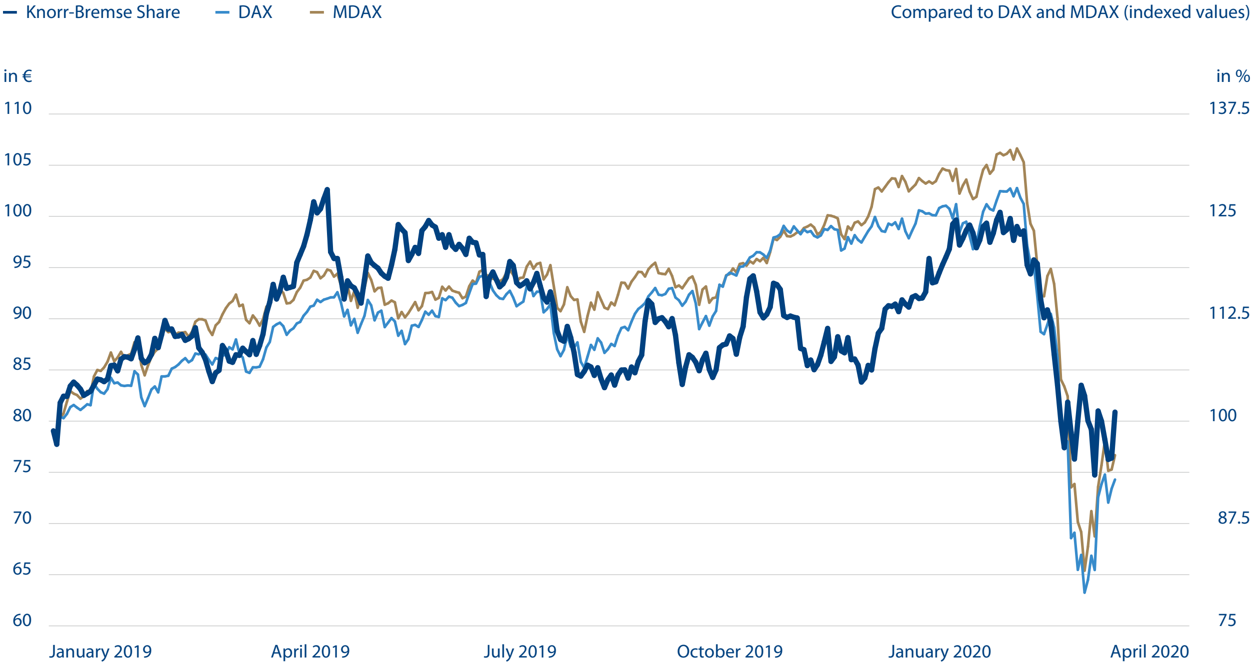
ANNEMARIE SEDLMAIR *

Head of Legal Department, IG Metall, Munich Office

* Employee representatives.

Knorr-Bremse on the Capital Market

1.02 PRICE HISTORY OF THE KNORR-BREMSE SHARE IN XETRA, FROM JANUARY 2019 TO MARCH 2020



Knorr-Bremse Share Performance

Knorr-Bremse's closing share price in 2019 was € 90.75, representing a 15.4% price increase over the closing price of € 78.62 at year-end 2018. Combined with the € 1.75 dividend, this corresponds to a total shareholder return of 17.7%. Starting from an annual low of € 77.00 on January 2, 2019, Knorr-Bremse shares experienced very dynamic growth during the first few months of the year, reaching a high of € 103.70 at the end of April. As the year continued, the intensifying trade war between the USA and China, combined with an accelerating decline in incoming orders from commercial vehicle manufacturers in North America and Europe, but also with changes on the Company's Executive Board, all impacted the share price. On August 28, 2019, the share price bottomed out at € 83.50. The ramping-up of many countries' capital expenditure programs in the rail sector, together with growing investor interest in companies with exceptionally positive sustainability prospects, helped to ensure that Knorr-Bremse shares stabilized and posted new, significant gains toward the year-end. This positive trend continued into the early months of 2020. On February 6, 2020, the share reached a high of € 100.60 for the year to date.

In the course of the fiscal year, the MDAX rose from 21,588 points to 28,313 points. This represents 31.1% growth.

1.03 KNORR-BREMSE SHARE DATA DEC. 31, 2019/FISCAL YEAR 2019

		2019
Earnings per share	€	3.65
PE ratio		24.86
Cash flow per share	€	6.12
Dividend per share	€	1.80
Dividend yield [1]	%	2.0
Highest price (Xetra)	€	103.70
Lowest price (Xetra)	€	77.00
Closing price (Xetra)	€	90.75
Average daily trading	in € thousand	14,669.8
Market capitalization (Dec. 31)	in € million	14,628.9
Number of shares		161,200,000

[1]) Dividend proposal for General Meeting.

As at year-end 2019, Knorr-Bremse's MDAX ranking put the Company's shares in 22nd place in terms of market capitalization, and in 27th place in terms of trading volume. The MDAX comprises the 60 highest-ranked companies in Germany below the DAX.

In 2019, the average trading volume of Knorr-Bremse shares on the MDAX rose by around 12% on a comparable basis, i.e. excluding the first day of trading in 2018. Following an average daily turnover of 144,000 shares in 2018, daily trading in Knorr-Bremse shares rose to 161,541 in 2019.

Analysts' Recommendations

By the end of fiscal 2019, Knorr-Bremse shares were covered by 14 leading national and international analysts. This means that the number of analysts regularly monitoring Knorr-Bremse shares has doubled year on year. As at the end of 2019, nine analysts rated the share with a "hold" recommendation (end of 2018: 3 analysts) and five analysts issued a "sell" recommendation (end of 2018: 0 analysts). The closing price for the year was € 90.75 – about 9.3% above the average share price target of around € 83 set for year-end 2019 by all analysts covering the share. Consequently, no analysts were issuing "buy" recommendations as at year-end 2019 (year-end 2018: six analysts). Due to the anticipated resilience of Knorr-Bremse's business model during the current COVID-19 crisis, especially in the rail sector, two analysts issued a "buy" recommendation for the Group's shares at the end of March 2020. The average share price target set by all analysts as at March 31, 2020 was € 79.18.

Shareholder Structure

As at December 31, 2019, the proportion of shares in **free float [p. 203]** was 29.65%, while 70.35% of voting rights are still held by the Thiele family. Two shareholders – BlackRock, Inc. (4.15%) and Capital Group (3.04%) – each hold more than 3% of Knorr-Bremse AG's issued shares as at year-end 2019.

Bonds Issued by Knorr-Bremse AG

On December 8, 2016, Knorr-Bremse AG issued a € 500 million bond with an annual coupon of 0.5% on the Luxembourg EURO MTF stock exchange. The bond is due for repayment on December 8, 2021. It is currently rated "A/outlook stable" by Standard & Poor's and "A2/outlook stable" by Moody's.

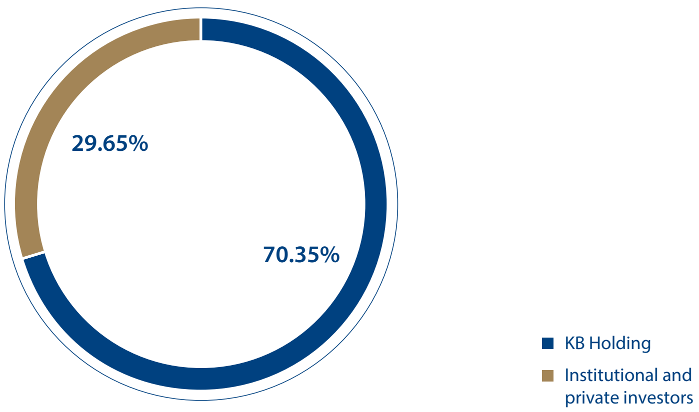
Over the past fiscal year, the price of this bond (ISIN XS1531060025) fluctuated within a narrow range of between 100.8% and 101.6%. The bond price rose to 101.02% at the beginning of 2019 and finished at 100.92% by the end of the year. During the year, the bond price reached its year high of 101.57%.

In 2018, the Company issued another bond of € 750 million with an annual coupon of 1.125%. The bond is due on June 13, 2025. This bond is currently rated "A/outlook stable" by Standard & Poor's and "A2/outlook stable" by Moody's.

The price of this second bond (ISIN XS1837288494) saw a significant increase in 2019. This also reflects the attractiveness of Knorr-Bremse's stable business model. On January 2, 2019, the bond price was 100.78%. As the fiscal year continued, the price improved to reach a high of 106.92% on August 13, 2019. By the end of the year, the price was still significantly higher than at the start of the year, at 104.58%.

1.04 SHAREHOLDER STRUCTURE DECEMBER 31, 2019

in %



Investor Relations Activities

The Investor Relations department maintains an ongoing dialogue with analysts, institutional investors and private investors. The department attaches particular importance to credibility, topicality, equality and continuity, in an ongoing effort to further strengthen the existing relationship of trust between shareholders and Company.

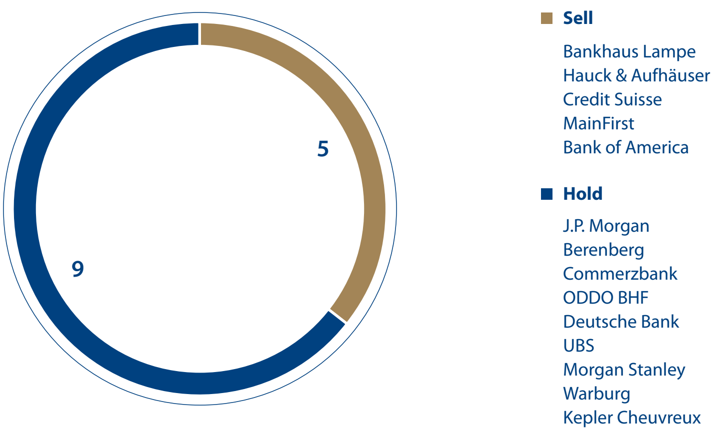
Communication methods used by Investor Relations include a comprehensive investors' website, which forms part of the main Knorr-Bremse website and publishes all information of relevance to the Company's shares, as well as regular quarterly and annual reports and teleconferences. During 2019, the Investor Relations team – usually accompanied by members of the Executive Board – visited the world's major financial hubs such as London, New York, Frankfurt, Paris, Toronto, Chicago and Copenhagen, attending a total of 16 conferences and eight roadshows. In addition, the Investor Relations department held a large number of individual and group interviews, organized tours of the Company, and arranged telephone conferences. In the course of the year, more than 400 investors were in contact with the Company.

On September 12, 2019, Knorr-Bremse invited analysts and investors to a Capital Markets Lunch in London for a more detailed discussion of the outstanding growth and market opportunities available to both divisions over the next few years. This event was also attended by the Executive Board members responsible for the two divisions, Dr. Peter Laier and Dr. Jürgen Wilder.

Furthermore, once a year all shareholders are given the opportunity to find out more about Knorr-Bremse's ongoing development at the Annual General Meeting.

1.05 ANALYSTS' RECOMMENDATIONS (AS OF 12/31/2019)

Recommendations



Dividend Policy and Proposal for 2019

Knorr-Bremse believes it is very important to pay out a regular, reliable dividend so that shareholders receive an appropriate share of the Company's net income. Assuming stable market conditions and solid business development, the Company will aim for a distribution ratio of between 40% and 50% of consolidated net income (according to **IFRS [p. 203]**) for the year. However, the actual decision as to whether and in what proportion dividends shall be distributed depends on a number of factors, including the volume of distributable net earnings for the year in question, the Company's investment policy, and the Company's financing requirements at the time.

Despite currently unstable market conditions, we are standing by our dividend policy and proposing a dividend of € 1.80 per share (2018: € 1.75), more or less in the middle of the target range set down in our shareholder guidance. On the one hand, this proposal is based on a very successful 2019 fiscal year. On the other, Knorr-Bremse AG is still in a very stable financial position, even in these uncertain times. If this proposal is accepted, the Company will pay out a total of € 290 million after the Annual General Meeting, representing a distribution ratio of 46% of consolidated net income according to IFRS. This would be at the upper end of the above-mentioned 40–50% range.

1.06 KNORR-BREMSE IN FIGURES

Incoming orders: 7,066 € million

6,937

€ million revenue generated by the two divisions in 2019

Spending on research and development activities in 2019: 397 € million

28,905

Number of employees in Group worldwide as of December 31, 2019

The Knorr-Bremse Group

PROFILE

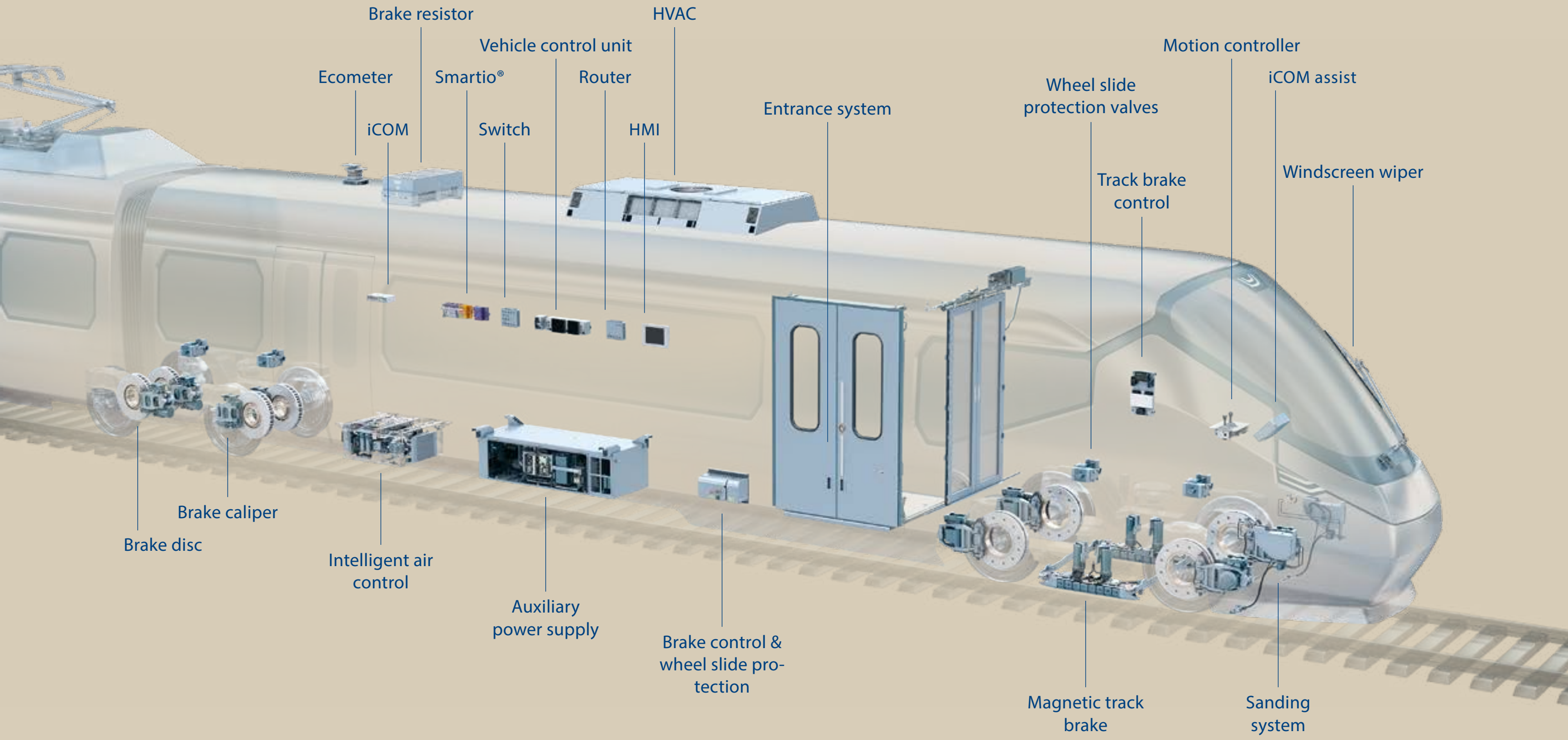
Knorr-Bremse is the global market leader for braking and other systems for rail and commercial vehicles. Knorr-Bremse's products make a major contribution to greater safety and energy efficiency on roads and railroads around the world. With a history stretching back 115 years and boasting significantly higher than average growth for many decades now, Knorr-Bremse is one of Germany's most successful industrial companies.

Knorr-Bremse is the only full-range supplier of products and services in the complementary markets of rail and commercial vehicle systems. As an innovator in these industries, Knorr-Bremse has pioneered connected system solutions. Through its global presence and activities, the Group endeavors to be a strong, capable partner to vehicle manufacturers and service operators around the world, complying with all the local regulations and standards in these industries. Localization is therefore a key element of Knorr-Bremse's strategy.

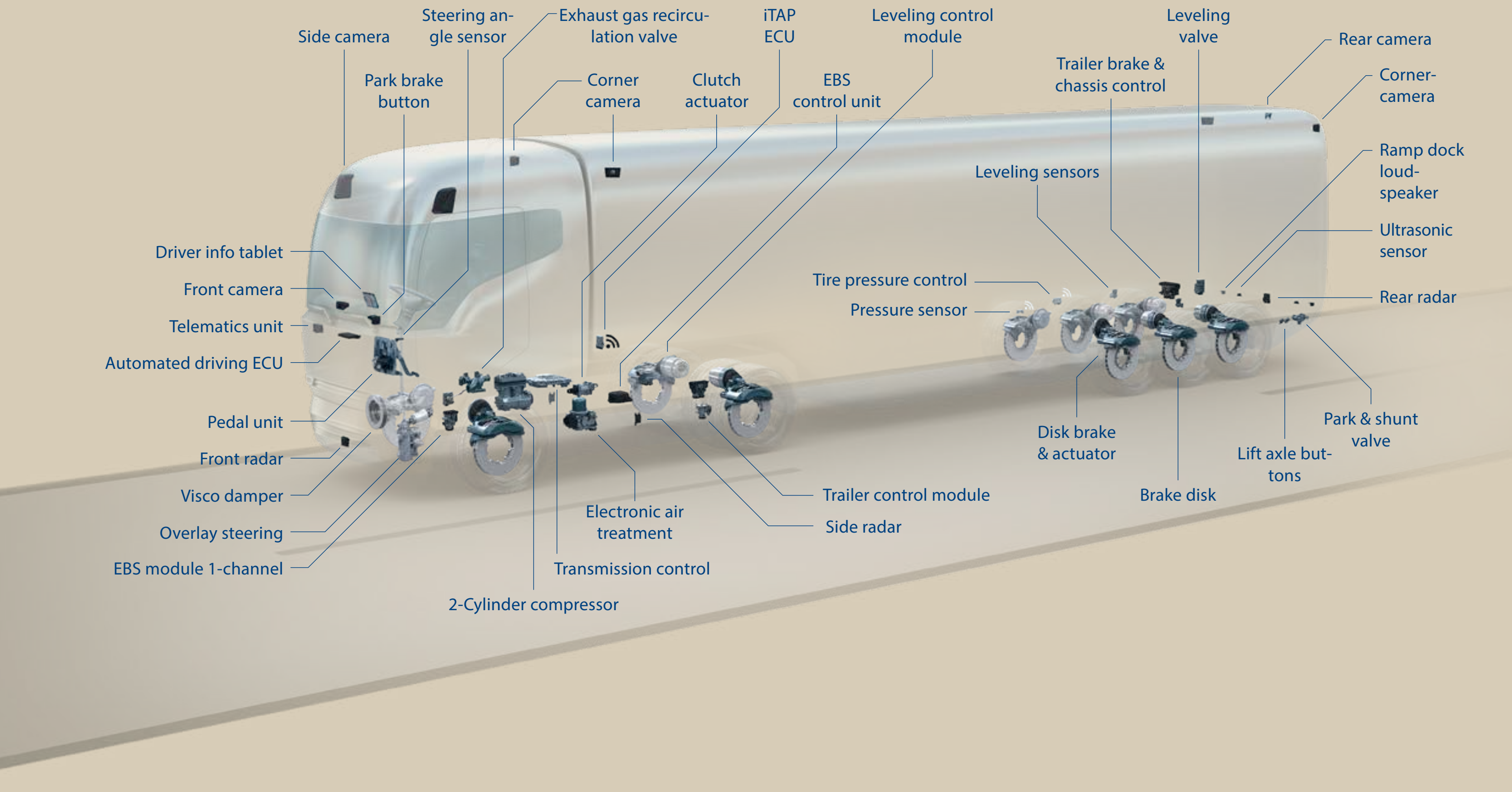
In the light of major global megatrends such as urbanization,sustainability, digitalization and mobility vehicle markets offer good long-term sustainable growth prospects. Moreover, due to the stringent quality and safety standards involved, along with the high number of product variants and their extensive approval requirements, the barriers to market entry are high. Knorr-Bremse cultivates very long-term customer relationships in these markets.

1.07 PRODUCTPORTFOLIO

Rail Vehicle Systems



Commercial Vehicle Systems



STRATEGY

Here at Knorr-Bremse, we aim to shape the future of rail and commercial vehicle transportation by improving safety, reliability and efficiency. At the same time, we seek to add value for our customers, employees and shareholders, as well as society at large. We intend to defend our leading position in multiple markets and continue our profitable long-term growth trajectory.

We also intend to devote equal attention to our social and environmental responsibilities. By providing sustainable system solutions for mobility, our innovations are making a significant contribution to overcoming social challenges and driving social progress. Every day – around the world.

Knorr-Bremse has achieved above-average growth for many years now. Thanks to focused acquisitions, strong organic growth in our business segments and targeted expansion of our product and services portfolio, revenues have risen by an average of 7.5% a year. We intend to maintain this dynamic momentum into the future, and to do so, we have defined strategic growth targets both for our business units and for any potential M&A opportunities. Knorr-Bremse will continue to pursue advantageous acquisitions, joint ventures and investments in startups, primarily with the aim of expanding our existing product and services portfolio, boosting international growth and strengthening our systems competence.

The five most important elements of our strategy for pursuing and achieving our goals are:

1) Capturing Megatrend Opportunities

Knorr-Bremse is focusing its offering on the global societal megatrends of urbanization, sustainability, digitalization and mobility. As a result of regulatory requirements, government investment programs and the increasing demand for new technological solutions, these megatrends are driving our business globally. Knorr-Bremse is ideally placed to play a significant role in shaping these global trends.

Urbanization: Growing urban populations are causing inner-city traffic volumes to rise, boosting the demand for local public transit services. This in turn is intensifying the need for Knorr-Bremse's efficient, reliable, safe solutions. For example, our Blind Spot Assistant for retrofitting to trucks is helping to improve road safety in cities. Similarly, our efficient, safe entrance systems for rail vehicles are speeding up the flow of passengers boarding and changing trains, helping to ensure that light rail vehicles, metro services and commuter trains operate more efficiently and reliably.

Sustainability: Sustainability and climate protection are playing an increasingly important role in society. This calls for effective, efficient and long-term solutions for both the rail and commercial vehicle industries. End-to-end eco-design is helping to reduce the carbon footprint of our products and make transportation and logistics more energy-efficient as a result.

Digitalization: Increasingly, we are deploying digital technologies to interconnect and automate both our products and our internal business processes. By doing so, we are helping to improve traffic safety and streamline vehicle operation and maintenance with our products.

Mobility: An increasingly mobile and interconnected global population is continuing to drive demand for safer and more efficient mobility and logistics solutions. Our product range across both divisions is making a decisive contribution in these fields.

To address and influence these global megatrends, development efforts in our two divisions are centered on these trends as they affect our respective target industries. Accordingly, in the rail vehicle industry we are focusing on improving the transportation capacity, availability, eco-friendliness and life cycle management of our products. And in the commercial vehicle industry, as well as improving traffic safety and reducing emissions, we are concentrating our efforts on e-mobility, automated driving and connectivity.

2) Expanding Technology Leadership

Knorr-Bremse is a global technology leader. We implement innovative solutions that deliver clear customer benefits; we set industry-wide standards for safety, efficiency and reliability; we guarantee top levels of quality.

To continually strengthen our position, we invest an above-average percentage of our revenues – around 6% – in innovation, and we constantly expand the scope of our research and development activities. Development partnerships enable us to work closely with our customers to identify solutions that add significant value.

Knorr-Bremse's ability to deliver innovative solutions that address the industry trends in our two major target markets is further underpinned by some 3,600 R&D employees and by the 12,000 or so separate patents we have registered or filed.

In our Rail Vehicle Systems division, we are developing solutions that meet the need for increasing transportation capacity on existing rail infrastructures. These include system modules for automated train operation (ATO), as well as brake control technology that guarantees exact braking distances to reduce the gaps between trains.

For our customers, rail vehicle availability is crucial to ensure that investments are both efficient and effective. Our solutions and systems for automatic condition monitoring and associated maintenance services, for example, also create significant additional benefits for our customers.

At the same time, in line with the trend toward end-to-end life cycle management of our systems, we are extending our range of products and services to provide customers with optimal support over the entire product life cycle. Finally, we are taking the trend for environmentally responsible rail transportation into account in our product design – by using eco-friendly refrigerants in our HVAC systems, for instance – and consequently making an important contribution to a more efficient and sustainable rail industry.

Development efforts in our Commercial Vehicle Systems division track specific trends in the commercial vehicle industry. One ongoing trend is traffic safety. Here Knorr-Bremse's solutions expertise and global presence mean that advanced safety technologies such as electronic braking systems (EBS), disk brakes and automatic emergency braking systems (AEBS) are gaining traction all over the world.

In the field of automated driving, we have developed a structured product roadmap for systems all the way from advanced driver assistance **(ADAS [p. 201])** through to fully automated (autonomous) driving. In 2018, we entered into a close partnership with Continental; more recently, we made acquisitions in Japan and the USA which added steering system technologies to our product portfolio. These additions to our product portfolio complement our existing brake systems expertise and mean that we can now offer superior automated driving systems.

Sustainability in road transportation is also a key trend in the commercial vehicle industry: e-mobility and reduced emissions are expected to make a valuable contribution to environmentally responsible transportation. To our customers all over the world, we offer solutions that ensure compliance with the increasing number of regulatory requirements in the various markets and advance the cause of e-mobility in commercial vehicles. We are also continuing to work on the connectivity of our products.

In addition to driving technological advances within our two divisions, we also leverage the synergies between them. Over the next few years, we will systematically expand these synergies by, for example, using shared research centers and facilitating technology transfer between the divisions. We believe there is considerable potential for synergistic developments in digitalization, for instance, in the form of applications such as predictive maintenance. Any innovative product solutions developed as a result will then generate additional benefits for manufacturers, operators and users alike.

3) Leveraging Global Presence

With 100+ operating locations in over 30 countries, Knorr-Bremse has a very strong local presence in all relevant markets worldwide.

Thanks to our market share and all-round systems competence, we are therefore well placed to grasp the opportunities emerging from developments and trends in local markets to increase content per vehicle. As a partner of all major customers worldwide, we can offer local market presence and expertise coupled with global product and systems excellence.

Further penetration of growth regions is a key element of our strategy;

Along with other regions, Asia continues to be an important growth market for our Rail Vehicle Systems division. High government spending on infrastructure and a strong urbanization trend are major drivers here. Following the launch of new climate protection programs and associated investment in rail transportation, we are also expecting to experience substantial growth in Europe.

In our Commercial Vehicle Systems division, we intend to leverage the current trend toward increased content per vehicle to further expand our OE business worldwide. New regulations on safety and reducing emissions are helping to drive technology upgrades for trucks and buses. In regions such as North America, China and India in particular, where vehicle equipment levels have historically been lower than in Europe, we are expecting content per vehicle to rise as disk brakes and modern driver assistance systems are gradually introduced. This, combined with our systems competence and existing solutions, should enable us to significantly increase our share of vehicle content.

4) Growing a Profitable Aftermarket

Thanks to the large installed base of vehicles equipped with Knorr-Bremse products, along with our global presence and proximity to customers, our two divisions are both well placed to take advantage of attractive aftermarket opportunities based on stable demand to further expand their service offerings.

In our experience, over its entire life cycle, the aftermarket potential of a rail vehicle system could be two to three times higher than the value of the actual equipment supplied. More and more regulatory bodies worldwide are prescribing regular inspections and fleet

1.08 WE CONFIRM AND CONTINUE OUR SUCCESSFUL STRATEGY

[1] Base year FY17 – subject to medium-term effects of the corona crisis

Strategy

1 CAPTURE MEGATREND OPPORTUNITIES

2 EXPAND TECHNOLOGY LEADERSHIP

3 LEVERAGE GLOBAL PRESENCE

4 GROW PROFITABLE AFTERMARKET

5 CONTINUOUS EFFICIENCY & EXCELLENCE

Targets until 2022[1]: organic revenue growth of 4.5 – 5.5 % p.a. and EBITDA margin expansion by +150bps

INDUSTRY-TRENDS

modernization, both of which directly impact our business volume. We will also offer aftermarket services based on new data-driven business models that support condition-based maintenance and remote diagnostics, for example. As they become increasingly established as market standards, these will both drive further growth.

We are also seeking to leverage our large installed base in the aftermarket segment for commercial vehicles. The aftermarket offers attractive opportunities for selling specific replacement and spare parts which need replacing multiple times over a commercial vehicle's lifetime. In addition, our global aftermarket platform TruckServices and in particular, our AllTrucks service network with its extensive customer base, comprehensive inventories and numerous service facilities, both enable us to maintain a strong local presence. Thanks to this, we can supply independent aftermarket solutions that also fit our competitors' systems.

5) Continuous Efficiency and Excellence

In a market increasingly driven by consolidation among our **OEM** customers **[p. 201]** and an unremitting pressure to cut costs, constant cost discipline, rigorous profitability initiatives, efficient processes and sustainable business management are more important than ever.

To ensure that we continue to grow, we have prioritized the sustainable and ongoing improvement of our productivity, the streamlining of our process efficiency (including the implementation of global process standards such as our Knorr-Bremse Production System, optimized supply chains, harmonized procurement standards and further automation), and the leveraging of our robust balance sheet. In our efforts to optimize costs, we always take care to achieve a balance between our global manufacturing footprint and our R&D activities.

To implement our strategy and achieve the objectives we have set ourselves, we concentrate on constantly optimizing our managerial and organizational structures, and on further developing Knorr-Bremse's corporate culture.

RESEARCH & DEVELOPMENT

At Knorr-Bremse, innovation is the keystone of our corporate strategy and integral to our financial success. The goal of our 3,500 employees is to continue developing products, systems and technologies that meet our customers' evolving needs and deliver the highest added value for them, while at the same time keeping abreast of new market requirements, regulations and industry standards. Knorr-Bremse spent 5.7% in 2019 for research and development activities. The reliability and high quality of our products is the result of years of development work and rigorous field testing conducted under exacting conditions. Thanks to our technological excellence, Knorr-Bremse has had a significant influence on nine out of ten industry-defining innovations in the rail vehicle sector and eight of the ten most groundbreaking innovations in the commercial vehicle sector. This is reflected in our high market share and financial success over recent decades.

In our research and development activities, we leverage the potential synergies between our two divisions. The underlying technologies for more than half of our product portfolio can be applied to both segments. These include, for example, driver assistance (adaptive cruise control (ACC), AEBS, **ASR [p. 201]**), motion control, brake control, hydraulics, wheelend/bogie equipment, and compressed air generation. The synergies between the segments translate into a faster time to market, reduced development costs and more effective protection of our intellectual property. For instance, the technology for both disk brakes and screw compressors was transferred from our RVS division to our CVS division. Our collision avoidance solution for rail vehicles is based on sensor technology expertise acquired by our Commercial Vehicle Systems division. We have set up joint development teams to work on condition monitoring and collision avoidance.

Research Results

Rail Vehicle Systems Division

In the RVS division, our development activities have focused on identifying solutions to increase transportation capacity and availability, and also to operate vehicles more efficiently and sustainably in order to optimize their life cycle costs. Efforts have centered above all on automated train operation, eco-design and product Digitalization.

Because it will make it easier to transport more goods and passengers on existing infrastructure, Knorr-Bremse has made Reproducable Braking Distance **(RBD [p. 202])** a key focus of development activity in this area. Along with our Selectron electronics and communications solutions, which meet stringent cybersecurity standards, key components here include innovative entrance systems from Knorr-Bremse subsidiary IFE that reduce the time required for passengers to embark or disembark thanks to even faster door opening and closing times. The latest generation of our **brake control system, EP2002 3.0,** delivers consistently precise braking over just a few meters, even in slippery conditions. Not only does this enable more stable operation in automated mode (ATO) – when combined with modern signaling systems, it also makes it possible to reduce distances between trains, resulting in higher track capacity utilization.

Our innovative **iCOM** solutions **[p. 201]** bundle a number of digital functions such as low-wear driving, a driver assistance system for reducing energy consumption, real-time measurement of energy consumption, and diagnostics. iCOM Monitor, for example, enhances maintenance processes by providing operators with real-time information on fleet vehicle condition and status. Its open architecture supports easy integration of supplier or partner solutions, including the sharing of relevant data.

With in-**motion charging [p. 201],** Knorr-Bremse subsidiary Kiepe Electric has developed a dynamic charging concept for trolley buses. These buses are battery-powered on roads without overhead contact lines, and their batteries are recharged while they are driving on sections equipped with overhead lines. Such in-motion charging considerably extends the operating radius of electric buses.

Our development activities systematically incorporate **eco-design [p. 201]** principles: As an alternative to the R134a refrigerant, for instance, Knorr-Bremse's subsidiary Merak uses the much more environmentally friendly CO_2 – and is already achieving performance comparable to R134a in its Central European sales territory. For increased passenger comfort, Knorr-Bremse subsidiary IFE is launching a new sealing system for sliding doors. This system improves acoustic insulation, significantly reducing noise levels for passengers.

Development partnerships with young companies and startups enable targeted expansion of our own research and development activities: In March 2019, we acquired a stake in Israeli startup company RailVision, which develops obstacle detection systems for rail vehicles, a key technology for automated driving. Using cameras that employ a combination of video and infrared technology, RailVision can monitor up to two kilometers of track from a moving rail vehicle; the system uses custom software for ultra-precise object recognition. Additional functions such as collision avoidance systems are also under development. Since May 2019, Knorr-Bremse has had a stake in Belgian company Railnova, a leading supplier of telematics solutions and maintenance workflow software for connected trains. These solutions support the real-time transmission and analysis of train diagnostic data, giving operators an all-round overview of the status and availability of their fleet so they can optimize maintenance processes. Because this is also an open system, it supports data exchange with other systems operated by customers and partners.

Commercial Vehicle Systems Division

In the CVS division, Knorr-Bremse's research and development activities in recent years have focused on the key industry trends of traffic safety, automated driving, emissions reduction and e-mobility, and connectivity.

Complete control over the longitudinal and lateral forces exerted by and on commercial vehicles is a fundamental prerequisite for driver assistance and automated driving solutions **(HAD [p. 201])**. With the takeover of the commercial vehicle steering systems business unit of Hitachi Automotive Systems, Japan, in spring 2019 and acquisition of Sheppard, the leading manufacturer of commercial vehicle steering systems in North America, Knorr-Bremse has taken an important step toward becoming a supplier of highly integrated systems that deliver a range of new functions for driver assistance and automated driving. The combination of Sheppard's and Hitachi's expertise in recirculating ball (RCB) steering systems and Knorr-Bremse's global systems expertise represents an ideal platform for launching torque overlay steering systems (TOS), together with other driver assistance and automated driving functions. **Global Scalable Brake Control (GSBC [p. 201])** technology is used to create a reliable control network for coordinated longitudinal and lateral control of automated vehicles. In addition, we are developing the redundant vehicle architecture required for highly automated and autonomous driving (Level 3+).

Another milestone in pursuit of this objective was reached in 2019 when we teamed up with Continental to build a manufacturer-neutral **platooning** demonstrator. The technology supports all functions required for the safe formation of platoons – i.e. vehicles (usually trucks) traveling in convoy – including multi-vehicle guidance, emergency braking, individual vehicle disengagement, and safe dissolution of the whole platoon. Initial trials and customer demonstrations have been carried out at our test site. The experience gained from the platooning demonstrator will provide the basis for another automated driving application known as **Highway Pilot**, which is intended to enable highly automated driving of single trucks on freeways and expressways.

The CVS division is also working intensively on the further development of our two new generations of disk brakes: the **SYNACT** two-piston brake for towing vehicles, and the **NEXTT** single-piston brake for trailers and towing vehicles with a low axle load. Our development goals are to make the disk brakes more compact, lighter and more modular, and to prepare them for the challenges of automated driving and e-mobility.

Patents

We have put comprehensive patent protection in place to protect our innovations and prevent unauthorized use of the fruits of our research and development activities. Our patent portfolio is extensive, including both products and processes. We exercise our right to patent employee inventions and submit these for registration. In total, we currently hold or have applications pending for over 12,000 patents worldwide, spread across approximately 3,000 patent families. In our CVS division, the number of patents granted or applied for is approximately 8,500, while the figure for our RVS division is around 3,800. Patents also include utility models (e.g. relating to braking systems for commercial and rail vehicles) in Germany and other countries, as well as a number of patents and utility models registered for foreign Group companies in foreign jurisdictions only.

In some cases, however, we have elected not to register a patent relating to certain secret process technologies in order to avoid disclosing particularly sensitive know-how. In our patent strategy, we also benefit from leveraging the synergies between our two divisions.

SUSTAINABILITY

Knorr-Bremse's approach to corporate responsibility is based on the principle of sustainable development, and applies not only to our products and how they are manufactured but also to our employees, the environment and society as a whole.

Since 2011, we have been informing our stakeholders of Knorr-Bremse's sustainability activities in our Sustainability Report (until 2018 the UN Global Compact (UNGC) Progress Report). As is required of listed companies, Knorr-Bremse has been producing a sustainability report since 2018, which is also reviewed by the auditor. This report sets out in detail the impact the Company has on the environment and society, and presents key indicators as well as the targets and measures Knorr-Bremse uses to manage its sustainability activities.

The report includes the consolidated non-financial statement for the Knorr-Bremse Group pursuant to Sections 315b and 315c in conjunction with Sections 289b to 289e of the German Commercial Code (HGB). The Sustainability Report, which includes the non-financial statement, will be published on the Company's website on April 23, 2020 at www.Knorr-Bremse.com/en/responsibility.

Together with the Company's corporate values and Code of Conduct, our Corporate Responsibility (CR) guidelines constitute a framework for the sustainable and responsible conduct of business at Knorr-Bremse. Knorr-Bremse is also guided by internationally recognized guidelines and conventions such as the UN Global Compact, or the Guiding Principles on Business and Human Rights published by the UN Human Rights Council. Together with our employees and external stakeholders, we engage in and cultivate close relationships with networks such as Railsponsible, and sit on committees that address sustainability issues in the German Association of the Automotive Industry (VDA) and the German Rail Industry Association (VDB).

With its Group-wide CR strategy, Knorr-Bremse is fulfilling its voluntary commitment to corporate responsibility. In recent years we have been systematically striving to make Knorr-Bremse's structures and processes even more sustainable. Our CR strategy provides a robust framework for this and is divided into the following six action areas: strategy and management, products and partners, employees and leadership, environment and climate, commitment and society, plus communication and cooperation.

2030 Climate Strategy

Since the start of 2020, Knorr-Bremse's 2030 Climate Strategy has replaced the climate protection goals we set in 2015 and is now the cornerstone of our environmental and climate policy. By 2030, Knorr-Bremse aims to reduce direct CO_2 emissions from in-house sources (Scope 1) and indirect CO_2 emissions from external energy sources (Scope 2) by 50 percent. This represents an average annual reduction of 4.2 percent compared with the initial (baseline) figure of 143,000 metric tons of CO_2 in 2018. To achieve this, Knorr-Bremse will apply three levers. First, the Company will invest in energy-saving measures, switching heating systems and the corporate vehicle fleet over to lower-carbon fuels. Second, Knorr-Bremse will make investments that aim to increase the proportion of renewable energy generated internally at Knorr-Bremse sites around the world. Third, Knorr-Bremse will ramp up procurement of renewable energy by means of long-term energy purchase agreements, green electricity products, and certificates.

Furthermore, starting in 2021, Knorr-Bremse aims to become carbon neutral. This will be accomplished by increasing the share of renewable energy in our energy mix beyond the 4.2 percent target and – where necessary – offsetting any remaining emissions with high-quality climate protection certificates, such as Gold Standard certificates.

By 2030, Knorr-Bremse plans to invest in reducing Scope 1 & 2 CO_2 emissions and, starting in 2021, in programs for offsetting CO_2 emissions.

Knorr-Bremse is committed to the long-term continuation of its sustainable development efforts. With this in mind, the materiality analysis drawn up in 2018 was comprehensively validated in workshops held in 2019. Knorr-Bremse has launched global initiatives to help it attain the five UN Sustainability Development Goals (SDGs) targeted by the Group. As far as due diligence regarding the central issue of human rights is concerned, we are guided by the United Nations Universal Declaration of Human Rights. All these issues are covered in detail in Knorr-Bremse's CR program, which is approved by the CR Council and regularly reviewed to verify compliance. The Group's Corporate Responsibility department is responsible for sustainability and reports directly to the Executive Board.

Our commitment to sustainability is also recognized by external stakeholders. In fiscal 2019 we succeeded in confirming our EcoVadis "Gold" rating for our sustainability performance in dealings with customers. In 2019, MSCI ESG Research, the world's leading provider of sustainability analyses, awarded Knorr-Bremse an "A" rating for the first time, the third best out of seven categories. In addition, Knorr-Bremse retained the "Prime Status" rating first awarded by ISS ESG (formerly ISS-oekom) in 2018, in acknowledgement of the Group's sustainability performance.

Corporate Governance

The German Corporate Governance Code (GCGC) contains rules and recommendations for the responsible management and oversight of listed companies. During the period under review, Knorr-Bremse AG complied with the recommendations of the GCGC (version of February 7, 2017) published by the Federal Ministry of Justice in the official section of the Federal Gazette and will continue to comply with them from January 1, 2020, with the following exception:

Excerpt from Declaration of Compliance dated December 10, 2019

- It is anticipated that Knorr-Bremse AG will not be able to make the consolidated financial statements and Group management report for the 2019 fiscal year publicly accessible within 90 days from the end of the fiscal year, nor make the mandatory interim financial information publicly accessible within 45 days from the end of the respective reporting period, as recommended in Section 7.1.2 sentence 3 of the German Corporate Governance Code (GCGC). This is due to the changeover to International Financial Reporting Standards (IFRS) shortly before the stock market flotation of Knorr-Bremse AG on October 12, 2018, the operational implementation of which will not be completed within the Knorr-Bremse Group until fiscal year 2020. From fiscal year 2021 onward, i.e. from January 1, 2021, Knorr-Bremse AG will prepare the consolidated financial statements, the Group management report, and the mandatory interim financial information in accordance with the recommendation in Section 7.1.2 sentence 3 of the GCGC.

The full text of the Declaration of Compliance is available on Knorr-Bremse AG's website under Investor Relations/Corporate Governance.

Furthermore, during the reporting period Knorr-Bremse AG chooses to comply with the GCGC's non-mandatory suggestions, with the following exception: Departing from the last sentence of Section 4.2.3 (2) of the GCGC, contracts of employment for Executive Board members include a provision for early disbursement of multi-year remuneration components in the event of permanent disability or death.

Further Information on Corporate Governance

Executive board and supervisory board

As well as managing the day-to-day business of the Company, the Executive Board defines and implements strategy in consultation with the Supervisory Board. It is obliged to act in the best interests of the Company and in accordance with the latter's business policies. The Executive Board reports regularly and comprehensively to the Supervisory Board on business performance, strategy and risks. Terms of reference drawn up by the Supervisory Board set out how roles and responsibilities for the various business units are allocated on the Executive Board, how decisions are reached, and other matters.

The Supervisory Board supervises and advises the Executive Board. In accordance with the German Codetermination Act (MitbestG), the twelve-member Board is composed of an equal number of shareholder representatives and employee representatives: the six members representing equity holders are elected by the Annual General Meeting, and the six members representing employees are elected by the workforce at Knorr-Bremse's German sites. In the event of a tie when the Supervisory Board passes resolutions, the chair has an additional casting vote. The Supervisory Board may also take decisions using a document circulation procedure.

The Supervisory Board is elected every five years; the last scheduled elections took place in 2016. If a member of the Supervisory Board steps down before the end of their term, a successor will be appointed by the District Court unless a substitute has already been elected. Such court-appointed Supervisory Board members must then stand for election at the next Annual General Meeting (shareholders' representatives), or at the next election date (employee representatives).

In the view of the Supervisory Board, the majority of shareholder representatives – with the exception of Julia Thiele-Schürhoff – are independent within the meaning of the GCGC; the Supervisory Board also considers this appropriate when taking the shareholder structure into account. The Supervisory Board of Knorr-Bremse AG has established four committees from among its members. With the exception of the Nominations Committee, each of these committees comprises four members with equal representation of shareholders and employees. Following their meetings, the committee chairs report to the full board. The remits of the committees and the matters they discussed over the course of the past fiscal year are described in detail in the Report of the Supervisory Board.

- The Executive Committee coordinates the work of the Supervisory Board, prepares its meetings and efficiency verification, and supervises implementation of the resolutions passed by the Supervisory Board or its committees. Among other things, the Executive Committee is also responsible for preparing Supervisory Board personnel decisions relating to the Executive Board.
- The Audit Committee oversees matters related to accounting, risk management, the internal control system and the compliance management system, as well as internal auditing and the effectiveness of the latter. It also supervises the Group's quarterly reports, reviews the annual and consolidated financial statements of Knorr-Bremse AG, and prepares relevant resolutions of the full board.
- The Nominations Committee proposes candidates who are suitably qualified in terms of both expertise and character for election as shareholders' representatives at an Annual General Meeting.
- The Mediation Committee is convened if a Supervisory Board resolution on the appointment or removal of an Executive Board member does not obtain a two-thirds majority of votes as required by Sections 31 (2) and (5) of the German Codetermination Act (MitbestG). No such necessity has arisen in the history of the Company to date.

Skills profile for the supervisory board

The Supervisory Board has defined a skills profile and objectives for the composition of the Supervisory Board, including minimum quotas with respect to gender and international diversity. This ensures that Supervisory Board members collectively possess the requisite skills and expertise to properly perform the work of the board. These skills include, for example, specific technical knowledge of the rail, commercial vehicle and automotive industries, including the supply sector; the key markets in which Knorr-Bremse operates; research and development, especially in technologies and related areas of relevance to Knorr-Bremse; Digitalization and smart, digitally connected IT applications (Industry 4.0). Also required is experience in management, leadership, accounting, controlling and risk management, corporate governance, and corporate compliance. Members do not have to be equally skilled in all these areas; rather, their skills should be complementary.

The skills profile stipulates that at least one member should be a financial expert who is knowledgeable about accounting or auditing. The chair of the Audit Committee should have a detailed knowledge of the application of accounting principles and internal control procedures. Members of the Supervisory Board should be willing and able to devote sufficient time and expertise to discharge their duties diligently. In particular, this includes being willing to take responsibility for their own continuing professional development.

A wide range of professional and international experience is expected in relation to diversity; according to Section 96 (2) of the German Stock Corporation Act (AktG), the proportion of women and men on the Supervisory Board must be at least 30% in each case. Further salient points are an appropriate number of independent members, the avoidance of conflicts of interest, an upper age limit of 70 at the time of election, and a maximum of three terms in office, i.e. 15 years.

In the view of the Supervisory Board, its current composition meets the requirements set out in the skills profile, with the exception of the gender quota of at least 30% which has come into effect since the Company's stock market flotation and will therefore apply to new elections under Section 96 (2) of the AktG and Section 25 (2) of the Introductory Act to the German Stock Corporation Act (EGAktG). To date this quota has been met solely on the shareholder representation side. The employee side currently includes one female member.

General meeting

The Annual General Meeting will be held on June 30, 2020. During the general discussion, shareholders have the opportunity to speak about matters on the agenda and put questions to the Executive Board. The shareholders also exercise their voting rights. The chair of the Supervisory Board chairs the General Meeting and reports on the work of the Supervisory Board and its committees during the previous fiscal year. The Executive Board presents the annual financial statements, the consolidated financial statements, the combined Group management report, the proposed appropriation of distributable income agreed with the Supervisory Board, and other resolutions to be voted on.

Transparency

Our Corporate Communications department provides timely and comprehensive information. Along with our Annual Report, interim statements, financial reports, press and ad-hoc news releases contain detailed information on and explanations of our business performance. All publications are available on our website. We hold press conferences and conference calls for significant events.

Operation of the executive board and supervisory board at Knorr-Bremse

Knorr-Bremse AG's Executive Board consists of four members:

- Bernd Eulitz joined the Executive Board on November 1, 2019, succeeding Klaus Deller as Chairman; the latter stepped down from Knorr-Bremse AG's Executive Board on April 30, 2019. Mr. Eulitz is responsible for coordinating the allocation of responsibilities to individual board members and for ensuring cooperation between members. Mr. Eulitz is also in charge of various central corporate functions.
- Ralph Heuwing has been a member of the Executive Board since November 1, 2017. In this role, Mr. Heuwing is responsible for the majority of central corporate functions.
- Dr. Peter Laier has been a member of the Executive Board since January 1, 2016, and is responsible for the Commercial Vehicle Systems division.
- Dr. Jürgen Wilder joined the Executive Board on September 1, 2018, and is responsible for the Rail Vehicle Systems division.

The following table Table → 1.09 provides an overview of the areas of responsibility of Knorr-Bremse AG's individual Executive Board members as at December 31, 2019:

The second management tier within the Group comprises the senior managers at Knorr-Bremse AG, the managing directors of European subsidiaries Knorr-Bremse Systeme für Schienenfahrzeuge GmbH and Knorr-Bremse Systeme für Nutzfahrzeuge GmbH, and the managing directors of our subsidiaries in North America and the Asia-Pacific region. The managing directors are responsible for the performance of their respective companies and stay in close contact with the Executive Board. The central departments at Knorr-Bremse AG report to the Executive Board.

The work of the Supervisory Board over the past fiscal year and its modus operandi, including the attendance of individual board members at meetings of the Supervisory Board and its committees during fiscal 2019, are set out in detail in the Report of the Supervisory Board.

An overview of the members of the Supervisory Board and the Executive Board, together with the respective offices they hold, may be found in the Notes to the consolidated financial statements.

Details of the remuneration of Executive Board members, including variable remuneration components, and of the remuneration of Supervisory Board members, may be found in the Compensation Report.

Relevant corporate governance practices and compliance

In addition to complying with the law and the GCGC, Knorr-Bremse AG is committed to the responsible conduct of business in and across all its divisions. Our internal guidelines may be viewed on our website under Investor Relations/Code of Conduct and Investor Relations/Compliance. Together with further details of our social and community engagement, more information about how we take corporate citizenship seriously and encourage sustainable growth can also be found on the website under Responsibility.

1.09 AREAS OF RESPONSIBILITIES OF EXECUTIVE BOARD MEMBERS OF KNORR-BREMSE AG

CEO **Bernd Eulitz**	**CFO** **Ralph Heuwing**	**Head of CVS** **Dr. Peter Laier**	**Head of RVS** **Dr. Jürgen Wilder**
Corporate Human Resources	Corporate Accounting/Taxes	Global CVS Division	Global RVS Division
Corporate Business Development	Corporate Controlling	Research/ Development	Research/Development
Corporate Communications	Corporate Treasury	Procurement/ Supply Chain Management	Procurement/ Supply Chain Management
Knorr Excellence	Corporate Legal, Compliance & Patents		
Digitalization/Artificial Intelligence	Investor Relations	Production/Quality Assurance	Production/Quality Assurance
KB Media GmbH	Corporate Information Technology/ Business Services	Sales/Marketing/Distribution	Sales/Marketing/Distribution
		Finance/Controlling	Finance/Controlling
	Corporate Internal Audit		
	Corporate Risk Management		
	Corporate Security		
	Corporate Responsibility		
	Corporate Real Estate Management		
	KB Global Care e.V. Affairs		

Control

In accordance with Article 8 (1) of Knorr-Bremse AG's Articles of Association, the Supervisory Board determines the size and composition of the Executive Board. The terms of reference drawn up by the Supervisory Board for the Executive Board include as annexes a list of matters that require approval, an organization chart detailing the roles and responsibilities of executives, and the rules setting out what the Executive Board must report to the Super-wvisory Board.

At meetings of the Supervisory Board, the Executive Board states its position on agenda items and answers questions. The proposed resolutions for items on the agenda and the documents required to prepare for the meeting will be communicated to Supervisory Board members no less than five days beforehand, unless urgent business justifies later communication. Separate preliminary meetings among the employee representatives and shareholder representatives respectively are usually held before Supervisory Board meetings; if necessary, the Executive Board is available to provide any necessary explanations. The chair of the Supervisory Board is also in regular contact with the Executive Board between meetings.

Accounting and auditing of annual financial statements

Our IFRS consolidated financial statements are audited by KPMG AG, who were appointed on the recommendation of the Supervisory Board as our auditor for the 2019 fiscal year by the Annual General Meeting on June 18, 2019. The auditor audited the consolidated financial statements and the separate financial statements of Knorr-Bremse AG prepared by the Executive Board, and the Supervisory Board then reviewed and approved the financial statements, which were published on April 23, 2020. In accordance with Section 7.2.3 of the GCGC, the auditor will notify the chair of the Supervisory Board without delay if anything material to the work of the Supervisory Board comes to its attention during an audit. The auditor will also inform the Supervisory Board of any departures from the Declaration of Compliance in accordance with Section 161 of the German Stock Corporation Act (AktG). Before the auditing mandate is awarded, the auditor will assure the Supervisory Board of their independence.

Management indicators, control system, insider lists

The most significant metrics for managing the company are revenues, (operating) EBITD/ EBITDA margin, (operating) EBIT / **EBIT margin**, net working capital in days´sales, and ROCE. Our risk management system covers 14 specific areas of risk and documents the Group's exposure to risks. The internal control system (ICS) for the accounting process also forms part of this risk management system. Detailed information may be found in the Risk Report. (p. 75)

We maintain event-based insider lists in accordance with Section 18 of the Market Abuse Regulation (MAR). All individuals on the list are regularly informed of the applicable statutory obligations and sanctions.

Share ownership and directors' dealings

In accordance with Section 19 MAR relating to managers' own-account transactions, we publish notifiable securities transactions by members of Knorr-Bremse AG's Executive Board and Supervisory Board (referred to as directors' dealings) immediately following notification. All members of the Executive Board at the time of the stock market flotation acquired Knorr-Bremse AG shares at the issue price during the initial public offering. A summary of these transactions can be found under Investor News in the Investor Relations section of our website.

As at December 31, 2019, Executive Board members held approximately 0.013% of Knorr-Bremse AG's shares in total. With respect to Supervisory Board members, to our knowledge Kathrin Dahnke directly held shares in Knorr-Bremse AG on December 31, 2019.

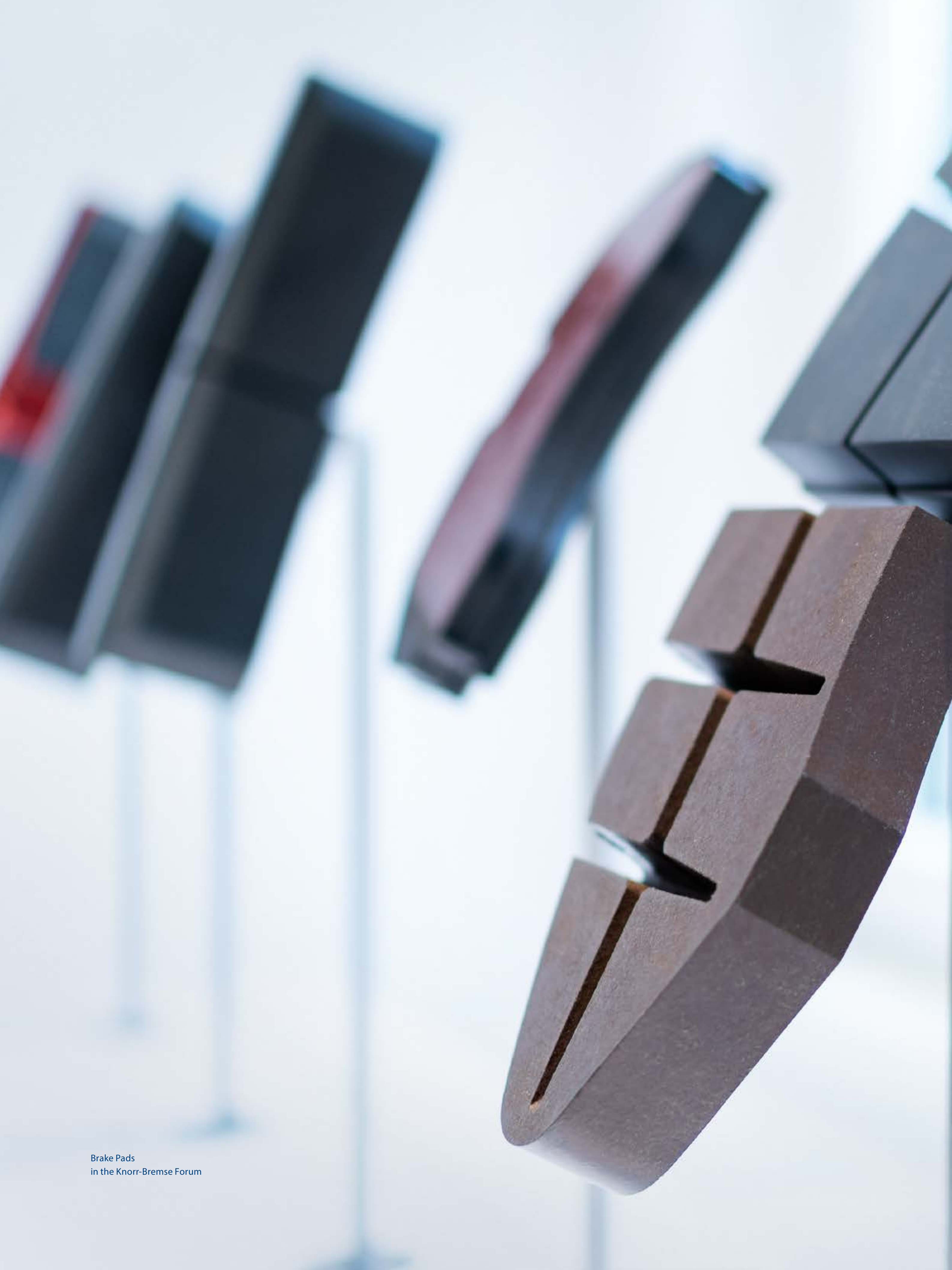
Promotion of diversity and equal participation of women and men in leadership positions

To date, our statutory obligations with respect to the equal participation of women and men in leadership positions have been fulfilled as follows:

- Three women are currently serving on the Supervisory Board of Knorr-Bremse AG; two represent shareholders and one represents employees. This equates to 33% female representation on the shareholder side which – if the parties are counted separately – complies with the minimum legal quota of 30%. In terms of the Supervisory Board as a whole, 25% of board members are female.
- The percentage of women currently serving on the Executive Board of Knorr-Bremse AG is 0%. The Supervisory Board has set a target of 20% women on the Executive Board by June 30, 2023.
- As at December 31, 2019, the proportion of female managers on the first management tier below Executive Board level at Knorr-Bremse AG was 15.4%, and 0% on the second management tier. A target of 7.7% has been set for women on the first management tier (which was the status quo when the targets were specified in 2018) and 16.7% for the second management tier, both to be reached and maintained by June 30, 2023.

Diversity above and beyond statutory requirements is also an integral part of Knorr-Bremse's corporate culture. Any and every form of discrimination – whether on grounds of gender, age, religion, ill health, ethnic origin, skin color, sexual orientation or for any other reason – is unacceptable at Knorr-Bremse. When recruiting, we take into account of diversity and equal opportunities, and seek to appoint more women as appropriate. Working-time models flexible enough to cater to individual circumstances help to ensure equality of opportunity. Given the international nature of our business, intercultural diversity and tolerance are important values at Knorr-Bremse. Knorr-Bremse's Code of Conduct defines various measures relating to occupational health and safety, human rights, and inclusivity. Our workforce receives specific training in these matters via an e-learning tool. Employees can engage with various viewpoints in talks and workshops on sociopolitical topics.

When appointing Executive Board members, the Supervisory Board considers technical expertise and social skills in particular, along with the number of years' experience in similar posts within our sectors and in an international context. Further suitability factors are the candidate's character and educational background (university degree or equivalent). Whether a candidate is male or female makes no difference. In order to achieve a balanced age structure, generally any appointees to the Executive Board should be no older than 65.



Brake Pads
in the Knorr-Bremse Forum

02

COMBINED MANAGEMENT REPORT

** COMBINED MANAGEMENT REPORT: We have combined the management report of the Knorr-Bremse Group with the management report for Knorr-Bremse AG, in accordance with Section 315 (3) of the German Commercial Code (HGB) in conjunction with Section 298 (2) HGB. The management report is therefore termed a combined management report. Unless otherwise specified, the information below is applicable to both the Knorr-Bremse Group and Knorr-Bremse AG. Statements which refer exclusively to Knorr-Bremse AG are marked as such, and appear at the end of the combined management report.*

Combined Management Report

ABOUT THE GROUP

Overview of the Group

Organizational Structure of the Group

Knorr-Bremse AG is the management holding company of the Group. It controls the divisions and handles central functions such as strategic management, treasury, accounting, controlling, HR management, legal affairs, taxes, internal audit, compliance and corporate communications. Knorr-Bremse AG serves as the corporate center, along with the regional holding companies Knorr Brake Holding Corporation (North America), Knorr-Bremse Asia-Pacific (Holding) Limited, and Knorr-Bremse Brasil (Holding), as well as Knorr-Bremse Services GmbH and KB Media GmbH.

We manage our business operations through two business units (divisions), which also represent our reportable segments under IFRS:

- Rail Vehicle Systems (**RVS** division **[p. 201]**)
- Commercial Vehicle Systems (**CVS** division **[p. 201]**)

Divisions, Sales Markets, Market Share, Products and Services

RAIL VEHICLE SYSTEMS DIVISION

The Rail Vehicle Systems division supplies highly advanced, safety-critical products and systems for equipping mass transit vehicles such as commuter trains, metro cars and light rail vehicles as well as freight cars, locomotives and high-speed trains. Knorr-Bremse is the world market leader in the global market for rail vehicle braking systems. Knorr-Bremse is also a leading market player in entrance systems and HVAC systems. The Group's market share figures are based on our own estimates.

The product portfolio comprises:

- braking, entrance and HVAC systems;
- hardware and programming tools for train control & management systems (TCMS), electromechanical components and electrical traction equipment for light rail vehicles;
- friction material, driver assistance systems.

In the aftermarket sector, under our RailServices brand, we offer spare parts together with maintenance, overhaul, repair and upgrade services for rail vehicles.

COMMERCIAL VEHICLE SYSTEMS DIVISION

Our Commercial Vehicle Systems division supplies products and systems for trucks, buses, trailers and agricultural machinery. Knorr-Bremse is the world market leader in the global market for disk brakes as well as pneumatic braking systems for commercial vehicles. It is also a leading supplier of products for braking systems and vehicle dynamics (including steering systems), energy supply and distribution, and fuel efficiency. Details of the Group's market share are based on internal market analyses for fiscal year 2019.

Our product portfolio comprises:

- pneumatic braking systems (e.g. brake control systems, disk brakes, drum brakes, brake cylinders, valves and pedal units) and steering systems, plus vehicle dynamics solutions (e.g. anti-lock braking systems and electronic stability programs), driver assistance systems (e.g. emergency braking systems), automated driving and electronic leveling control;
- energy supply and distribution systems, including compressors and air treatment;
- products for boosting fuel efficiency such as engine components and transmission control systems (e.g. vibration dampers, engine air management, transmission control, and gear/clutch actuation).

We supply high-quality products and service solutions for all types and ages of commercial vehicles under our aftermarket brand TruckServices.

Business Model/Structure of the Group

Legal Structure of the Group

Knorr-Bremse AG is the parent company of the Knorr-Bremse Group. As at December 31, 2019, the Group comprised 134 consolidated German and foreign subsidiaries directly or indirectly controlled by the Company. The Group is represented at more than 100 locations in over 30 countries.

Changes to the Group's Portfolio & Asset Deals

With effect from February 1, 2019, Knorr-Bremse Systeme für Nutzfahrzeuge GmbH acquired from Sentient AB, Gothenburg/Sweden a 50% interest in Sentient IP AB and a 100% interest in Sentient Heavy Vehicles AB, both of Gothenburg/Sweden. As a result of this strategic investment, Knorr-Bremse can now proceed with further development of the software and IP rights acquired from Sentient AB in our global steering business.

With effect from March 14, 2019, as part of a strategic investment, Knorr-Bremse Systeme für Schienenfahrzeuge GmbH acquired a stake in Israeli startup company RailVision, Ra'anana/Israel. As at December 31, 2019, the share of voting rights came to 21.3%. RailVision develops obstacle detection systems based on video and infrared technology; these are key technologies for implementing automated driving functions for rail vehicles. Knorr-Bremse is thus taking the next step toward providing system solutions for automated rail travel.

With effect from March 15, 2019, Knorr-Bremse's U.S. subsidiary New York Air Brake LLC (NYAB) acquired the business of Snyder Equipment Company, Inc. based in Nixa, Missouri/USA. This company is an industry-leading manufacturer of technologies for OEMs and a well-established remanufacturer of locomotive components. Consequently, Snyder also bolsters the RVS division's aftermarket business.

On March 29, 2019, Knorr-Bremse Asia Pacific (Holding) Ltd. acquired Hitachi Automotive Systems, Ltd./Japan. This acquisition expands Knorr-Bremse's portfolio of steering systems and system solutions for driver assistance and highly automated driving. It will also improve the Company's access to the Japanese and southeast Asian market.

With effect from April 11, 2019, Knorr-Bremse Systeme für Schienenfahrzeuge GmbH acquired a minority 32% interest in Railnova SA/Belgium. Railnova is a leading supplier of telematics solutions and maintenance workflow software for the rail industry. This investment strengthens Knorr-Bremse's Digitalization strategy and data-driven business solutions for rail-industry applications.

On May 22, 2019, the Executive Board of Knorr-Bremse took the decision to cease production of steering systems by Knorr-Bremse Steering Systems GmbH at Wülfrath in 2020. This was chiefly due to the fact that a large order for car steering systems ended earlier than expected.

On September 30, 2019, Knorr-Bremse signed an agreement to sell its Powertech division (electrical power supply systems for rail transportation and industrial applications). The Powertech division comprises three German companies – Knorr-Bremse Powertech GmbH, Knorr-Bremse Powertech GmbH & Co. KG and Knorr-Bremse Powertech Verwaltungs GmbH – as well as U.S.-based Knorr-Bremse Powertech Corp. and other business activities in Australia, Spain, and the People's Republic of China.

Further information on changes to our portfolio may be found in the section "Events of Material Importance to Business Performance" **[p. 76]**.

Business Model

FINANCIAL SIGNIFICANCE OF INDIVIDUAL PRODUCTS, SERVICES AND SALES MARKETS

We sell our products and services to customers around the world and are partners to all major vehicle OEMs, as well as rail and fleet operators. Traditionally, Europe is our strongest sales region. In 2019, we generated 46% of our revenues by region (i.e. based on the country in which the particular vehicle for which we supply systems or components is operating) in Europe/Africa, with the remainder coming from the Asia-Pacific region (29%) and North and South America (25%). Both divisions have a substantial aftermarket business. In 2019, our aftermarket activities accounted for approximately 34% of total revenues (according to our management reporting).

BUSINESS PROCESSES AND QUALITY

As many of our products are safety-critical, a high level of availability, reliability and quality is one of the main reasons our customers choose to buy from us. We have therefore implemented integrated management systems in both divisions, based on established processes for meeting quality, environmental, and health and safety standards.

Knorr-Bremse ensures a high level of quality throughout the Group. Many years ago, we introduced various quality initiatives in our divisions to increase quality awareness and foster a quality-oriented mindset across the Group. We employ a 360-degree management approach to help us meet all requirements during a product's life cycle – from development, testing, careful supplier selection, production and assembly, right through to how the product is used by customers. Compliance with all relevant quality indicators – such as cost of poor quality, supplier and customer delivery quality, functional test failures and product safety audits – is monitored by monthly global reports. These management reviews prioritize the continuous improvement of our product and system quality, along with the day-to-day responsibility of each individual employee for safe production and work processes.

We review and improve the implementation of our process management system by conducting regular internal audits and assessments around the world. This is further confirmed by external certification audits based on IRIS (International Railway Industry Standard) for our Rail Vehicle Systems division and on IATF 16949 (International Automotive Task Force standard) for our Commercial Vehicle Systems division.

CUSTOMER RELATIONS

In both divisions, we cultivate long-term relationships with our customers. These include global and regional vehicle OEMs and operators.

Around 58% of the Rail Vehicle Systems division's revenues are generated by OE business. In 2019, aftermarket sales accounted for 42% of the division's revenues (breakdown based on management reporting).

Sales to OE customers generated around 75% of revenues in the Commercial Vehicle Systems division. Aftermarket sales accounted for around 25% of the division's revenues in 2019 (breakdown based on management reporting).

The breakdown of sales revenues into OE and aftermarket segments for the purposes of this Management Report was not included in the audit of the consolidated financial statements.

PROCUREMENT

As well as ensuring our production sites are supplied with materials, our procurement activities focus on achieving cost savings and on establishing collaborative partnerships with innovative suppliers. The procurement organization plays a key role in the quality of our end products. The material cost ratio as a percentage of Group revenues was 49.4% in 2019. This underscores the importance of procurement and supply chain management for Knorr-Bremse.

Our Group-wide Supplier Code of Conduct sets out the standards our suppliers are required to meet with respect to working conditions, human rights, environmental protection, health and safety, business ethics and compliance. A large part of our global purchasing volume of direct materials is now covered by suppliers who have signed up to our Code of Conduct. We will continue systematically rolling out the Code of Conduct to our suppliers over the coming reporting year. In particular, we will be extending it to include indirect suppliers (of non-production materials).

The availability of raw materials and their prices are crucial procurement factors for our production and assembly units. We therefore monitor various commodity indices on a monthly basis (such as the German Bundesverband der Deutschen Gießerei-Industrie, the Metal Bulletin and the London Metal Exchange).

Our supply chain management focuses on improving our supply chain capabilities, processes and inventory levels along the entire value chain: inbound, within our plants and plant network, outbound and at the recycling stage. Our supply chain management approach is also governed by factors such as integrated planning, parts availability, tariffs and foreign trade, logistics and material handling, transportation, short lead times and parts traceability. We have a coordinated delivery cycle with a standardized process model and synchronized supply chains across multiple locations. This allows us to guarantee reliable delivery and adequate stock levels, plus high-quality logistics and performance, while keeping costs low. For over 10 years, we have operated a Supplier Finance Program for our most important suppliers. Under this program, suppliers receive early payment from the bank in return for deducting a discount from the relevant invoices and consequently benefit from Knorr-Bremse's good rating – a clear win-win situation for all concerned.

Global Sourcing

To leverage the potential of Asian supplier markets for the RVS division, we have set up a purchasing office in India to support our European and North American purchasing teams. As part of our global commodity management strategy, we have now installed a team in China which is systematically tapping into the Chinese procurement market for the Rail division's global requirements, and identifying and exploiting synergies for the Group as a whole. We have implemented a supplier process for the CVS division that is now used worldwide. CVS is also working on further optimizing the proportion of our supplies sourced from best-cost countries. At the same time, we also take care to limit our dependency on individual regions and retain alternative sources of supply. Each supplier selection is presented to a multidisciplinary sourcing board (which includes representatives from various departments such as Purchasing, Research & Development, Quality, Logistics and Sustainability) for the final decision. A purchasing localization strategy increases supply chain flexibility, supports the further development of local technological know-how, and reduces vulnerability to currency volatility and customs barriers thanks to the "natural hedging" provided by localized procurement. In both divisions a "dual sourcing" strategy is pursued that offers a high degree of indenpendance from single suppliers.

In both divisions, a global, category-oriented organization pools order quantities, enters into framework agreements and standardizes global supplier panels. Global category-specific strategies are being continuously developed.

For indirect material purchases, Knorr-Bremse implemented a cross-divisional transformation process in 2018. This has resulted in improved data transparency and introduced a global selection process that will allow further savings to be made. Analogous to our organizations for procuring direct materials, we also introduced global category management here with the aim of optimizing purchasing by pooling procurement volumes globally and leveraging category strategies.

LOCATIONS AND DISTRIBUTION OF WORK WITHIN THE GROUP

Knorr-Bremse operates production plants in Europe, North America, South America and the Asia-Pacific region. In recent years, alongside intensive localization initiatives, we have further expanded our global production and engineering footprint in both divisions by means of multiple acquisitions and joint ventures. Our products are manufactured all over the world, with a global balance between high-tech countries, such as Western Europe and North America, and best-cost countries such as Eastern Europe, Africa, Asia-Pacific, Latin America and Mexico.

Production at our sites is based on uniform global standards which deliver a high degree of flexibility coupled with reliable delivery capacity. At the same time, they help us to ensure a uniformly high standard of quality at each site, for example by deploying the Group-wide Knorr-Bremse Production System (**KPS** **[p. 201]**) to manage production. KPS uses a variety of tools and techniques – including key performance indicators, lean management methods, shop floor management and pull principles – that are rolled out by experts and coached by an internal lean training academy.

Control System

Company-specific Early Indicators

For many years, Knorr-Bremse has excelled at identifying early signs of changes in the marketplace and rapidly responding to them. To better control our business, we monitor a range of early indicators. This enables us to respond to any fluctuations in the economic cycle or changes in demand and implement suitable measures in good times. We use four types of indicators for this:

- Key early economic indicators are the money supply, commodity and energy prices, plus procurement manager and business climate indices. Research reports and macroeconomic statistics, on transit volumes for example, also help to identify relevant economic developments at an early juncture. We also pay close attention to interest rate trends. Business performance in the commercial vehicle segment clearly correlates with trends in the global economy, while rail vehicle business, especially in the passenger segment, is usually less cyclical.
- More specific indicators for estimating future potential business include our customers' production and sales plans, as well as order book and order intake statistics and forecasts. We also keep track of analysts' expectations for publicly traded companies in the rail and commercial vehicles sector.

- The third early indicator is actual invitations to tender issued by our customers. We collect information on these in our sales database, together with an assessment of our acquisition opportunities.
- The fourth group of indicators comprises the order books and incoming orders for our two divisions, both absolutely and relative to revenues. Since many orders have a relatively long lead time, both these indicators are useful for estimating capacity utilization and sales revenues over the next few quarters.

External Influencing Factors

The most important external factor influencing our rail vehicles business is order book trends among our customers – the companies that actually build the vehicles. In addition, the size and average age of our installed base are primary factors for growing our aftermarket business. UNIFE's 2018 "World Rail Market" study predicts an annual average growth rate of around 2.6% for the global rail vehicle market over the next few years. Given the dynamic aftermarket and the expansion of our scope of supply, this should enable us to achieve an annual business growth of around 5–6% over the medium term according to our estimates.

In the commercial vehicles' segment, the most important influencing factor is the total truck production rate in units, differentiated by sales regions. Following a clear market correction in 2020 and a recovery in 2021, depending on the impact of the corona crisis, we expect to see a moderately positive upward trend in subsequent years. In addition, technological developments relating to safety, emissions control and highly automated driving offer attractive potential for structural growth in the form of an ongoing annual increase in content per vehicle of 3–4%, depending on the region. Overall, this represents an opportunity for us to achieve annual growth across the cycle in the range of 4–5% over the medium term.

In certain regions, our business is affected by government regulations on emissions and safety. In general, more stringent limit values – for CO_2 for example – are driving the demand for low-emissions vehicle technology.

Exchange rate fluctuations have a recognizable but moderate impact on revenues and earnings. As we have set up local development operations in major foreign markets, with local production plants and procurement structures, our requirements for exports between regions are comparatively low, which reduces transaction risks. More significant are the translation effects of converting foreign currency items into euros.

Value management

The most important financial performance indicators for managing Knorr-Bremse are revenues, EBITDA, (operating) EBITDA margin, EBIT, (operating) EBIT margin, net working capital in days´sales, and ROCE. The quarterly and annual movements of these figures are compared with the previous reporting period in each case. See the "Corporate Management Indicators" section for further details.

Revenues, EBIT and net working capital in days´sales are also used as the indicators underlying our performance management system for the previous financial year. Knorr-Bremse uses this performance management system to reward Executive Board members for sustained long-term improvements in the Company's performance. Up until December 31, 2019, the increase in economic value added (EVA®) over a multi-year period was used as the basis for determining performance. As of January 1, 2020, long-term executive performance will be rated by reference to absolute and relative Knorr-Bremse share price movements, and the increase in earnings per share. Further information about our remuneration policy may be found in the "Compensation Report" section.

Knorr-Bremse practices active portfolio management. The Executive Board continuously monitors the portfolio's performance and future prospects and – as it has already done over the last two years – makes adjustments to the portfolio as required.

For more details of the Company's performance indicators, see also page 75 in the "Corporate Management Indicators" section.

Research and Development

Our innovation agenda is geared to safety, customer benefits and added value and focuses primarily on technological developments that help shape the wider social megatrends of urbanization, sustainability, Digitalization and mobility. For example, our divisional development activities focus on:

- RVS division: transit capacity, availability, eco-friendliness and life cycle management;
- CVS division: traffic safety, emissions reduction + e-mobility, automated driving and connectivity.

As well as state-of-the-art electronics, hardware and software, we also aim to provide our customers with products that can be adapted to meet changes in regulatory standards and incorporate the very latest advances in engineering methods and tools.

In our research and development activities, we leverage the potential synergies between our two divisions. Accordingly, our R&D teams work very closely with each other. Across large parts of our product portfolio, the underlying technologies can be applied to both segments. These include, for example, driver assistance systems (adaptive cruise control (ACC), advanced emergency braking system (AEBS), traction control system (**ASR)** **[p. 201]**), motion control, brake control, hydraulics, wheelend/bogie equipment, and compressed air generation. Synergies between the segments translate into a faster time to market and reduced development costs. For instance, the technology for both disk brakes and screw compressors was transferred from our RVS division to our CVS division. Our collision avoidance solution for rail vehicles is based on sensor technology expertise acquired by our Commercial Vehicle Systems division. We have also set up joint development teams to collaborate on condition monitoring and collision avoidance. In view of developments in e-mobility, fundamental changes to commercial vehicle architecture are to be expected. To push the development of innovative solutions in this field, Knorr-Bremse decided to set up a specialized development unit – the **eCUBATOR** **[p. 201].** The eCUBATOR is set to commence work in the course of 2020 and will use agile development methods to focus on the strategic evaluation and early-stage development of Knorr-Bremse's e-mobility portfolio.

At Group level, we invested € 396.9 million (representing 5.7% of revenues) in our R&D activities in fiscal 2019. Of this, € 210.0 million or 5.7% of associated revenues was spent in the Rail Vehicle Systems division and € 187.0 million or 5.7% of associated revenues in the Commercial Vehicle Systems division. **Table 2.01**

Our most important research and development centers are located in close proximity to key customers:

- Munich and Schwieberdingen (Germany);
- Budapest (Hungary);
- Elyria (USA);
- Suzhou (China), and
- Pune (India).

We also cooperate on a range of joint research & development projects with customers, universities and technical institutes such as RWTH Aachen University, Stuttgart University, the Technical University of Berlin, the Technical University of Munich, and Budapest University. To gain access to technology and accelerate our research and development work, we are engaged in partnerships with startups, for example through the Hackathon Techfest in Munich. In total, our external R&D network comprises more than 15 partnerships. We also regularly enter into partnerships with government bodies, for instance as participants in the EU-funded Shift2Rail program. Among other things, partnerships like these enable us to play a part in shaping norms and standards, and to anticipate industry trends.

2.01 KEY R&D INDICATORS

in € million	2019	2018
R&D costs	**396.9**	**363.6**
of which capitalized development costs	73.3	48.0
Depreciation on capitalized development costs	11.5	7.5
R&D employees (Dec. 31)	3,558	3,728

The Knorr-Bremse Group's innovations and research findings are regularly presented at the industry's foremost trade shows, most recently in autumn 2018 at IAA Commercial Vehicles, at InnoTrans and at Automechanika.

In the Rail Vehicle Systems division, our development activities have focused on identifying solutions to increase vehicles' availability and enhance their operational efficiency in order to optimize life cycle costs. Efforts have centered above all on automated train operation (ATO), eco-design and product Digitalization. Also featured at InnoTrans 2018 was the next-generation EP 2002 3.0 that now supports a broader range of applications, including regional and long-distance transportation. Our innovative iCOM solutions bundle a number of digital functions such as low-wear driving, a driver assistance system for reducing energy consumption, real-time measurement of energy consumption, and diagnostics. Knorr-Bremse subsidiary Kiepe Electric has developed a pioneering in-motion charging (IMC) concept for trolley buses. These buses are battery-powered on roads without overhead contact lines, then recharge their batteries while driving on sections of road equipped with overhead lines. Such in-motion charging considerably extends the operating radius of electric buses.

In our Commercial Vehicle Systems division, our research and development activities in recent years have concentrated on key industry priorities such as road safety, automated driving, reduction of emissions, e-mobility and connectivity. For instance, we developed our Global Scalable Brake Control (**GSBC** **[p. 201]**) technology to create a reliable control architecture for coordinated longitudinal and lateral control of automated vehicles. Complete control over the longitudinal and lateral forces acting on and exerted by commercial vehicles is a fundamental prerequisite for driver assistance and automated driving solutions (**HAD** **[p. 201]**). With the takeover of the commercial vehicle steering systems business unit of Hitachi Automotive Systems, Japan, in spring 2019, and the acquisition of Sheppard, the leading North American manufacturer of commercial vehicle steering systems (currently scheduled for Q2 2020), Knorr-Bremse has taken an important step toward becoming a supplier of highly integrated systems that deliver a range of new functions for driver assistance and automated driving systems. The combination of Sheppard's and Hitachi's expertise in recirculating ball (RCB) steering systems with Knorr-Bremse's global systems expertise represents an ideal platform for launching torque overlay steering systems (TOS), together with other driver assistance and automated driving functions. Two new disk brake generations were also presented: the SYNACT two-piston brake for towing vehicles and the NEXTT single-piston brake for trailers and towing vehicles with a low axle load.

Further information on our research and development activities may be found in section **[p. 35]**.

Sustainability

Since 2011, we have been updating stakeholders on Knorr-Bremse's sustainability activities in our UN Global Compact (UNGC) Progress Report. As well as providing extensive details of the Company's impact on the environment and society, this report presents key indicators, targets and measures used by Knorr-Bremse to manage its sustainability activities. As is required of listed companies, we have been producing a sustainability report since 2018, and this is not audited but reviewed by the auditor. This report includes the consolidated non-financial statement for the Knorr-Bremse Group pursuant to Sections 315b and 315c in conjunction with Sections 289b to 289e of the German Commercial Code (HGB). Our Sustainability Report, which includes the non-financial statement, will be published on the Company's website on April 23, 2020 at www.Knorr-Bremse.com/en/responsibility.

Employees

As at year-end 2019, the Knorr-Bremse Group had a total of 28,905 employees, including temporary staff – up 1.6% on the previous year (2018: 28,452). These figures represent full-time equivalents (FTEs). Excluding temporary staff, the Group employed 26,355 people (2018: 25,933). This increase was primarily due to organic growth. Acquisitions added 395 employees, while disposals reduced the headcount by 515. As at December 31, 2019, the Rail Vehicle Systems division employed a total of 16,094 people (2018: 15,886) and the Commercial Vehicle Systems division employed a total of 12,084 people (2018: 11,906). Chart 2.02

At year-end 2019, Knorr-Bremse employed 15,078 people (14,470 excluding temporary staff) in the Europe/Africa region, compared with 15,333 (14,552 excluding temporary staff) in the previous year. At 52.2%, the percentage of European employees in the workforce was below last year's figure of 53.9%. In Germany, the headcount fell from 5,809 (5,485 excluding temporary staff) to 5,322 (5,167 excluding temporary staff) as at December 31, 2019. Over the year under review, the number of employees in North and South America fell to 5,518 (5,329 excluding temporary staff) from 5,815 (5,562 excluding temporary staff) in the previous year. The percentage of the workforce in this region thus decreased to 19.1% (2018: 20.4%). By the end of 2019, the headcount in the Asia-Pacific region had risen to 8,310 (6,556 excluding temporary staff) from 7,304 (5,819 excluding temporary staff) the year before. The number of employees in the region as a percentage of the Group's total workforce thus rose to 28.7%, compared with 25.7% in the previous year. Chart 2.03

PERSONNEL DEVELOPMENT

In Knorr-Bremse's view, employees' continuing development is essential, both to provide personal and professional career pathways and to provide a solid platform for the Company's ongoing success. The Group aims to foster the ongoing professional development of its employees with targeted training initiatives that meet their individual needs.

The HR process model provides the general framework for our professional development offerings, which aim both to attract new employees and to train and upskill existing ones.

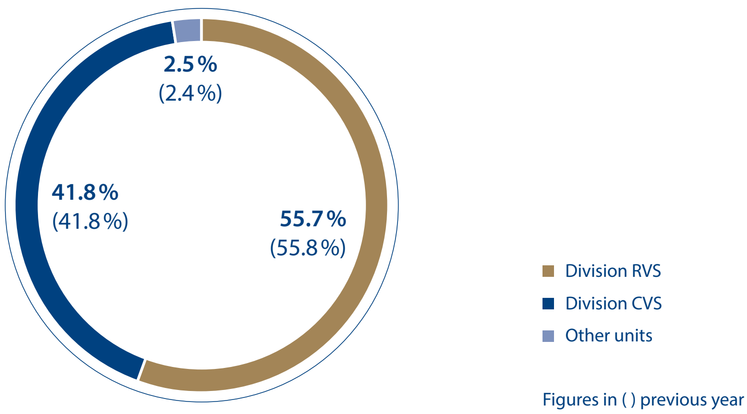
To retain young talent and prospective managers, Knorr-Bremse offers programs such as the Management Evolution Program (MEP) for trainees, or career development under the aegis of the International Management Potential Group (IMPG).

DIVERSITY AND EQUAL OPPORTUNITIES

As an internationally active company, Knorr-Bremse takes the view that the cultural diversity of employees, their different world views and life experiences are a natural part of corporate life and also contribute to the success of the Group. Accordingly, we encourage the appreciation and understanding of different cultures and life situations. We do this, for example, by supporting the integration of employees from other countries. A fundamental principle is the equal treatment of all our employees – irrespective of gender, age, country of origin, sexual identity, state of health, religion or beliefs. Discrimination of any kind is not compatible with Knorr-Bremse's values and corporate culture.

2.02 HEADCOUNT AS OF DECEMBER 31, 2019 INCLUDING TEMPORARY WORKERS

in %



During the year under review, Knorr-Bremse decided to give a higher priority to diversity and equal opportunities and integrate them more closely into our HR and sustainability strategy. In doing so, Knorr-Bremse will pay greater attention to matters of cultural diversity, gender, age and severe disability. Over the coming year, we will expand our HR strategy 2025 accordingly and identify necessary measures to implement it.

Knorr-Bremse systematically deploys and supports programs that aim to increase the proportion of women in senior management roles. In 2019, the percentage of female employees in the workforce as a whole was 20.5% (2018: 20.9%); globally, the proportion of women in executive positions across all divisions was 13.3% (2018: 12.5%).

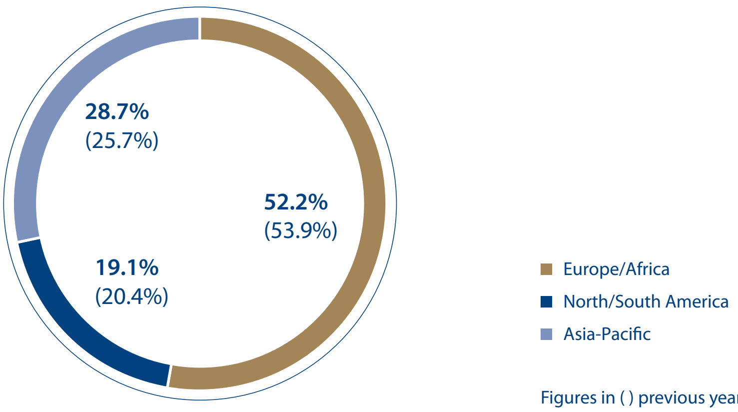
Further information on diversity and equal opportunities may be found in the Sustainability Report at www.Knorr-Bremse.com/en/responsibility.

APPRENTICESHIPS AT KNORR-BREMSE

Knorr-Bremse offers apprenticeships in occupations that are required for its own operations. At our international sites, Knorr-Bremse offers vocational training in a variety of technical and commercial occupations. The most popular training courses include industrial mechanics, machining technology, electronics, mechatronics and IT. As at December 31, 2019, 207 young people (2018: 207) had completed an apprenticeship at Knorr-Bremse.

2.03 HEADCOUNT (INCLUDING TEMPORARY WORKERS) AS AT DECEMBER 31 BY GROUP COMPANY LOCATION

in %



Figures in ( ) previous year

FURTHER DETAILS OF CORPORATE GOVERNANCE

Corporate Governance Statement

The Corporate Governance Statement for Knorr-Bremse AG will be published on April 23, 2020, on the corporate website at https://ir.Knorr-Bremse.com/corporate-governance-en. Further details may also be found in the "Corporate Governance" section starting on page 40.

Takeover-related Disclosures pursuant to Sections 289a (1) and 315a (1) HGB and Explanatory Report pursuant to Section 176 (1) AktG

Composition of Subscribed Capital

The subscribed capital of Knorr-Bremse AG is divided into 161,200,000 bearer shares with full voting rights. The rights and obligations associated with the shares are governed by the German Stock Corporation Act (AktG). As at December 31, 2019, Knorr-Bremse AG did not hold any of its own shares, and does not currently do so.

Restrictions on Voting Rights/Transfers and Equivalent Agreements

The members of the Executive Board have agreed to be bound for the duration of their appointment by a lock-up commitment covering any Knorr-Bremse shares they hold or are obliged to acquire in accordance with the Share Ownership Guideline (SOG). The Executive Board is not aware of any agreements by Knorr-Bremse AG shareholders containing restrictions on the exercise of voting rights or transfer of shares. There are statutory restrictions on voting rights, for example pursuant to Section 28 sentence 1 WpHG (violation of disclosure obligations), Section 71b AktG (rights associated with own shares) and Section 136 (1) AktG (exclusion of voting rights arising from certain conflicts of interest).

Shareholdings Exceeding 10% of Voting Rights

KB Holding GmbH, Grünwald/Germany holds 70.35% of Knorr-Bremse AG's capital stock. Via TIB Vermögens- und Beteiligungsholding GmbH, Grünwald/Germany, and Stella Vermögensverwaltungs GmbH ("Stella"), Grünwald/Germany, KB Holding GmbH is indirectly controlled by Mr. Heinz Hermann Thiele, who holds the majority of voting rights in Stella. Knorr-Bremse AG has not been notified of any other direct or indirect interests in Knorr-Bremse AG's share capital that exceed 10% of voting rights, nor is it aware of any other such interests.

Shares with Special Rights

There are no Knorr-Bremse AG shares granting special rights.

Control of Voting Rights Where Employees Hold a Capital Interest and Do Not Directly Exercise Their Control Rights

There are no employee shareholdings in which control rights are not directly exercised. Like other shareholders, employees who hold shares in Knorr-Bremse AG exercise their rights of control directly, in accordance with statutory regulations and the Articles of Association.

Provisions for Appointing and Dismissing Members of the Executive Board

The applicable statutory provisions can be found in Sections 84 and 85 AktG, and in Section 31 MitbestG. Knorr-Bremse AG's Articles of Association do not contain any provisions that deviate from the statutory regulations. In addition, Article 8 (1) of the Articles of Association stipulates that the Executive Board shall consist of at least two members, and that the Supervisory Board may appoint one member of the Executive Board as Chair of the Executive Board (CEO), and another member of the Executive Board as Deputy Chair.

Provisions for Amending the Articles of Association

The Annual General Meeting passes resolutions on amendments to the Articles of Association. Unless the German Stock Corporation Act (AktG) stipulates otherwise, the resolution shall, in accordance with Article 23 (2) of the Articles of Association, be passed by a simple majority of the votes cast and – to the extent that a majority of the capital represented at the time of the resolution is required – by a simple majority of the share capital represented at the time the resolution is passed. Pursuant to Section 13 (4) AktG, the Supervisory Board is authorized to resolve amendments to the Articles of Association that only affect their wording. Pursuant to Article 6 (5) of the Articles of Association, the same applies to amendments to Article 6 of the Articles of Association, according to their respective utilization of Authorized Capital 2018 and upon expiry of the authorization period.

Executive Board Powers Relating to the Possibility of Issuing or Repurchasing Shares

The powers of the Executive Board to issue shares are set down in Article 6 of the Articles of Association and in the statutory provisions:

AUTHORIZED CAPITAL

Until May 28, 2023, the Executive Board is authorized, with the Supervisory Board's approval, to increase the Company's capital stock on one or more occasions by up to a total of € 40,300,000.00 by issuing up to 40,300,000 new bearer shares against cash and/or non-cash contributions (Authorized Capital 2018). The new shares should be offered to the shareholders for subscription; they may also be taken over by banks or companies within the meaning of Section 186 (5) sentence 1 AktG, along with the obligation to offer them to shareholders for subscription. However, the Executive Board is authorized, with the consent of the Supervisory Board, to exclude shareholders' subscription rights in whole or in part,

- to dispose of fractional amounts under exclusion of subscription rights;
- in the event of capital increases against non-cash contributions;
- in the event of a capital increase against cash contributions pursuant to Section 186 (3) sentence 4 AktG, if the issue price of the new shares is not significantly lower than the market price of the Company's listed shares at the time of the final determination of the issue price, and the exclusion of subscription rights is limited to a maximum of 10% of the Company's existing share capital in total; and
- (a) to the extent necessary to service purchase obligations or purchase rights to Knorr-Bremse shares arising from or in connection with warrant-linked and/or convertible bonds and/or profit participation rights with option and/or conversion rights and/or obligations issued by the Company or Group companies, or (b) to the extent necessary to protect against dilution, in order to grant subscription rights to shares in the Company to holders or creditors of warrant-linked and/or convertible bonds and/or profit participation rights with option and/or conversion rights or obligations (or combinations of these instruments) issued by the Company or Group companies, to the extent that they would be entitled to such rights as shareholders after exercising their option or conversion rights or after fulfilling their option or conversion obligations.

CONDITIONAL CAPITAL

Until May 28, 2023, the Executive Board is authorized, with the Supervisory Board's approval, to issue bearer or registered subordinated or non-subordinated convertible and/or warrant-linked bonds, profit participation rights and/or income bonds (or combinations of these instruments) (hereinafter collectively referred to as bonds) in one or more tranches, or simultaneously in multiple series, in a total nominal amount of up to € € 1,500,000,000.00, and to grant the holders or creditors of the bonds (hereinafter collectively referred to as the holders) conversion or option rights on a total of up to 16,120,000 no-par bearer shares in the Company with a proportionate amount of the share capital of up to € 16,120,000.00 in total, in accordance with the more detailed provisions in the terms and conditions of the bonds (hereinafter conditions of issue). The bonds may be issued against payment in cash and/or as contribution in kind. The conditions of issue may also provide for an option or conversion obligation upon expiry of the term or at an earlier date or on occurrence of a specific event.

Shareholders generally are entitled to a subscription right to the bonds. This subscription right may also be granted in such a way that the bonds are taken over by one or more banks or companies within the meaning of Section 186 (5) sentence 1 AktG selected by the Executive Board, along with the obligation to offer them to shareholders for subscription (indirect subscription right). However, the Executive Board is authorized, with the Supervisory Board's consent, to exclude shareholders' subscription rights,

- to the extent that the bonds carrying conversion or option rights or conversion or option obligations are issued against cash payment, and the Executive Board, after due examination, comes to the conclusion that the issue price of the bonds is not substantially lower than their hypothetical market value calculated using recognized mathematical, and in particular actuarial, methods. The authorization to exclude subscription rights applies to bonds with conversion or option rights or obligations for shares representing a proportionate amount of the share capital that may not exceed 10% of the Company's share capital in total;
- to the extent that the bonds are issued against contribution in kind;
- to the extent necessary to grant the holders or creditors of bonds or warrants previously issued by the Company or Group companies within the meaning of Section 18 AktG a subscription right in the amount to which they would be entitled after exercising their conversion or option rights or fulfilling their conversion or option obligations; and
- in order to remove fractional amounts from the subscription rights.

To grant shares to holders or creditors of convertible or warrant-linked bonds that were issued on the basis of the Executive Board's authorization, the Company's capital stock was conditionally increased by up to € 16,120,000.00 by issuing up to 16,120,000 new no-par bearer shares (Conditional Capital 2018). The precise details are governed by Article 7 of the Articles of Association.

SHARE BUYBACK

The Company's Executive Board is authorized to repurchase its own shares and sell repurchased shares in the cases provided for in Section 71 AktG. The Annual General Meeting held on May 29, 2018, authorized the Company's Executive Board, pursuant to Section 71 (1) clause 8 AktG, to buy back Knorr-Bremse AG's own shares up to a total amount of 10% of the capital stock existing at the time this authorization comes into effect or – where this amount is lower – of the capital stock existing at the time this authorization is exercised, up until May 28, 2023. The shares acquired on the basis of this authorization, together with other treasury shares the Company has already acquired and are already held by or attributable to the Company, should at no time account for more than 10% of the capital stock.

At the Executive Board's discretion, shares may be acquired

- as purchases on the stock exchange, through a public purchase offer;
- by sending all shareholders a public invitation to submit sale offers; or
- by granting shareholders rights to tender.

The Annual General Meeting held on May 29, 2018, also authorized the Executive Board to act as follows with treasury shares acquired on the basis of the above or earlier authorizations:

- to sell them on the stock exchange or, subject to the Supervisory Board's approval, by means of a public offer to all shareholders in proportion to their shareholdings;
- with the consent of the Supervisory Board, to offer and transfer them in return for contributions in kind, in particular as (partial) consideration for the direct or indirect acquisition of companies, parts of companies or interests in companies or other assets, including claims against the Company, or for claims to the acquisition of assets or relating to a business combination;
- to use them to service purchase obligations or purchase rights of Knorr-Bremse AG shares arising from or in connection with warrant-linked and/or convertible bonds issued by the Company or Group companies.

Agreements in the Event of a Change of Control Resulting from a Takeover Bid

The principal Knorr-Bremse AG agreements that are subject to a change of control relate to the € 500 million Knorr-Bremse AG bond issued on December 8, 2016, which is due to mature in 2021, and the € 750 million Knorr-Bremse AG bond issued on June 14, 2018, which will mature in 2025. According to the terms and conditions of these bonds, creditors are entitled to demand repayment of the par value of the bonds by Knorr-Bremse AG in the event of a change of control if this change of control results in a downgraded credit rating within 120 days of the implementation of the change of control (change of control period), that is to say if a rating awarded to Knorr-Bremse AG or to either of the bonds is withdrawn or changed from an investment-grade rating to a non-investment-grade rating.

Compensation Agreements in the Event of a Takeover Bid

In the event of a change of control, defined as the acquisition of the majority of voting rights in Knorr-Bremse AG, Mr. Heuwing's service agreement contains a time-limited option to terminate his contract in return for a compensatory payment, provided that the change of control materially alters the Company's strategy and thereby materially impairs the position of the Executive Board member, or materially restricts or changes the board member's departmental or divisional responsibilities to the detriment of the Executive Board member. In this case, the compensatory payment shall be equivalent to the contractual remuneration for the remaining term of the board member's regular appointment, albeit for a maximum of 24 months, and shall fall due upon termination of office and contract. The service agreements of Dr. Laier and Dr. Wilder included such a provision until December 31, 2019; it was nullified with effect from January 1, 2020.

COMPENSATION REPORT

In line with the recommendations of the German Corporate Governance Code and statutory requirements, the Compensation Report describes the main features of the remuneration system for the Executive Board and Supervisory Board of Knorr-Bremse AG, as well as the remuneration packages for individual members of the Executive and Supervisory Boards over the relevant reporting period in each case.

Executive Board Compensation

Remuneration System

PRINCIPLES AND OBJECTIVES

The Supervisory Board regularly reviews the appropriateness of the Executive Board's remuneration and remuneration system in accordance with statutory requirements and the recommendations of the GCGC, adjusting them as necessary. Such an adjustment is being made with effect from January 1, 2020, in order to take account of new statutory requirements (the revised Shareholder Rights Directive Implementation Act – ARUG II) and new recommendations in the German Corporate Governance Code. The main changes are explained below in the "New Executive Board remuneration system as of January 1, 2020" section.

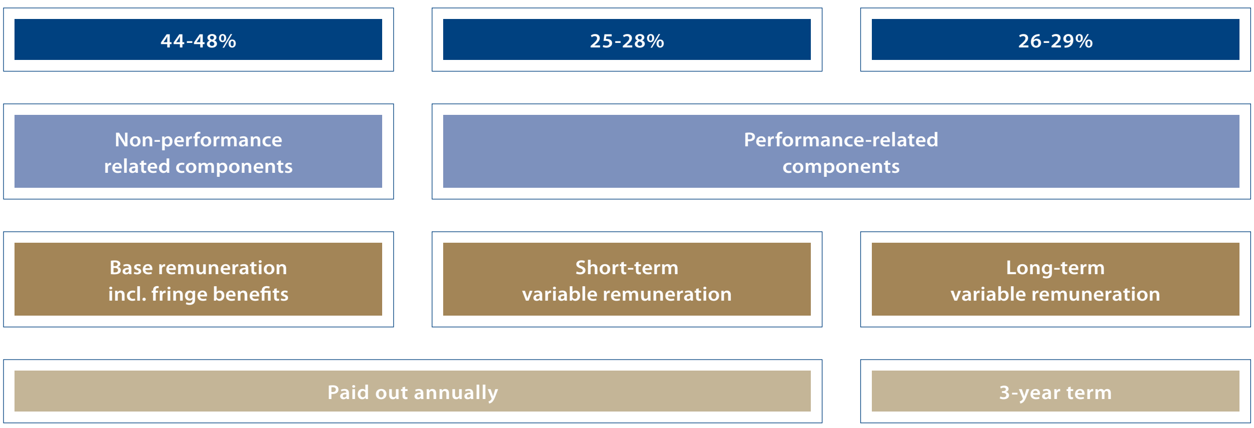
However, this section is concerned with the remuneration system applied in the 2019 fiscal year (the reporting period). It consists of a non-performance-related component (base remuneration plus fringe benefits including company pension or pension contribution) and a performance-related component with both short-term and long-term elements. The non-performance-related component accounts for 44–48% of total target income (non-performance-related component plus short-term and long-term performance-related remuneration) for Mr. Deller and the other Executive Board members. Performance-related remuneration accounts for 25–28% of total target income in the case of short-term performance-related remuneration (Short-Term Incentive – STI) and 26–29% of total target income in the case of long-term performance-related remuneration (Long-Term Incentive – LTI). Because Mr. Eulitz took office on 1 November 2019, he was not awarded a long-term incentive for fiscal 2019. The percentage of his total target income represented by the non-performance-related component is 55%; short-term performance-related remuneration makes up the remaining 45% of his total target income.

These figures relate to target remuneration levels as at January 1, 2019 (excluding Executive Board Chairman/CEO). Chart 2.04

NON-PERFORMANCE-RELATED COMPONENT AND FRINGE BENEFITS

Executive Board members receive a fixed, non-performance-related annual salary (base remuneration), which is paid in 12 equal installments as a monthly salary. The pro rata base remuneration for Mr. Deller, who left the company at the end of April 30, 2019, came to € 500,000 (based on € 1,500,000 p.a.). The annual base remuneration for Mr. Heuwing, Dr. Laier and Dr. Wilder is € 800,000. The pro-rated base remuneration for Mr. Eulitz, who was appointed Chairman of the Executive Board with effect from November 1, 2019, came to € 200,000 in fiscal 2019 (based on € 1,200,000 p.a.).

2.04 REMUNERATION COMPONENTS
THESE FIGURES RELATE TO TARGET REMUNERATION AS AT JANUARY 1, 2019 (EXCLUDING CEO)



In addition, Executive Board members receive fringe benefits. With the exception of Mr. Deller, these include a defined-contribution pension for Mr. Heuwing in the amount of € 300,000 per year (company pension) and pension contributions for Dr. Laier and Dr. Wilder in the amount of € 300,000 per year each. For 2019, Mr. Eulitz is being paid a pro rata temporis pension contribution of € 58,000 (based on € 350,000 p.a.). Otherwise, fringe benefits essentially include provision of a company car which can also be used privately, as well as accident insurance plus subsidized health and long-term care insurance. Executive Board members are also covered by a D&O liability insurance policy.

PERFORMANCE-RELATED COMPONENT

The performance-related remuneration component consists of two elements: a short-term incentive (STI) and a long-term incentive (LTI).

Short-term Performance-related Remuneration

Short-Term Incentive

The short-term incentive (STI) is intended to reward performance over the past fiscal year as reflected by the Company's development over the short term. The amount of STI to be paid out depends on the attainment of certain financial targets for the fiscal year in question; these targets are set by the Supervisory Board:

Key financial targets include revenues, earnings before interest and taxes (EBIT), **net working capital [p. 201]** (in each case with a weighting of 30%), and quality (with a weighting of 10%). Financial targets are set by reference to the duties of the respective Executive Board member – either exclusively in relation to the Group as a whole in the case of the CEO and CFO, or 50% in relation to the Group as a whole plus 50% in relation to the division (Rail Vehicle Systems or Commercial Vehicle Systems) for which the relevant Executive Board member is responsible.

At the close of the fiscal year, the Supervisory Board determines the actual extent to which targets have been achieved (target attainment level), and the amounts to be paid out as a function of target attainment. Payment is made in June of the following year. The Supervisory Board used these criteria to set STI financial targets for fiscal 2019 and determine the STI amounts to be paid out upon achievement of the respective targets.

If 100% of targets are achieved, the STI target amount is paid out.

The STI target amount for the 2019 fiscal year is € 500,000 for Mr. Deller (pro rata temporis to April 30, 2019, based on € 1,500,000 p.a.), and € 600,000 for Mr. Heuwing, Dr. Laier and Dr. Wilder respectively. The STI target amount for Mr. Eulitz is € 217,000 (pro rata temporis from November 1, 2019, based on € 1,300,000 p.a.).

No payment is made to Mr. Deller, Mr. Heuwing, Dr. Laier or Dr. Wilder if their target attainment level falls below 80%. On the other hand, if their target attainment level reaches or exceeds 135%, 200% of the STI target remuneration is paid out; this means that the maximum adjusted payout may not exceed € 3,000,000 in the case of Mr. Deller, or € 1,200,000 in the case of Mr. Heuwing, Dr. Laier and Dr. Wilder. Where target attainment lies between 80% and 135%, STI target attainment levels and bonuses are calculated on a straight-line basis.

For Mr. Eulitz, no payment will be made if his target attainment level falls below 80%. But if his target attainment level reaches or exceeds 135%, 180% of the STI target remuneration is paid out; this means that the maximum adjusted payout to Mr. Eulitz may not exceed € 2,340,000. Where target attainment lies between 80% and 135%, STI target attainment levels and bonuses are also calculated on a straight-line basis.

If an appointment to the Executive Board begins or ends during a fiscal year, as in the case of Mr. Deller and Mr. Eulitz, the STI entitlement shall be proportional (pro rata temporis) to the Executive Board activity actually performed during that fiscal year, or else to an agreed notice period.

Long-Term Incentive

The long-term incentive (LTI) is intended to reward sustained, long-term performance by Executive Board members. Since the 2018 fiscal year, the LTI has been awarded in the form of performance-related remuneration based on a performance cash plan allocated in multi-year tranches. The term of a tranche is three years (the "performance period"). This begins on January 1 of the respective grant year and ends on December 31 of the second year after the grant year. The LTI is payable in June of the fiscal year following the respective performance period.

With the exception of Mr. Deller and Mr. Eulitz, all members of the Executive Board are entitled to an LTI for the 2019 grant year. The performance period for the 2019 tranche runs from January 1, 2019 to December 31, 2021, so the LTI payout will be made in June 2022.

Performance is measured on the basis of the increase in the Knorr-Bremse Group's **Economic Value Added** (EVA®) **[p. 202]** over the performance period. EVA® is determined by deducting the Knorr-Bremse Group's capital expenditure (defined as operating assets multiplied by weighted average capital costs of 8%) from **net operating profit** after taxes **[p. 203]** (defined as EBIT minus taxes). Operating assets are defined as **capital employed [p. 202]**, i.e. non-current assets + net working capital + leasing adjustments.

The relevant figures for the development of EVA® are the EVA® achieved in the second year following the respective grant year, compared with the EVA® achieved in the fiscal year preceding the grant year. Thus the following formula applies to the 2019 tranche:

$$1 + \frac{\text{EVA}^{®}\ 2021\text{-EVA}^{®}\ 2018}{\text{Absolute amount of EVA}^{®}\ 2018}$$

At the start of each performance period, the Supervisory Board defines a target value, a minimum value and a maximum value for the EVA® to be achieved. The Supervisory Board may also define non-recurring (one-time) effects for which adjustments must be made at the end of the performance period.

If the target value is reached, the target attainment level is assumed to be 100%. If the minimum value is reached, the target attainment level is assumed to be 1%; if a value below the minimum value is reached, the target attainment level is assumed to be 0%. If the maximum value is achieved or exceeded, the target attainment level is capped at 200%. Linear interpolation is used to calculate the target achievement level between the minimum value and the target value, and between the target value and the maximum value.

The amount to be paid out is then calculated by multiplying the respective target amount by the respective level of target attainment, capped at 200%.

The target LTI bonus for the 2019 tranche is € 700,000 for Mr. Heuwing and Dr. Laier, and € 600,000 for Dr. Wilder. The maximum LTI value of the 2019 tranche is € 1,400,000 for Mr. Heuwing and Dr. Laier, and € 1,200,000 for Dr. Wilder.

In the event of extraordinary events or developments, such as a business merger, material changes in the shareholder structure, acquisitions or disposals of companies or parts of companies requiring the approval of the Supervisory Board, changes in the legal and/or regulatory environment, high inflation, or significant changes in accounting or measurement policies, the Supervisory Board may, at its reasonable discretion, limit the amount payable or, if the respective Executive Board member would have received a higher bonus in the absence of such an event or development, increase the amount payable – again, at its reasonable discretion.

The calculated amounts payable for tranches that extend beyond the regular contractual end of an Executive Board member's appointment are paid out on the regular payout dates in pro-rated instalments.

In the event of an appointment's premature termination, any claims associated with tranches that have already been awarded for current performance periods shall lapse without substitution or compensation in the following cases:

- extraordinary termination for good cause by the Company in accordance with Section 626 (1) of the German Civil Code (BGB),
- termination without notice or extraordinary notice of termination without good cause by the Executive Board member,
- revocation of the appointment for good cause, or resignation from office by the Executive Board member without good cause.

In the event of the permanent or long-term disability or death of a plan participant, all tranches awarded under the performance cash plan which have not yet reached the end of their respective performance periods are paid out immediately. The payout corresponds to the cumulative target value of all outstanding tranches.

Contractual Upper Limit (Cap) of Total Remuneration

The contractual upper limit (cap) of the total remuneration that may be awarded for a fiscal year, including fringe benefits, pension contributions and pension service costs, is € 2,757,000 (excluding severance payment) for Mr. Deller for 2019 pro rata temporis, € 3,718,000 for Mr. Heuwing, € 3,730,000 for Dr. Laier, and € 3,530,000 for Dr. Wilder. The total remuneration cap for Mr. Eulitz, pro rata temporis for the months of November and December 2019, is € 651,000 (plus a possible compensatory payment of up to € 3,797,000, cf. section entitled "Executive Board Changes").

COMMITMENTS IN THE EVENT OF REGULAR TERMINATION OF SERVICE AGREEMENTS

Pension Commitments

Generally speaking, Executive Board members receive either a pension contribution or a company pension in the form of a defined-contribution plan. Under previous contractual terms, the Company still has direct commitments to Mr. Deller and Dr. Laier (in the form of defined-benefit plans), which were made non-contributory for Mr. Deller as at April 30, 2019, and for Dr. Laier as at December 31, 2018:

Due to his resignation on April 30, 2019, Mr. Deller acquired a vested entitlement in the monthly amount of € 22,000, which will be paid out starting in the month following the end of his 63rd year. Following Mr. Deller's death, 60% of the defined benefits to which Mr. Deller was previously entitled shall be paid to his spouse for the remainder of her life. In addition, the provision provides for the payment of a monthly orphan's pension until the beneficiary reaches the age of 18 or 25 (where s/he is in continuing education). For fatherless orphans, the monthly orphan's pension is 10% of Mr. Deller's pension entitlement; full orphans receive 20% of Mr. Deller's pension entitlement, or of the most recently paid annuity.

Under the service agreement pertaining until December 31, 2018, Dr. Laier has a vested pension entitlement upon reaching retirement at the age of 65 in the amount of 2% of his respective base annual salary per year of service. This entitlement has accrued per year of service from January 1, 2016 through to December 31, 2018. In the event of Dr. Laier's death, his widow receives his pro-rated fixed salary for a period of six months, after which she is entitled to 60% of the retirement benefits for the entitlement acquired up to this point in time. In addition, for each child under 18 years of age, the widow receives further cash benefits amounting to 10% of the acquired entitlement.

Dr. Laier and Dr. Wilder will receive an annual pension contribution of € 300,000 with retroactive effect from January 1, 2019 and September 1, 2018, respectively. This pension contribution replaces the existing commitment to provide Dr. Laier and Dr. Wilder with company pensions for this period. For Mr. Eulitz, the annual pension contribution amounts to € 350,000, thus € 58,000 for 2019 on a pro rata temporis basis.

2.05 PENSION CONTRIBUTIONS

	Contribution	
in € thousand	2018	2019
Bernd Eulitz		58
Ralph Heuwing	300	300
Dr. Peter Laier	–	300
Dr. Jürgen Wilder[1)]	100	300

[1)] For Mr. Eulitz in 2019, pro rata temporis for Dr. Wilder in 2018

In fiscal 2019, Mr. Heuwing received defined-contribution pension benefits (lifelong annuity or capital payment) that are reinsured by an index-linked life insurance policy. The retirement age is 67. Furthermore, pension benefits are also payable in the event of occupational disability (monthly occupational disability pension) and death (survivor benefit). This pension entitlement is vested from the outset. For this defined-contribution plan, contributions were made in the 2019 and 2018 fiscal years as shown in Table 2.05. The table also shows the pension contributions awarded to Dr. Wilder, Dr. Laier and Mr. Eulitz in fiscal years 2019 and 2018. Table 2.05

Table 2.06 shows the service cost and present value of the pension entitlements acquired to date under the defined-benefit plans. Table 2.06

Compensatory Payment for Non-compete Clause

Upon terminating their role at the Company, Executive Board members are subject to a post-contractual non-compete clause for a period of one year. In return, for the duration of the non-compete clause, the Company shall pay half of the contractual benefits last received (base remuneration, STI, LTI), whereby 1/12 of the variable remuneration actually earned in the most recent fiscal year prior to termination, multiplied by the number of months, shall serve as the basis for calculating the variable components. Any other income shall be deducted from this compensatory payment.

2.06 PENSION COMMITMENTS

	Service cost IFRS		Service cost HGB		Projected unit credit IFRS		Projected unit credit HGB	
in € thousand	2018	2019	2018	2019	2018	2019	2018	2019
Klaus Deller	757	300	872	379	8,963	7,091	5,568	5,404
Dr. Peter Laier	430	0	312	0	995	1,226	721	851

Premature Termination of Service Agreements

The following provisions apply in the event of premature termination of a service agreement:

- Premature termination of an Executive Board appointment and contract by mutual consent: In the event that – with the approval of the Supervisory Board – an Executive Board member's activity as a member of the Company's Executive Board is prematurely terminated by mutual agreement, and consequently that the individual's service agreement is also terminated, each Executive Board member is entitled to a severance payment. This severance payment entitlement shall be null and void, however, if the premature termination of the appointment was made at the request of the Executive Board member involved, or if the Company had good cause to revoke the appointment or terminate the service agreement without notice, or if the Executive Board member involved is, following the mutually agreed termination of the appointment, subsequently reappointed to the Executive Board.
- Merger, demerger and conversion: In the event that the Company is involved in a merger or demerger as the transferring company, or is converted into another legal form as the result of a change of legal form, the service agreement shall end and each member of the Executive Board shall be entitled to a severance payment.
- Termination of office and contract due to a change of control ("change of control clause"): In the event of a change of control, Mr. Heuwing may resign from his Executive Board position with a notice period of three months to the end of the month and terminate his service agreement if, as a result of the change of control, (i) the Company's strategy is materially altered, and the position of the Executive Board member is thereby materially compromised; **or** (ii) the Executive Board member's departmental or divisional responsibilities are materially restricted or otherwise materially altered to his detriment. In the event of resignation, the Executive Board member is entitled to a severance payment. Until December 31, 2019, Dr. Laier and Dr. Wilder's service agreements contained an equivalent provision, as did Mr. Deller's service agreement – in his case terminating on April 30, 2019.

The amount of the severance payment is limited to the total amount of contractual remuneration (fixed base remuneration plus variable remuneration, i.e. STI and LTI) for the remaining term of the regular appointment, but in any case not exceeding 24 months. The basis for calculating the variable remuneration is 1/12 of the variable remuneration (STI and LTI) actually earned in the last fiscal year prior to termination of the Executive Board member's appointment, multiplied by the number of months for which the respective Executive Board member is entitled to severance pay. The severance payment falls due as soon as the termination of appointment takes effect.

If an appointment is prematurely revoked by the Supervisory Board, the respective service agreement ends upon expiration of a notice period pursuant to Section 622 (2) of the German Civil Code (BGB). This notice period shall be extended to a maximum of 24 months as at the end of the month (at most until the contract's regular termination date) if the respective Executive Board member is blamelessly dismissed by the Annual General Meeting due to his/her incapacity to conduct business properly or due to a vote of no confidence, or if s/he resigns prematurely, unilaterally and effectively from his/her position on the Executive Board for good cause. During the notice period, Executive Board members are entitled to base remuneration plus a proportion pro rata temporis of the short-term incentive (STI). Entitlements associated with long-term incentive (LTI) tranches that have already been granted lapse without substitution or compensation.

Other Provisions

Members of the Executive Board are included in a D&O liability insurance policy taken out by the Knorr-Bremse Group. The Knorr-Bremse D&O insurance policy provides for a deductible for Executive Board members that complies with the requirements of the German Stock Corporation Act (AktG).

Members of the Executive Board did not receive any advances or loans from the Company in either of fiscal years 2019 or 2018. No commitments were made by third parties in respect of Executive Board members' activities as board members.

Executive Board Changes

In connection with Klaus Deller's departure from the Executive Board, a severance payment of € 7,028,000 gross (including holiday pay of € 28,000) was made to Mr. Deller. This includes the short-term incentive (STI) for the 24-month notice period from May 1, 2019 to April 30, 2021 with a target attainment level of 100%. Should the relevant STI target attainment level for 2019, 2020 and/or 2021 exceed 100%, then an additional payment will be made to cover the difference for the respective year. Consequently, Mr. Deller will receive a pro rata STI payment of € 57,000 for 2019 (for May to December). Entitlements associated with long-term incentive (LTI) tranches that have already been granted for performance periods 2018–2020 and 2019–2021 lapse without substitution or compensation.

In connection with the appointment of Bernd Eulitz as both member and Chairman of the Executive Board, it was agreed that in the event that LTI tranches and STI already granted by the Linde Group for fiscal 2019 should be declared null and void, Mr. Eulitz will receive a compensatory payment of 50%

of the total amount, but in any event not more than € 3,797,000. In the event that such a payment is made to Mr. Eulitz, 50% of the net amount payable would be invested by Mr. Eulitz in Knorr-Bremse AG shares with a holding period of at least three years. Any severance payments made by the Linde Group would be offset against the amount of compensation payable. The precise amount of the compensatory payment will not become clear until the consolidated financial statements have been prepared and finalized.

Mr. Heuwing has resigned from the Executive Board with effect from the end of April 30, 2020 and will receive a severance payment of € 1,800,000; this will fall due at the time of his departure. Mr. Heuwing will also receive his STI entitlement for a 24-month period, i.e. ending in April 2022, as a variable severance payment to be made on the respective STI due dates. The increase in the base remuneration of ordinary Executive Board members to € 900,000, which was resolved in the course of amending Executive Board remuneration, also applies to Mr. Heuwing for the months January to April 2020, as do the new STI arrangements for this period. The LTI tranches already granted for performance periods 2018–2020 and 2019–2021 will be paid out on the contractual due dates, i.e. in 2021 and 2022. There are no further LTI entitlements.

Executive Board Remuneration in the 2019 Fiscal Year

EXECUTIVE BOARD REMUNERATION ACCORDING TO DRS 17

The total remuneration awarded to Executive Board members as well as the emoluments of individual Executive Board members are shown in individualized form in Table 2.07, presented in each case in accordance with German Reporting Standards (DRS) 17. Table 2.07

The total remuneration (excluding pension service costs) for fiscal 2019 payable to members of Knorr-Bremse AG's Executive Board amounts to € 6,817,000 (2018: € 10,037,000). Of this, € 4,133,000 (2018: € 3,994,000) related to fixed remuneration and € 2,684,000 (2018: € 6,043,000) to variable remuneration.

2.07 EXECUTIVE BOARD REMUNERATION ACCORDING TO DRS 17

	Bernd Eulitz Executive Board Chairman (from 11/01/2019)		Klaus Deller Executive Board Chairman (until 04/30/2019)		Ralph Heuwing Finance, Controlling and IT		Dr. Peter Laier Division Commercial Vehicle Systems		Dr. Jürgen Wilder Division Rail Vehicle Systems (from 09/01/2018)	
in € thousand	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019
Non-performance-related remuneration										
Fixed remuneration	–	200	1,583[2]	500	800	800	850[2]	800	267	800
Compensation commitment[1]	–	–	–	–	–	–	–	–	–	–
Fringe benefits	–	61[3]	15	5	318[3]	318[3]	23	326[3]	138[3]	323[3]
Total fixed remuneration	**0**	**261**	**1,598**	**505**	**1,118**	**1,118**	**873**	1,126	**405**	**1,123**
Performance-related components										
One-year variable remuneration										
– STI	–	227	1,350	529	720	634	869[4]	634	234	660
– IPO bonus	–	–	1,350	–	800	–	720	–	–	–
	0	**227**	**2,700**	**529**	**1,520**	**634**	**1,589**	**634**	**234**	**660**
Multi-year variable remuneration										
– LTI-Tranche 2018[5]	–	–	–	–	–	–	–	–	–	–
– LTI-Tranche 2019[5]	–	–	–	–	–	–	–	–	–	–
	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total variable remuneration	**0**	**227**	**2,700**	**529**	**1,520**	**634**	**1,589**	**634**	**234**	**660**
Total remuneration	**0**	**488**	**4,298**	**1,034**	**2,638**	**1,752**	**2,462**	**1,760**	**639**	**1,783**

1) Mr. Eulitz will receive 50% compensation – capped at € 3,797,000 – in the event that LTI tranches already awarded by the Linde Group and 2019 STI should lapse (cf. section entitled "Executive Board Changes").
2) In 2018, Mr. Deller was paid € 38,000 and Dr. Laier was paid € 50,000 for Supervisory Board activities at subsidiaries.
3) In 2019, fringe benefits included € 58,000 for Mr. Eulitz, € 300,000 for Mr. Heuwing (2018: € 300,000), € 300,000 for Dr. Laier (2018: € 0) and € 300,000 for Dr. Wilder (2018: € 100,000) for expenses for defined-contribution plans and pension contribution.
4) In addition to STI, Dr. Laier's service agreement for the period ending December 31, 2018, provided for the possibility of a special bonus to be determined by the Executive Committee of the Supervisory Board. No special bonus was awarded for 2018.
5) Due to a condition precedent, the 2019 and 2018 tranches have not yet been awarded. Mr. Deller's entitlement has lapsed as a result of his resignation (cf. section entitled "Executive Board Changes").

EXECUTIVE BOARD REMUNERATION ACCORDING TO THE GERMAN CORPORATE GOVERNANCE CODE

The remuneration of the individual Executive Board members for the 2019 and 2018 fiscal years is presented below in accordance with the requirements of Section 4.2.5 GCGC. This includes any benefits awarded in the year under review, as well as income received in the reporting period.

Benefits and Perquisites

Table 2.08 shows the benefits, including fringe benefits, awarded during fiscal years 2019 and 2018 in individualized form. In the case of performance-related remuneration components, the minimum and maximum remuneration achievable in 2019 is shown. In addition, the performance-related remuneration is broken down into one-year (STI) and multi-year (LTI) remuneration. Table → 2.08

In contrast to the presentation in accordance with DRS 17, the variable remuneration components are stated at target value, i.e. with a target attainment level of 100%. In addition, pension expenses – that is, service costs pursuant to IAS 19 – must be included in the total remuneration package according to GCGC.

2.08 EXECUTIVE BOARD INCOME IN ACCORDANCE WITH GCGC

	Bernd Eulitz Executive Board Chairman (from 11/01/2019)				Klaus Deller Executive Board Chairman (until 04/30/2019)			
in € thousand	2018	2019	2019 (Min)	2019 (Max)	2018	2019	2019 (Min)	2019 (Max)
Non-performance related remuneration								
Fixed remuneration	–	200	200	200	1,583[2]	500	500	500
Compensation commitment[1]	–	n/a	0	3,797				
Fringe benefits	–	61	61	61[3]	15	5	5	5
Total fixed remuneration	**0**	**261**	**261**	**4,058**	**1,598**	**505**	**505**	**505**
Performance-related remuneration								
One-year variable remuneration								
– STI	–	217	–	390	1,250	500	–	1,000
– IPO bonus	–	–	–	–	1,350	–	–	–
	0	**217**	**0**	**390**	**2,600**	**500**	**0**	**1,000**
Multi-year variable remuneration								
– LTI tranche 2018[5]	–	–	–	–	1,500[5]	–	–	–
– LTI tranche 2019[5]	–	–	–	–	–	–	–	–
	0	**0**	**0**	**0**	**1,500**	**0**	**0**	**0**
Total variable remuneration	**0**	**217**	**0**	**390**	**4,100**	**500**	**0**	**1,000**
Pension expenses	–	–	–	–	757	300	300	300
Total remuneration	**0**	**478**	**261**	**4,448**	**6,455**	**1,305**	**805**	**1,805**[6]

[1]) Mr. Eulitz will receive 50% compensation – capped at € 3,797,000 – in the event that LTI tranches already awarded by the Linde Group and 2019 STI should lapse (cf. section entitled "Executive Board Changes").
[2]) In 2018, Mr. Deller was paid € 38,000 and Dr. Laier was paid € 50,000 for Supervisory Board activities at subsidiaries.
[3]) In 2019, fringe benefits included € 58,000 for Mr. Eulitz, € 300,000 for Mr. Heuwing (2018: € 300,000), € 300,000 for Dr. Laier (2018: € 0) and € 300,000 for Dr. Wilder (2018: € 100,000) for expenses for defined contribution plans and pension contribution.

	Ralph Heuwing Finance, Controlling and IT				Dr. Peter Laier Division Commercial Vehicle Systems				Dr. Jürgen Wilder Division Rail Vehicle Systems (from 09/01/2018)			
	2018	**2019**	**2019 (Min)**	**2019 (Max)**	**2018**	**2019**	**2019 (Min)**	**2019 (Max)**	**2018**	**2019**	**2019 (Min)**	**2019 (Max)**
	800	800	800	800	850[2]	800	800	800	267	800	800	800
	318[3]	318	318	318[3]	23	326	326	326[3]	138[3]	323	323	323
	1,118	**1,118**	**1,118**	**1,118**	**873**	**1,126**	**1,126**	**1,126**	**405**	**1,123**	**1,123**	**1,123**
	600	600	–	1,200	800	600	–	1,200[4]	200	600	–	1,200
	800	–	–	–	720	–	–	–	–	–	–	–
	1,400	**600**	**0**	**1,200**	**1,520**	**600**	**0**	**1,200**	**200**	**600**	**0**	**1,200**
	700	–	–	–	–	–	–	–	200	–	–	–
	–	700	–	1,400	–	700	–	1,400	–	600	–	1,200
	700	**700**	**0**	**1,400**	**0**	**700**	**0**	**1,400**	**200**	**600**	**0**	**1,200**
	2,100	**1,300**	**0**	**2,600**	**1,520**	**1,300**	**0**	**2,600**	**400**	**1,200**	**0**	**2,400**
	–	–	–	–	430	–	–	–	–	–	–	–
	3,218	**2,418**	**1,118**	**3,718[6]**	**2,823**	**2,426**	**1,126**	**3,726**	**805**	**2,323**	**1,123**	**3,523**

4) In addition to STI, Dr. Laier's service agreement for the period ending December 31, 2018, provided for the possibility of a special bonus to be determined by the Executive Committee of the Supervisory Board. No special bonus was awarded for 2018.
5) Mr. Deller's entitlement has lapsed as a result of his resignation (cf. section entitled "Executive Board Changes").
6) Please refer to the section entitled "Executive Board Changes" for details of benefit entitlements in the event of resignation.

INCOME PAID

Because the remuneration awarded to Executive Board members for a fiscal year is not always accompanied by a payment made in the fiscal year itself, the amount of actual income paid to Executive Board members for fiscal 2019 is shown in Table 2.09 in accordance with the relevant GCGC recommendation. Here, the non-performance-related component plus one-year performance-related remuneration are stated as income paid in the respective fiscal year. Due to the condition precedent, performance-related multi-year remuneration (LTI) is deemed to have been paid in the fiscal year in which the plan term of the respective tranche ends (e.g. the 2019 tranche will be deemed to have been paid in the 2021 fiscal year). Pension expenses, i.e. service costs in accordance with IAS 19, correspond to the amounts awarded, even though they do not represent actual income in the narrower sense. Table → 2.09

TOTAL EMOLUMENTS OF FORMER MEMBERS OF THE EXECUTIVE BOARD

Total emoluments paid out to former members of the Executive Board and their surviving dependents in the fiscal year came to € 8,861,000 (2018: € 2,742,000). Total emoluments for 2019 include the severance payment of € 7,085,000 made to Mr. Deller. Pension provisions amounted to € 68,046,000 (2018: € 52,555,000).

2.09 EXECUTIVE BOARD INCOME IN ACCORDANCE WITH GCGC

	Bernd Eulitz Executive Board Chairman (from 11/01/2019)		Klaus Deller Executive Board Chairman (until 04/30/2019)		Ralph Heuwing Finance, Controlling and IT		Dr. Peter Laier Division Commercial Vehicle Systems		Dr. Jürgen Wilder Division Rail Vehicle Systems (from 09/01/2018)	
in € thousand	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019
Non-performance-related remuneration										
Fixed remuneration	–	200	1,583[2]	500	800	800	850[2]	800	267	800
Compensation commitment[1]	–	–	–	–	–	–	–	–	–	–
Fringe benefits	–	61[3]	15	5	318[3]	318[3]	23	326[3]	138[3]	323[3]
Total fixed remuneration	**0**	**261**	**1,598**	**505**	**1,118**	**1,118**	**873**	1,126	**405**	**1,123**
Performance-related components										
One-year variable remuneration										
– STI	–	227	1,350	529	720	634	869	634	234	660
– IPO bonus	–	–	1,350	–	800	–	720	–	–	–
	0	**227**	**2,700**	**529**	**1,520**	**634**	**1,589**	**634**	**234**	**660**
Multi-year variable remuneration										
– LTI tranche 2018[5]	–	–	–	–	–	–	–	–	–	–
– LTI tranche 2019[5]	–	–	–	–	–	–	–	–	–	–
	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total variable remuneration	**0**	**227**	**2,700**	**529**	**1,520**	**634**	**1,589**	**634**	**234**	**660**
Pension expenses	–	–	757	300	–	–	430	–	–	–
Total remuneration	**0**	**488**	**5,055**	**1,334[6]**	**2,638**	**1,752[5]**	**2,892**	**1,760**	**639**	**1,783**

[1]) Mr. Eulitz will receive 50% compensation – capped at € 3,797,000 – in the event that LTI tranches already awarded by the Linde Group and 2019 STI should lapse (cf. section entitled "Executive Board Changes").
[2]) In 2018, Mr. Deller was paid € 38,000 and Dr. Laier was paid € 50,000 for Supervisory Board activities at subsidiaries.
[3]) In 2019, fringe benefits included € 58,000 for Mr. Eulitz, € 300,000 for Mr. Heuwing (2018: € 300,000), € 300,000 for Dr. Laier (2018: € 0) and € 300,000 for Dr. Wilder (2018: € 100,000) for expenses for defined-contribution plans and pension contribution.
[4]) In addition to STI, Dr. Laier's service agreement for the period ending December 31, 2018, provided for the possibility of a special bonus to be determined by the Executive Committee of the Supervisory Board. No special bonus was awarded for 2018.
[5]) 2019 and 2018 tranches are only deemed to have been awarded at the end of the respective performance periods. Mr. Deller's entitlement has lapsed as a result of his resignation (cf. section entitled "Executive Board Changes").
[6]) Please refer to the section entitled "Executive Board Changes" for details of benefit entitlements in the event of resignation.

New Executive Board Remuneration System as of January 1, 2020

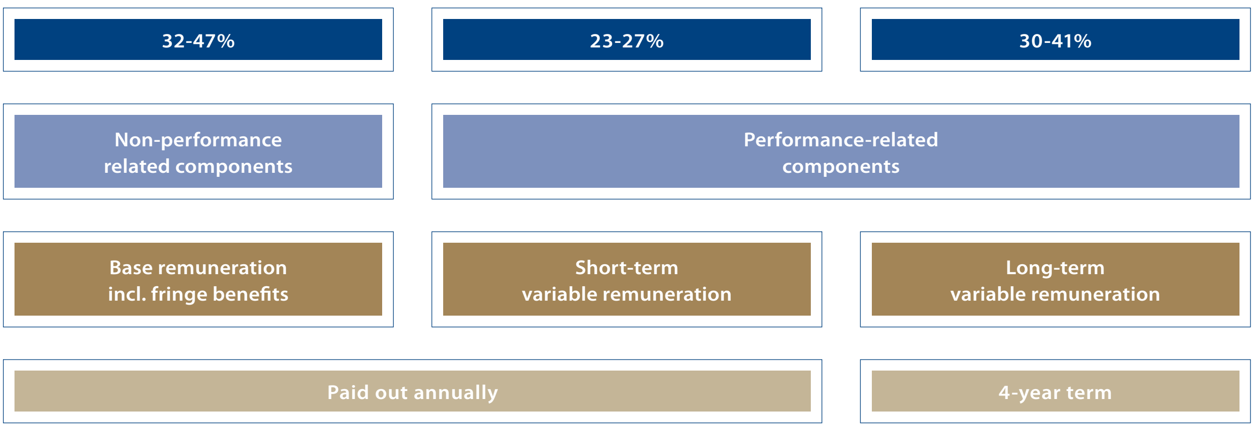
With effect from January 1, 2020, the Supervisory Board resolved the following adjustments of the Executive Board remuneration system and contractually implemented them with Mr. Eulitz, Dr. Laier, Dr. Wilder, and Mr. Weber. In the case of Mr. Heuwing, the new provisions described above under "Executive Board Changes" apply.

The new Executive Board remuneration system consists of a fixed base salary, a pension contribution, a one-year variable remuneration component (STI), a multi-year variable remuneration component (LTI) and the Share Ownership Guidelines for Executive Board members (SOG). **Chart → 2.10**

The STI depends on the achievement of financial targets, specifically (1) revenues, (2) earnings before interest and taxes (EBIT), (3) net working capital (with a 30% weighting in each case) and (4) quality (with a 10% weighting), as well as the attainment of non-financial targets. As before, financial targets are set either in relation to the Group as a whole, or else 50% in relation to the Group as a whole plus 50% in relation to the division (Rail Vehicle Systems or Commercial Vehicle Systems) for which the Executive Board member is responsible (CVS in the case of Dr. Laier, RVS in the case of Dr. Wilder). In addition, for each fiscal year, the Supervisory Board takes account of each Executive Board member's individual performance, the Executive Board's collective performance, plus the attainment of stakeholder goals such as sustainability and diversity, by applying a multiplier ("modifier") ranging from 0.8 to 1.2. Thus the target attainment corridor for the STI ranges from 80% to 120%. The amount paid out is limited to 180% (Executive Board Chair/CEO) or 200% (other Executive Board members) of the target amount. If an appointment to the Executive Board begins or ends during a fiscal year, the target amount is reduced pro rata temporis to the beginning or end of the appointment. If the service agreement ends with a notice period, the end of the notice period is definitive.

The LTI is awarded as a performance share plan based on virtual shares, and is paid out in annual tranches. The term of a tranche is four years (the "performance period"). The LTI is paid out following approval of the consolidated financial statements for the last fiscal year of the relevant performance period. The amount of the LTI payout directly depends on the performance of Knorr-Bremse shares during the performance period. It also depends in equal parts on the Company's total shareholder return (TSR) over the performance period compared with the TSR of companies in three individually specified peer groups (relative TSR) over the same period, and on the average increase in earnings per share (EPS) during this period relative to a target value agreed with the Supervisory Board. The amount paid out is limited to 180% (Executive Board Chair/CEO) or 200% (other Executive Board members) of the target amount. If an appointment to the Executive Board ends prior to the expiry of the performance period, only the LTI tranche for the grant year is reduced pro rata temporis to the end of the appointment. The outstanding tranches of the LTI will still be paid out on the regular payment dates (with no reductions). However, any claims associated with tranches that have already been awarded for current performance periods shall lapse without substitution or compensation if, prior to the end of the performance period, the service agreement is terminated for good cause by the Company, i.e. for extraordinary reasons for which the Execu-

2.10 NEW EXECUTIVE BOARD REMUNERATION SYSTEM AS OF JANUARY 1, 2020



tive Board member is responsible, or if the Executive Board member's appointment is revoked due to a gross breach of duty, or if the Executive Board member resigns from office without good cause and without the Company's consent.

The SOG oblige Executive Board members to acquire shares in the Company in the amount of 100% of their respective fixed base salary over a four-year period from the date of the IPO or from the date of their appointment, and to hold these shares until the end of their appointment. The members of the Executive Board at the time of the IPO had already made a voluntary commitment along these lines.

Executive Board members receive an annual pension contribution toward their retirement pensions. For the Executive Board Chair, the annual pension contribution comes to € 350,000; the other Executive Board members receive a pension contribution of € 300,000 each. Dr. Wilder will receive his pension contribution with retroactive effect from September 1, 2018; Dr. Laier will receive his with retroactive effect from January 1, 2019 (in each case instead of the company pension commitments that were in place until December 31, 2019). Mr. Heuwing will receive an equivalent pension contribution of € 100,000 pro-rated for the period from January to April 2020.

For each member of the Executive Board, the Company will continue to bear the costs of accident insurance for death or disability, the employer's contribution to private health and long-term care insurance, and a company car. Furthermore, Executive Board members will continue to be covered by a D&O liability insurance policy.

The total remuneration to be awarded for any one fiscal year (including fixed and variable remuneration components plus pension contribution) is contractually limited to an absolute maximum amount of € 4,030,000 (for Executive Board members) or € 7,490,000 (for the Executive Board Chair/CEO). The following exceptions apply for the 2020 fiscal year, taking into account any payments made on taking office: For Mr Eulitz, the maximum contractual remuneration for fiscal 2020 is € 11,287,000. For Mr Weber, the maximum remuneration for the months of July to December of the 2020 fiscal year is € 3,015,000. Mr Weber was appointed by the Supervisory Board of Knorr-Bremse AG on March 2, 2020 as a member of the Executive Board and CFO of the company with effect from July 1, 2020.

2.11 SUPERVISORY BOARD REMUNERATION

	2019 fiscal year			
in € thousand net	Fixed remuneration	Remuneration special executive functions	Total executive remuneration	Other remuneration
Prof. Dr. Klaus Mangold[1]	250	80	330	
Franz-Josef Birkeneder	120	40	160	
Kathrin Dahnke[2]	120	80	200	
Michael Jell	80	20	100	25
Dr. Wolfram Mörsdorf	80		80	
Werner Ratzisberger	80	20	100	25
Sebastian Roloff (until March 31, 2019)	20		20	
Annemarie Sedlmair (since April 1, 2019)	60		60	
Erich Starkl	80		80	
Julia Thiele-Schürhoff	80		80	
Wolfgang Tölsner	80		80	65
Georg Weiberg	80		80	83
Günter Wiese	80		80	25
Hans-Georg Härter (until August, 31 2018)				
Total remuneration Supervisory Board	**1,210**	**240**	**1,450**	**223**

1) Member and Chair of the Supervisory Board, Chair of the Executive Committee and Member of the Audit Committee since 01.09.2018
2) Member of the Supervisory Board since May 29, 2018; Deputy Chair of the Supervisory Board, Chair of the Audit Committee and Member of the Executive Committee since July 12, 2018.
3) For Mr. Weiberg other remuneration includes in the fiscal year consultant fee of € 45,000 (previous year € 30,000).
For Mr. Tölsner other remuneration includes in 2018 € 43,000 for consultant fee.

Supervisory Board Compensation

Remuneration of Supervisory Board members is governed by Article 18 of Knorr-Bremse AG's Articles of Association. According to the Article, the following annual fixed base remuneration applies: € 250,000 for the Chair of the Supervisory Board, € 120,000 for each Deputy Chair of the Supervisory Board, and € 80,000 for the other members of the Supervisory Board. The Chair of the Executive Committee receives an additional € 60,000, each additional member of the Executive Committee is paid € 20,000, while the Chair of the Audit Committee is paid € 60,000 and each additional member of the Audit Committee receives € 20,000. The annual remuneration is paid after the Annual General Meeting which adopts the annual financial statements for the last fiscal year. Supervisory Board members who have not been members of or chaired the Supervisory Board or a Supervisory Board committee for a full fiscal year – in this case Mr. Roloff and Ms. Sedlmair – are paid their remuneration pro rata temporis, rounded up to complete months.

The Company reimburses Supervisory Board members for reasonable expenses incurred in the performance of their duties. Value-added tax is reimbursed by the Company where Supervisory Board members are entitled to invoice the Company separately for value-added tax and choose to exercise this right. Supervisory Board members are included in the Company's D&O insurance policy, at the deductible rate recommended in Section 3.8 of the German Corporate Governance Code.

There are no pension commitments to members of the Supervisory Board, with the exception of pension commitments associated with employee activities. Supervisory Board members did not receive any loans from the Company in either fiscal year 2019 or fiscal year 2018.

On the basis of the remuneration system described above, Table 2.11 shows the total remuneration paid out to executive bodies (plus VAT) in the 2019 and 2018 fiscal years. Any additional remuneration paid to individual members of the Supervisory Board (such as consultancy fees or remuneration associated with Supervisory Board mandates in Group companies) is also stated below, under other remuneration. Table → 2.11

				Fiscal Year 2018
	Fixed remuneration	Remuneration special executive functions	Total executive remuneration	Other remuneration
	83	27	110	
	90	20	110	
	67	40	107	
	60	10	70	25
	60		60	24
	60	10	70	
	60		60	
	60		60	
	60		60	24
	60		60	112
	60		60	80
	60		60	25
	142	13	155	92
	922	**120**	**1,042**	**382**

BUSINESS REPORT

General Economic and Industry-related Conditions

Economic Activity and Industry Environment

GLOBAL GROWTH SLOWED BY HIGH UNCERTAINTY

The global economic outlook in 2019 was subdued and downside risks worsened under the impact of growing political uncertainties and the deteriorating business climate. Global GDP growth slowed from 3.6% in 2018 to 2.9% in 2019, the lowest level since the financial crisis of 2008/09 (OECD). During 2019, almost all national and regional economies experienced a slowdown and world trade stagnated. The escalation of trade tensions between the USA and China since May had a growing impact on business confidence and investment activity, further increasing political uncertainty and exerting a negative influence on financial market risk assessments.

In the eurozone, high levels of uncertainty, weak external demand and low confidence affected investments and exports. As a consequence, the EU experienced a decline in GDP growth from 1.9% in 2018 to 1.2% in 2019 (OECD). Global demand for passenger cars in particular has fallen sharply over the past 12 months. This development hit Germany especially hard, causing GDP growth to plunge from 1.5% in 2018 to just 0.5%.

According to the OECD, the USA saw a decline in GDP growth to 2.3%, down from 2.9% in 2018 – despite stable domestic demand over the first half of the year. China also experienced a decline from 6.6% in 2018 to 6.1% in 2019. Both major economies clearly felt the consequences of the 2019 trade dispute.

FINANCIAL MARKETS: AN UNEVEN PICTURE

The financial markets were divided in 2019. The uncertainty caused by the trade dispute and associated fears of recession were concentrated one-sidedly on government bonds. In most emerging market economies, long-term government bond yields in local currencies hit a low point in the course of the year under the influence of interest-rate cuts. Although some countries saw a recovery during the fourth quarter, European government bonds in particular are still persistently trading in negative territory. On the other hand, stock-market trends clearly reflected low interest-rate levels, hopes of a resolution of the trading dispute and a global recovery in 2020. As a result, U.S. share market prices set new records, while European exchanges reached or exceeded the highs of recent years. The DAX rose by 25.5% in 2019, the MDAX by 31.1% (Thomson Reuters). According to OECD experts, while they did see initial indications that risk appetite was declining in the fourth quarter, they did not observe any widespread deterioration in market sentiment.

Since May, bilateral exchange rates in most emerging economies declined against the U.S. dollar, especially in China and South Africa. The EUR/USD exchange rate fluctuated between 1.09 and 1.15 in the course of the year.

RAIL VEHICLE MARKET

Competitive Situation and Market Position

In a highly competitive market environment, Knorr-Bremse is one of the world's leading companies in the key markets for, among other things, braking, entrance and HVAC systems for rail vehicles. Our main competitor in the relevant product segments is Wabtec Corporation. Knorr-Bremse is active in multiple regions, including Europe/Africa, North and South America, and Asia-Pacific. Our leading position in our traditional European markets represents a strong foundation for our future business development. Knorr-Bremse is also well positioned in both the passenger and freight markets in North America. The market assessments below are based on the Company's own analyses.

The global rail vehicle market developed positively in 2019, growing by an estimated 2.6%. This growth was strongly driven by the Asian market, India in particular. The market in Europe/Africa also grew in line with expectations. The North American passenger rail market showed a moderate decline, whereas national freight traffic recorded a significant slowdown in the fourth quarter of 2019. South America was stable, albeit slow-moving. Overall, growth was evident in both the OE market and the aftermarket.

Europe/Africa

The market in Europe continued to develop positively. The market volume in Scandinavia, France, Italy, Belgium, Poland, Russia and other countries saw a marked rise; Germany continued to show stable, high-level growth. Growth was apparent in both the original equipment (OE) business and the aftermarket.

North America/South America

Passenger traffic in North America declined. During the first half of the year, the freight market showed signs of stabilizing, but then experienced a significant slowdown in the fourth quarter of 2019. The rail vehicle market in South Amer-

2.12 MARKET DEVELOPMENT 2019

Trends in rail vehicle markets 2019

Source: Own market research of Knorr-Bremse.

Europe/Africa

- Further positive development
- Market expansion esp. in Scandinavia, France, Italy, Belgium, Poland and Russia
- Germany continued stable, high-level growth

North America / South America

- Passenger traffic declined
- Freight market positive, then significant slowdown
- Rail vehicle market in South America stable

Asia

- Overall significant growth, in particular in China and India
- China high-speed trains declined slightly, local mass transit growth
- India invested heavily in passenger fleets

Trends in commercial vehicle markets 2019

Truck Production Rate in 1,000 units

Source: Own market research of Knorr-Bremse.

Western Europe

2017	514
2018	517
2019	469

North America

2017	360
2018	446
2019	468

South America

2017	81
2018	106
2019	113

Asia*

2017	1,926
2018	1,961
2019	1,841

* CN, JP, IN & KR

ica remained stable. The OE market and the aftermarket continue to develop at comparable levels.

Asia-Pacific

The Asian rail vehicle market showed significant growth, driven in particular by positive developments in India and China. In China, demand for high-speed trains declined slightly, while the local mass transit market (metros) and aftermarket continued to grow. India invested heavily in expanding its passenger fleets.

COMMERCIAL VEHICLE MARKET

Competitive Situation and Market Position

With the product portfolio offered by the Commercial Vehicle Systems division, Knorr-Bremse is one of the global leaders in this sector. Alongside smaller vendors in this market, Wabco Holdings, Inc. is our principal competitor. In our core regions, North America and Europe, Knorr-Bremse ranks as the market leader for air brake systems. The Company's leading position in highly regulated markets for disk brakes and driver assistance systems represents a strong platform with much potential for further growth in the Asia-Pacific region. The following market statistics relate to truck production rates in each region as published by various organizations (esp. LMC Automotive Ltd.).

The global commercial vehicle business slowed down in 2019, with widely varying regional trends. The truck business in North and South America was very buoyant, especially during the first three quarters, whereas business in Europe and Asia showed an increasing tendency to decline.

Europe/Africa

According to data compiled by Knorr-Bremse, following modest growth of 1% in 2018, truck production in Western Europe declined by a total of -9% during 2019. Positive stimuli from Eastern Europe could not compensate for declining business growth in Western Europe.

2.13 ACHIEVEMENT OF OBJECTIVES (target-actual comparison)

Key performance indicators		March 2019 target	May 2019 target	2019 actual
Revenues	in € mill.	6,800 - 7,000	6,875 - 7,075	6,937
Operating EBITDA margin (as % of revenues)	%	18 - 19	18.5 - 19.5	18.8 %
Operating EBIT margin (as % of revenues)	%	15 - 16	15 - 16	15.1 %
ROCE (adjusted)	%	35 - 40	35 - 40	36.2 %
Net working capital (in days' sales)	Days	44 - 49	44 - 49	42.0
Employees (FTEs as at Dec. 31)		29,000 - 30,000	29,000 - 30,000	28,905
Other performance indicators				
Incoming orders	in € mill.	6,800 - 7,100	6,800 - 7,100	7,066
Order book	in € mill.	4,500 - 4,700	4,500 - 4,700	4,692
Capital expenditure (adjusted)/revenues	%	4 - 5	4 - 5	4.8

Note: May 2019 targets (except ROCE) included the effects of IFRS 16 and the Hitachi acquisition for the first time.

2.14 ACHIEVEMENT OF DIVISIONAL OBJECTIVES (target-actual comparison)

Rail Vehicle Systems		March 2019 target	May 2019 target	2019 actual
Revenues	in € mill.	3,600 - 3,700	3,615 - 3,715	3,656
Operating EBITDA margin (as % of revenues)	%	20 - 21	20.8 - 21.8	22.3 %
Commercial Vehicle Systems				
Revenues	in € mill.	3,150 - 3,300	3,210 - 3,360	3,280
Operating EBITDA margin (as % of revenues)	%	15.5 - 17	16.0 - 17.5	16.0 %

Note: May 2019 targets (except ROCE) included the effects of IFRS 16 and the Hitachi acquisition for the first time.

North America/South America

Over the year as a whole, the commercial vehicle market in North America grew by a further 5% compared with 2018 (truck classes 6-8). Trends apparent over the last few years – specifically the growing tendency to install more sophisticated driver assistance systems in vehicles, combined with the growing popularity of air disk brakes over drum brakes – continued throughout 2019. However, after three quarters showing cumulative 12% growth compared with 2018, the fourth quarter saw a decline. In South America, the positive post-crisis sentiment persisted. Thanks in part to demand for replacements, truck production increased by another 6%.

Asia-Pacific

Despite the trade dispute with the USA, commercial vehicle production in China rose by 4%. Demand in China rose sharply, especially toward year-end. By contrast, Japanese domestic demand showed negative growth, resulting in an 8% decline in local commercial vehicle production. After reaching an all-time high in 2018, Indian commercial vehicle production in 2019 fell sharply by -37% to around 260,000 vehicles (2018: around 410,000 vehicles). Consequently, commercial vehicle production in Asia fell by -6% overall.

General Statement by the Executive Board and Achievement of Objectives

The Executive Board of Knorr-Bremse AG is satisfied with the Company's business performance in 2019. Knorr-Bremse has continued its successful expansion, with both divisions experiencing positive development. Incoming orders and revenues reached new all-time highs. The Group's growth continued at a good level and the EBITDA margin showed further improvement. Through the measures we have taken to restructure our Wülfrath production site and sell the Powertech Group, Knorr-Bremse has put an end to the ongoing drag on earnings caused by these two units and in the process made the Company more crisis-proof. In terms of performance figures, Knorr-Bremse has thus met or exceeded all forecasts for 2019. (**Table → 2.13**)

Revenues grew vigorously by 4.8% to a new record level of € 6,936.5 million. This meant that Knorr-Bremse fulfilled the updated revenue forecast of € 6,875-7,075 million made in our quarterly report for Q1/2019. Both the RVS division (+5.6%) and the CVS division (+ 3.8%) contributed to this revenue growth. Growth was predominantly organic and was mainly driven by Asia and North America. The aftermarket share of total revenues increased from 33.3% to 34.3%, attributable to both divisions. At comparable exchange rates (actual rates in 2018), revenue growth effectively reached 2.9%.

The operating **EBITDA margin** came to 18.8% of revenues, in line with the updated 18.5-19.5% margin forecast in our quarterly report for Q1/2019. The operating EBITDA margin for 2019 was adjusted for Wülfrath restructuring expenses (€ 19.5 million) and a book profit resulting from the SLB transaction (€ 45.1 million). The previous year's operating EBITDA margin was 18.4%, adjusted for the most recently incurred operating losses of € 11 million and sales revenues of € 68.5 million from the sale of Sydac Pty Ltd. in Asia, Rail Services Ltd. and Kiepe Electric Ltd. in the UK, and Swedtrac Rail Services in Europe, as well as the reimbursement of IPO costs totaling € 14.9 million by the majority shareholder. Reported EBITDA reached € 1,328.7 million (2018: € 1,178.0 million) or 19.2% of revenues (2018: 17.8%). The operating **EBIT margin** in the 2019 financial year amounted to 15.1% of revenue and was thus within the margin forecast.

Corporate Management Indicators

The most significant financial performance indicators for Knorr-Bremse are revenues, (operating) EBITDA/EBITDA margin, (operating) EBIT/EBIT margin, net working capital in days' sales, and ROCE. Other key management indicators

2.15 MANAGEMENT INDICATORS

	2019	2018
Revenues (€ millions)	6,936.5	6,615.8
EBITDA (€ millions)	1,328.7	1,178.0
EBITDA margin (as % of revenues)	19.2%	17.8%
Operating EBITDA margin (as % of revenues)	18.8%	18.4%
EBIT (€ millions)	1,062.9	972.5
EBIT margin (as % of revenues)	15.3%	14.7%
Operating EBIT margin (as % of revenues)	15.1%	15.6%
ROCE (%)	34.1%	36.4%
Net working capital in days' sales	42.0	46.9
Employees (as at Dec. 31, incl. temp. staff)	28,905	28,452

2.16 DIVISIONAL REVENUES AND EBITDA

	2019	2018
Rail Vehicle Systems		
Revenues	3,656.1	3,461.9
EBITDA margin (as % of revenues)	22.3%	20.0%
Operating EBITDA margin (as % of revenues)	22.3%	20.8%
Commercial Vehicle Systems		
Revenues	3,280.2	3,160.1
EBITDA margin (as % of revenues)	15.4%	16.3%
Operating EBITDA margin (as % of revenues)	16.0%	16.3%

include incoming orders, order books, and capital expenditure to revenue ratio. Incoming orders and order books are taken from management reporting and are not audited. Table → 2.15 and 2.16

We also regularly measure non-financial performance indicators, because they help us with the management and long-term strategic positioning of the Company. In this case, the number of employees (FTEs) is the most important non-financial performance indicator. But non-financial performance indicators are not primarily used to control the Company. They are more useful as a means of gaining deeper insight into the situation within the Group and making decisions based on this information. A detailed analysis of non-financial factors and performance indicators can be found in the chapter on Sustainability and in the Knorr-Bremse Group Sustainability Report (published separately).

To calculate operating EBITDA/EBIT margins, the impact of restructuring measures and transaction-related one-time effects are adjusted against reported revenue and earnings figures. These include disposals made in 2018 (Blueprint, Sydac), the Wülfrath plant closure announced in 2019 and currently in the process of implementation, as well as the book profit realized on the sale-and-lease-back (SLB) transaction. In addition, they include the one-time settlement of special costs related to the IPO in 2018.

ROCE shows whether we generate an appropriate return on capital employed, thus providing a benchmark for efficient capital allocation. Capital employed includes the sum total of intangible assets, net working capital, and property, plant and equipment.

At 34.1%, the reported ROCE for fiscal 2019 was slightly down on the previous year (36.4%). This decline is primarily due to higher levels of capital employed, in compliance with IFRS 16. Adjusted for the extraordinary charge relating to Wülfrath, the SLB transaction at our Munich site, and before the effects of the Hitachi acquisition and IFRS 16, ROCE was 36.2% and thus within the target range of 35-40%.

ROCE (in %) is calculated as follows:

$$(\text{EBIT}/\text{capital employed}) \times 100.$$

Net working capital in days' sales showed a significant year-on-year reduction (from 46.9 days' sales at the 2018 reporting date) down to 42.0 days thanks to systematic improvements in inventories and receivables. This represents a better outcome than the forecast target range of 44-49 days' sales.

Also, the number of 28,905 employees as of December 31, 2019 is below and therefore more favourable than the forecast of 29,000-30,000.

The definitions of the performance indicators used in this report have not changed since the 2018 Annual Report, apart from the indicator free cash flow, investments and adjustments made in response to changes in accounting standards during the year. Starting with the 2019 financial year, investments will be adjusted for SLB transactions in order to present the investments relevant for the operating business.

Events of Material Importance to Business Performance

The following material events should be highlighted in the 2019 fiscal year:

CHANGES TO THE GROUP'S PORTFOLIO & ASSET DEALS

With effect from February 1, 2019, Knorr-Bremse Systeme für Nutzfahrzeuge GmbH acquired a 50% interest in Sentient IP AB, Gothenburg/Sweden, and a 100% interest in Sentient Heavy Vehicles AB, Gothenburg/Sweden, from Sentient AB, Gothenburg/Sweden. The total purchase price came to € 4.9 million. On the basis of this strategic investment, Knorr-Bremse can now incorporate further development of the software and IP rights acquired from Sentient AB into our worldwide steering business.

With effect from March 14, 2019, as part of a strategic investment, Knorr-Bremse Systeme für Schienenfahrzeuge GmbH acquired shares in Israeli startup RailVision, Ra'anana/Israel, for a purchase price of € 9.0 million. As at December 31, 2019, the share of voting rights came to 21.3%. RailVision develops obstacle detection systems based on video and infrared technology; these represent a key technology for the implementation of automated driving functions for rail vehicles. Knorr-Bremse is thus taking the next step toward providing system solutions for automated rail travel.

With effect from March 15, 2019, Knorr-Bremse's U.S. subsidiary New York Air Brake LLC (NYAB) acquired the business of Snyder Equipment Company, Inc. based in Nixa, Missouri/USA, for a purchase price of € 16.4 million. The company is an industry-leading manufacturer of refueling systems and service equipment for locomotives, and is also a well-established remanufacturer of locomotive components.

On March 29, 2019, Knorr-Bremse Asia Pacific (Holding), Ltd. acquired Hitachi Automotive Systems, Ltd./Japan, for a purchase price of € 164.8 million, as well as the assets of Hitachi Automotive Systems Asia, Ltd./Thailand, for a purchase price of € 9.6 million. With this acquisition, Knorr-Bremse is expanding its portfolio of steering systems and system solutions associated with driver assistance and highly automated driving. In addition, the Group is improving its access to the Japanese and Southeast Asian markets. Goodwill in the amount of € 64.7 million is primarily the result of the future development potential of our existing technologies, the anticipated expansion of our product and customer base, and the expertise of the workforce. In fiscal 2019, Hitachi Automotive Systems contributed sales revenues of € 65.8 million and a pre-tax loss of € -7.2 million (after the effects of purchase price allocation) to the consolidated net income.

With effect from April 11, 2019, Knorr-Bremse Systeme für Schienenfahrzeuge GmbH signed an agreement to acquire a minority of 32% interest in Railnova SA/Belgium. Railnova is a leading provider of telematics solutions and maintenance workflow software for the rail industry. By making this investment, Knorr-Bremse is reaffirming its strategy of pursuing digitalization and data-driven business solutions for rail-industry applications.

On the agreed date of September 30, 2019, the Powertech division (electrical power-supply systems for rail transportation and industrial applications) was sold. Powertech comprises three German companies – Knorr-Bremse Powertech GmbH, Knorr-Bremse Powertech GmbH & Co. KG and Knorr-Bremse Powertech Verwaltungs GmbH – as well as U.S.-based Knorr-Bremse Powertech Corp. and other business activities in Australia, Spain and the People's Republic of China. In 2018, the division generated a loss (EBIT) of some € -19 million on revenues of around € 90 million. In the 2019 fiscal year, up to and including September 2019, the division generated a loss (EBIT) of € -19.9 million on revenues of € 58.8 million. Implementation of the transaction will have a negative impact on the consolidated result, taking into account a negative purchase price, negative deconsolidation effects and other transaction-related one-time expenses amounting to € 82.1 million. These one-time charges and the operating loss associated with this business ceased to apply as of October 1, 2019.

As part of the process of discontinuing production of steering systems at the Wülfrath plant by 2020 (see below), Knorr-Bremse Steering Systems GmbH signed an agreement with Heggemann AG on December 16, 2019, whereby the latter shall acquire and relocate our Wülfrath-based production of rack-and-pinion steering systems based on steel housing technology. By ensuring that this production output will continue under Heggemann AG, Knorr-Bremse is securing the future supply of steering systems to those customers affected. The revenues of the business unit to be transferred came to € 5.4 million in fiscal 2019. The sale will be concluded during the second quarter of 2020.

RESTRUCTURING

On May 22, 2019, the Executive Board of Knorr-Bremse AG resolved to cease production of steering systems by Knorr-Bremse Steering Systems GmbH at the Wülfrath site by the end of 2020. This resolution was based on a detailed analysis of various scenarios that also took account of the Group's most recent acquisitions in the commercial vehicle steering business. Another factor that significantly influenced the decision-making process was the fact that a major order for passenger-car steering systems had expired earlier than expected. The Company is planning to maintain the expertise built up by KB Steering at an engineering center in Düsseldorf. The restructuring expenses of € 26.7 million (EBIT) reported in the balance sheet for the first half-year mainly related to severance payments in the amount of € 15.3 million, other expenses in the amount of € 1.2 million, as well as impairments totaling € 10.2 million. On December 5, 2019, negotiations between senior management and employee representatives were concluded by mutual agreement. In this agreement, the severance payment was increased by € 3.7 million. Offsetting effects in the amount of € 0.7 million mean that total restructuring expenses before taxes in 2019 amounted to € 29.7 million. The operating EBITDA and EBIT referred to in the Group forecast for fiscal 2019 were not affected by this agreement.

SALE-AND-LEASE-BACK TRANSACTION AT GROUP HEADQUARTERS IN MUNICH

At the year-end, Knorr-Bremse concluded a comprehensive sale-and-lease-back transaction at its Munich site, whereby land and buildings were sold to OPES Business Park am Oberwiesenfeld GmbH and immediately leased back on a long-term basis. As a result of this transaction, the Company will receive a total net cash inflow of about € 200 million, of which € 134 million was received by the end of 2019 and € 66 million will expectedly be payable in 2020/2021. The Company realized a book profit (EBITDA) on this transaction totaling € 45 million, which was applied to the fourth quarter of 2019. OPES is a real-estate management company – one of Mr. Thiele's real-estate enterprises – with which the Company is closely affiliated. As part of this transaction, Leasingobjektgesellschaft MORCAR Grundstücksgesellschaft mbH & Co. oHG was deconsolidated.

EXECUTIVE BOARD CHANGES

Klaus Deller, Chairman of the Executive Board and board member responsible for labor relations within the meaning of Section 33 of the German Codetermination Act (MitbestG), left the company by mutual agreement on April 30, 2019. The reason for Klaus Deller's resignation was a difference of opinion regarding leadership and collaboration. During the transitional period, Executive Board members Ralph Heuwing, Dr. Peter Laier and Dr. Jürgen Wilder jointly performed the duties of Chairman of the Executive Board.

On September 18, 2019, the Supervisory Board of Knorr-Bremse AG appointed Bernd Eulitz as Chairman of the Executive Board of Knorr-Bremse AG and board member with responsibility for labor relations, with effect from November 1, 2019.

On November 6, 2019, the Chief Financial Officer of Knorr-Bremse AG, Ralph Heuwing, resigned from the Executive Board at his own request with effect from April 30, 2020, in order to pursue new career opportunities. Until then, Mr. Heuwing will assist with the induction of the new CEO, Bernd Eulitz, and will also take responsibility for preparing the 2019 annual financial statements. The Supervisory Board promptly initiated the search for a successor. On March 2, 2020, the Supervisory Board of Knorr-Bremse AG appointed Mr. Frank Markus Weber as member of the Executive Board and CFO of the Company, effective as of July 1, 2020.

IFRS 16 "LEASES"

With effect from January 1, 2019, Knorr-Bremse AG has for the first time been applying the new IFRS 16 "Leases" clause, making use of the modified retrospective approach. Comparable information for the 2018 fiscal year was not adjusted for fiscal 2019 as permitted under IFRS 16.C7. This first-time application of the clause within the Knorr-Bremse Group mainly affects leasing contracts previously classified as operating leases, and especially contracts in the following categories: real estate, vehicles, forklift trucks, technical equipment and machinery.

In contrast to the previous approach, according to which expenditure on operating leases was shown in full in the EBIT, under IFRS 16 only scheduled amortization on the right-of-use asset is now included in the EBIT. Interest expenses resulting from the leasing liability are shown in the financial result. As a result, EBITDA improved by € 57.3 million and EBIT by € 7.5 million. For further details, please refer to Chapter 2 of the Notes to the consolidated financial statements: "First application of, as well as early adoption of financial reporting standards issued by the IASB."

LEGAL DISPUTES AND LITIGATION

Bosch arbitration proceedings: In a letter dated June 21, 2018, Robert Bosch GmbH declared its intention to exercise its put option in respect of its minority shareholding in Knorr-Bremse Systeme für Nutzfahrzeuge GmbH. In an arbitration notice dated September 17, 2018, it initiated arbitration proceedings with the aim of enforcing this put option. In early April 2019, Robert Bosch GmbH expanded the lawsuit to include a claim for damages due to the Company's refusal to consent to the distribution in full of the net earnings of Knorr-Bremse Systeme für Nutzfahrzeuge GmbH. In our assessment, Bosch will be unable to enforce this claim. At the end of August 2019, Knorr-Bremse AG filed a counterclaim with the aim of establishing the scope of a non-compete clause. The oral hearing in the arbitration proceedings was held in early March 2020. The arbitration tribunal is expected to make a decision in the fourth quarter of 2020.

Class-action lawsuits following DOJ proceedings – On April 3, 2018, the U.S. Department of Justice, Antitrust Division ("DOJ") announced that it had reached an agreement with Knorr-Bremse AG and Westinghouse Air Brake Technologies Corporation ("Wabtec") concerning an allegation of unlawful agreements not to poach employees. Following the agreement with the DOJ, several employees filed class-action lawsuits against Knorr-Bremse AG, Wabtec and individual subsidiaries. The aim of these class-action lawsuits was to seek damages to compensate employees for reduced pay based on the alleged agreement between the above-mentioned parties not to poach each other's employees. On October 16, 2019, Knorr-Bremse AG concluded a settlement agreement with the plaintiffs to set aside the class-action lawsuit against a payment of $12 million; the payment was made into the court's escrow account in the last week of March 2020. The settlement agreement is still subject to the customary U.S. provision requiring judicial confirmation of the settlement, which is expected in the third quarter of 2020.

Administrative proceedings in Brazil – On September 27, 2016, the Brazilian antitrust authority initiated administrative proceedings against the Group company Knorr-Bremse Sistemas para Veículos Comerciais Brasil Ltda., Itupeva/Brazil ("KKB") and several of its competitors in Brazil. The accusations against KBB are limited to an allegedly inadmissible exchange of information and do not involve antitrust behavior. As these proceedings are still at an early stage, we are currently unable to make a reliable statement on the likelihood of success or the possible consequences of an adverse outcome.

Proceedings in Italy – In a letter dated March 19, 2019, the Italian law enforcement authorities announced that they have concluded their investigative proceedings against Microelettrica Scientifica S.p.a., Buccinasco/Italy ("Microelettrica"), former members of the Board of Directors of Microelettrica and a member of the senior management of three Group companies in Russia in connection with commission payments to an agent for deliveries to a Russian customer, and are bringing charges against Microelettrica for alleged violations of internal rules for the prevention of acts of corruption by the above-mentioned persons. Because legal proceedings have not yet been initiated, and as Knorr-Bremse is of the opinion that Microelettrica has taken appropriate preventive anti-corruption measures and has therefore complied with Italian law, no provision was made as at December 31, 2019.

Business Performance

As a rule, the charts and tables in this management report show IFRS figures for fiscal years 2018 to 2019. EBITDA is interpreted as income (loss) before interest, other financial result, income taxes, depreciation, amortization and impairments; EBIT stands for earnings before interest, other financial result and income taxes.

IFRS grants relatively accounting options, and their utilization only has a minor impact on our net assets, financial position and results of operations. Options exist, for example, for inventories and for property, plant and equipment. With respect to important balance sheet items, existing options are exercised in such a way as to ensure the greatest possible measurement continuity. In 2019, we exercised options in precisely the same form as in 2018, with one exception: the introduction of hedge accounting. Firstly, because the utilization of financial reporting options has very little impact on the presentation of our operating results. And secondly, because it often contravenes our efforts to achieve continuity and traceability across financial periods.

Financial Performance

Despite difficult market conditions, **incoming orders** across the Group were 0.9% up on the previous year's level at € 7,065.9 million (2018: € 7,001.4 million). This was attributable to the ongoing positive development of the Rail Vehicle Systems market segment, which broadly made up for the slowdown in the Commercial Vehicles segment during the second half of the year. This resulted in an **order book** totaling € 4,692.0 million as at December 31, 2019 (2018: € 4,562.6 million) and a theoretical order backlog equivalent to 8.1 months of revenues. The **book-to-bill ratio**, representing the ratio of incoming orders to revenues, came to 1.02 in fiscal 2019 (2018: 1.06), representing a solid basis a solid basis for the challenging year 2020. **Group revenues** rose by 4.8% in the year under review to a new record high of € 6,936.5 million (2018: € 6,615.8 million), thereby meeting the updated forecast published in our quarterly report for Q1/2019 of € 6,875-7,075 million. Currency-adjusted to actual rates in 2018, revenue growth totaled 2.9%. Table → 2.17

Both divisions contributed to this dynamic revenue growth. The Rail Vehicle Systems division increased revenues by 5.6% over the previous year; the Commercial Vehicle Systems division also saw growth of 3.8%. Thus revenue growth in both

2.17 GROUP KEY INDICATORS

in € millions	2019	2018
Incoming orders	7,065.9	7,001.4
Order book	4,692.0	4,562.6
Revenues	6,936.5	6,615.8
EBITDA	1,328.7	1,178.0
EBIT	1,062.9	972.5
EBT	907.1	875.5
Net income	632.0	629.4
Capital expenditure (before IFRS 16 and acquisitions)	331.8[1]	308.4
Depreciation, amortization	265.8	205.6
R&D costs	396.9	363.6
Employees (as at Dec. 31, incl. temp. staff)	28,905	28,452

[1] Adjusted for Munich headquarters "north sector" SLB (€ 33.2 million)

2.18 DIVISIONAL KEY INDICATORS

	Rail Vehicle Systems		Commercial Vehicle Systems	
in € millions	2019	2018	2019	2018
Revenues	3,656.1	3,461.9	3,280.2	3,160.1
EBITDA margin (as % of revenues)	22.3 %	20.0 %	15.4 %	16.3 %
Operating EBITDA margin (as % of revenues)	22.3 %	20.8 %	16.0 %	16.3 %
EBIT margin (as % of revenues)	19.1 %	16.9 %	11.4 %	13.7 %
Operating EBIT margin (as % of revenues)	19.1 %	18.2 %	12.3 %	13.7 %

divisions once again significantly exceeded the growth rates of their respective markets. The growth was mainly organic and was achieved in the Group's North and South America region, as well as the Asia-Pacific region, with Europe being the exception. Table → 2.18.

As a result of strong aftermarket growth in both divisions, the aftermarket share of total revenues rose from 33.3% to 34.3%.

In the **Europe/Africa** region, revenues fell by 1.9% to € 3,198.0 million (2018: € 3,261.4 million), primarily as a result of a business slowdown in the truck sector since the summer; this represents 46% of total revenues (2018: 49%). In a fast-moving market environment, the **North America** region contributed € 1,642.5 million (2018: € 1,469.3 million) or 24% (2018: 22%) to Group revenues. This corresponds to revenue growth of 11.8%, in part due to currency movements. In the **South America** region, revenues rose by 2.0% to € 104.7 million (2018: € 102.7 million), representing an unchanged share of 2% (2018: 2%) of Group revenues. In the **Asia-Pacific** region, revenues rose by 11.7% to € 1,991.3 million (2018: € 1,782.4 million), representing 29% (2018: 27%) of Group revenues. Table → 2.19

The **cost of materials** amounted to € 3,428.6 million (2018: € 3,318.2 million), representing an increase of 3.3% on the previous year and thus slightly less than revenues. At 49.4%, the **cost of materials ratio** is significantly lower than in the previous year (2018: 50.2%), mainly due to savings in the cost of materials and mix-related effects. By contrast, the **personnel expenses ratio** showed moderate year-on-year growth to 23.0% of revenues (2018: 22.6%). This was the result of a 6.5% increase in **personnel expenses** to € 1,593.8 million (2018: € 1,497.0 million), which was disproportionately high relative to revenues. Other **operating income and expenses** fell by 5.7% to € 664.5 million (2018: € 705.0 million).

2.19 CONSOLIDATED REVENUES BY GROUP COMPANY LOCATION

in € millions	2019	2018
Europe/Africa	3,198.0	3,261.4
North America	1,642.5	1,469.3
South America	104.7	102.7
Asia-Pacific	1,991.3	1,782.4
Total	**6,936.5**	**6,615.8**

In line with our strategy, **research and development** (R&D) spending in 2019 climbed by an above-average 9.1% to € 396.9 million (2018: € 363.6 million). Relative to revenues, the **R&D ratio** rose to 5.7% (2018: 5.5%).

EBITDA reported in 2019 rose by 12.8%, reaching € 1,328.7 million (2018: € 1,178.0 million). If exchange rates had remained unchanged (from actual rates in 2018), EBITDA would have shown 11.5% growth. The reported **EBITDA margin** was 19.2% (2018: 17.8%). In the 2019 fiscal year, the effect of applying IFRS 16 amounted to € 57.3 million or 0.8% of revenues. The operating EBITDA margin, adjusted for Wülfrath restructuring expenses (€ 19.5 million) and the adjusted accounting profit of € 45.1 million associated with the SLB transaction, amounted to 18.8% in 2019. By contrast, the operating EBITDA margin in 2018 was 18.4%, which was adjusted for extraordinary expenses and the most recent operating losses totaling € 11.2 million, as well as € 68.5 million in sales revenues from disposals made in 2018, not to mention extraordinary expenses associated with the IPO (€ 14.9 million).

Meanwhile, **EBIT** rose to € 1,062.9 million, representing an increase of € 90.4 million or 9.3%. The effect of the changeover to IFRS 16 included in this figure came to € 7.5 million. At 15.3%, the reported **EBIT margin** was above the previous year's level of 14.7%. The operating EBIT margin was 15.1% (before Wülfrath restructuring expenses totaling € -29.7 million and adjustment of the € 45.1 million book profit from the sale-and-lease-back transaction), slightly below the high level achieved in the previous year (15.6% adjusted for disposals made in 2018 plus extraordinary expenses connected with the IPO).

The **Rail Vehicle Systems** division contributed € 814.9 million to EBITDA, corresponding to an EBITDA margin of 22.3% (2018: 20.0%). The **Commercial Vehicle Systems** division generated operating EBITDA of € 523.2 million, representing an operating EBITDA margin of 16.0% (2018: 16.3%). Including consolidation adjustments, an EBITDA figure of € 10.1 million is attributable to "Other" business (2018: € -31.4 million).

The **number of employees** (including temporary staff) rose by 453, from 28,452 on December 31, 2018, to 28,905 on December 31, 2019. On average, the Group employed 29,422 people in the 2019 fiscal year (2018: 28,983). The main reason for this year-on-year increase was revenue growth. The effects of acquisitions and disposals very nearly offset each other.

The net negative **financial result** in fiscal year 2019 was particularly affected by the sale of the Powertech Group and rose by € 58.8 million to € 155.8 million (2018: € 97.0 million). The financial result also reflects the introduction of hedge accounting and the lower unrealized effects of measuring derivative financial instruments at the reporting date, resulting in an effect of € 18.6 million.

Due to losses incurred on disposals of Powertech, the Knorr-Bremse Group's **earnings before taxes** in 2019 only rose by 3.6% to € 907.1 million (2018: € 875.5 million).

The **tax ratio** increased to 30.3% in fiscal 2019 compared with 28.1% in the previous year, primarily due to the above-mentioned non-tax-deductible expenses resulting from the Powertech sale and the expenses incurred by the Wülfrath plant closure.

This resulted in **earnings after taxes** of € 632.0 million or 9.1% of revenues in the 2019 fiscal year, compared with € 629.4 million (9.5% of revenues) in 2018. The sale-and-lease-back transaction completed in Munich in the fourth quarter of 2019 resulted in a book profit totaling € 45.1 million. After deduction of non-controlling interests, earnings per share reached € 3.65 (2018: € 3.68).

Our **proposed dividend** for the 2019 fiscal year comes to € 1.80 per share. The distribution ratio of 46% of consolidated net earnings after taxes (2018: 45%) falls into the upper half of the 40-50% range defined by our dividend policy. Knorr-Bremse AG's remaining unappropriated retained earnings, totaling € 171.6 million (2018: € 91.3 million), will be carried forward.

SEGMENT REPORT FOR DIVISIONS

Rail Vehicle Systems Division

Incoming orders for the Rail Vehicle Systems division rose by 5.8% year on year from € 3,798.0 million to € 4,016.7 million. Adjusted for disposals made in 2018, the increase amounted to 7.6%. As at December 31, 2019, the order book totaled € 3,573.0 million (2018: € 3,212.4 million). The increase was primarily due to continuing high demand in Asia, especially in the service business. This more than compensated for temporary declines in incoming orders in the Europe/Africa region. Table → 2.20

The Rail Vehicle Systems division raised **revenues** by 5.6% to € 3,656.1 million (2018: € 3,461.9 million). Adjusted for currency effects, revenues increased by 4.1% year on year and were therefore within the forecast. Of this, OE business accounted for around 58% of revenues (2018: 59%) and aftermarket business accounted for 42% of revenues (2018: 41%). The revenue trend is primarily attributable to stronger business in the passenger, freight and regional transportation segments and strong service business in Asia. European OE sales also showed a moderate increase, especially in the regional, commuter and freight segments. Service business in North America showed positive performance.

A 17.6% increase in **EBITDA** due to factors related to volume and project mixes resulted in a significantly higher EBITDA margin on sales revenues of 22.3% in fiscal 2019 compared with 20.0% in 2018 (previous year's operating **EBITDA margin** adjusted for divested companies: 20.8%). Thus the margin achieved was also well above the forecast range.

In 2019, the Rail Vehicle Systems division's **EBIT** grew significantly by 19.0% to € 696.7 million (2018: € 585.2 million). As a result, the **EBIT margin** of 16.9% (or 18.2% after adjustment for divested companies) also appreciably increased to 19.1%. The IFRS 16 effects included in the 2019 report come to € 33.4 million for EBITDA and € 4.9 million for EBIT.

The Rail Vehicle Systems division's **capital expenditure** of € 120.9 million in 2019 (2018: € 113.4 million) focused primarily on capacity expansion and automation, and also on projects to replace and upgrade production facilities and improve their efficiency. Capital spending of € 33.2 million at

2.20 KEY INDICATORS FOR RAIL VEHICLE SYSTEMS DIVISION

in € millions	2019	2018
Incoming orders	4,016.7	3,798.0
Order book (Dec. 31)	3,573.0	3,212.4
Revenues	3,656.1	3,461.9
EBITDA	814.9	693.1
EBITDA margin (as % of revenues)	22.3 %	20.0 %
Operating EBITDA margin (as % of revenues)	22.3 %	20.8 %
EBIT	696.7	585.2
EBIT margin (as % of revenues)	19.1 %	16.9 %
Operating EBIT margin (as % of revenues)	19.1 %	18.2 %
Capital expenditure (before IFRS 16 and acquisitions)	120.9[1]	113.4
Depreciation, amortization	118.2	107.9
R&D costs	210.0	197.1
Employees (as at Dec. 31, incl. temporary staff)	16,094	15,886

[1]) Adjusted for Munich headquarters "north sector" SLB (€ 33.2 million)

the Munich site, made as part of the 2019 "north sector" SLB (sale-and-lease-back transaction), was deducted from capital expenditure as a result of the sale and consequently eliminated. At € 118.2 million, **depreciation and amortization** was moderately up on the previous year (2018: € 107.9 million).

R&D costs in 2019 came to € 210.0 million, representing a € 12.9 million or 6.5% increase on the previous year (2018: € 197.1 million). This resulted in an **R&D ratio** of 5.7% (2018: 5.7%), thus remaining constant year on year. Development activities concentrated on solutions for increasing transportation capacity, availability and eco-friendliness, and reducing life cycle costs. Efforts centered above all on automated train operation (ATO), eco-design and product digitalization.

As at December 31, 2019, the Rail Vehicle Systems division had 16,094 **employees** (2018: 15,886 employees including temporary staff). The increased year-end headcount is primarily due to high revenue growth.

Commercial Vehicle Systems Division

The **Commercial Vehicle Systems** division recorded a -4.9% decline in **incoming orders** to € 3,050.7 million (2018: € 3,207.8 million) in fiscal 2019. Adjusted for currency and acquisition effects, the decline amounted to -9.1%. The drop in demand for OE business that became evident in the second half of 2019, first in Europe and then in North America, was also reflected in the **order book**, which fell by -16.8% to € 1,134.2 million as at December 31, 2019 (2018: € 1,363.7 million). Table → 2.21

Divisional **revenues** grew by 3.8% to € 3,280.2 million (2018: € 3,160.1 million). This moderate increase occurred despite a -5.0% decline in global truck production. OE revenue growth in North America in particular compensated for the cyclically induced decline of European sales revenues. Even so, OE customers' share of the division's total revenues fell by 0.6 percentage points year on year to 74.3%. This in turn resulted in a higher aftermarket share of total revenues of 25.7% (2018: 25.2%). Furthermore, the acquisition of Hitachi Automotive Systems, Ltd. at the end of March contributed € 65.8 million in revenues for fiscal 2019. Therefore, the division was within the forecast. Adjusted for currency and acquisition effects, revenues were slightly down on the previous year at -0.6%.

In absolute terms, due to lower revenues, **EBITDA** fell by -2.5% year on year to € 503.7 million with a reported **EBITDA margin** of 15.4% of revenues compared with 16.3% in the previous year. By contrast, the operating EBITDA margin – that is, adjusted for the Wülfrath restructuring expenses – came to 16.0%, and thus was within the forecast, just 30 basis points below the previous year's level. With respect to **EBIT**, the Commercial Vehicle Systems division saw a decline of € -60.6 million (-14.0%) to € 373.8 million in 2019 (2018: € 434.4 million). This in turn caused the reported **EBIT margin** to decline by 230 basis points to 11.4% (compared with 13.7% in the previous year), so that the operating EBIT margin fell by 140 basis points to 12.3%. This may be ascribed to higher depreciation and amortization, among other things as a result of IFRS 16, the Wülfrath restructuring, and increased capital expenditure due to intensified development and other activity. The IFRS 16 effects included in the 2019 report total € 20.0 million for EBITDA and € 2.3 million for EBIT.

In 2019, the Commercial Vehicle Systems division's **capital expenditure** increased by € 24.5 million year on year to € 179.2 million. As in the previous year, major investments were made in the global provision of supplier tools. The year-on-year increase is primarily due to the expansion of manufacturing capacity at our North American sites in Huntington and Bowling Green with the aim of boosting our

2.21 KEY INDICATORS FOR COMMERCIAL VEHICLE SYSTEMS DIVISION

in € millions	2019	2018
Incoming orders	3,050.7	3,207.8
Order book (Dec. 31)	1,134.2	1,363.7
Revenues	3,280.2	3,160.1
EBITDA	503.7	516.4
EBITDA margin (as % of revenues)	15.4%	16.3%
Operating EBITDA margin (as % of revenues)	16.0%	16.3%
EBIT	373.8	434.4
EBIT margin (as % of revenues)	11.4%	13.7%
Operating EBIT margin (as % of revenues)	12.3%	13.7%
Capital expenditure (before IFRS 16 and acquisitions)	179.2	154.7
Depreciation, amortization	129.9	82.0
R&D costs	187.0	166.6
Employees (as at Dec. 31, incl. temporary staff)	12,084	11,906

production of compressed air disk brakes in particular. Increased capital spending and the Wülfrath restructuring project caused **depreciation and amortization** in the Commercial Vehicles Systems division to rise to € 129.9 million, representing a € 47.9 million increase over the previous year (2018: € 82.0 million).

The division's **R&D costs** rose to € 187.0 million in the 2019 fiscal year (2018: € 166.6 million), partly as a result of intensified ADAS/HAD and steering development activity. The resulting **R&D ratio** also increased from 5.3% in 2018 to 5.7% in 2019. R&D activities focused on key industry trends in road safety, emissions reduction and e-mobility, as well as automated driving and connectivity. At the transport logistic trade fair in Munich in June 2019, Knorr-Bremse TruckServices and Intel subsidiary Mobileye presented a retrofittable Blind Spot Assistant, as well as other integrated driver assistance solutions for heavy commercial vehicles such as lane departure warning, distance monitoring, proximity warning, and predictive collision warning systems. In addition, work continued on developing the next generation of our Synact and Nextt disk brakes.

As at December 31, 2019, the Commercial Vehicle Systems division had 12,084 **employees** (2018: 11,906), that is, 178 more employees (+1.5%) than on December 31, 2018. This is primarily due to the acquisition of Hitachi Automotive with 404 employees.

Financial Position (Financial Development)

FINANCIAL AND LIQUIDITY MANAGEMENT

Our centralized financial and liquidity management system aims to fulfill two key objectives: the optimization of earnings and costs, and the reduction of financial risks. In addition, it makes the Group's financing and liquidity requirements more transparent. In our liquidity management, we adhere to the principle of always maintaining sufficient liquid funds to be able to meet our payment obligations at all times, while also being in a position to act whenever M&A opportunities arise.

Our most important source of finance is cash flow from operating activities. As a rule, external funds are raised by Knorr-Bremse AG – or, where required by financial law, by our respective holding companies in Asia and North America – and made available to Group companies as required. Liquidity management is also the responsibility of Knorr-Bremse AG and our respective holding companies in Asia and North America. Among other things, the latter organize a **cash pooling system** **[p. 202]** that – as far as legally possible – manages all the Group's cash and cash equivalents. Companies in countries with legal restrictions on the movement of capital (such as China, India and Brazil) finance themselves largely from local resources.

The investment of excess liquidity is governed by a Financial Asset Management policy and is the responsibility of the Corporate Finance & Treasury department. Our partners are exclusively banks and financial service providers with an investment-grade rating. At € 1,880.7 million, cash and cash equivalents at the end of 2019 were up 7.1% on the previous year's figure of € 1,756.0 million. This means that they accounted for 27.5% of total assets compared with 28.0% at the previous year's reporting date.

We strengthen our internal financing power and funds tied up in working capital by applying systematic net working capital management, including liquidity-optimizing instruments such as a **Supplier Early Payment Program (SEPP)** **[p. 203]** and **factoring** **[p. 202]**. This benefits key indicators such as our balance sheet structure and ROCE. Information on our utilization of financial instruments can be found in the Risk Report, in the section entitled "Currency, Interest Rate, Liquidity, Commodity Price and Credit Risks, and Financial Instruments for Minimizing Risks".

2.22 FINANCIAL LIABILITIES (DEC. 31)

in € thousand	12/31/2019	12/31/2018
Derivative financial instruments	(26,377)	(27,157)
Liabilities towards credit institutions	(196,713)	(229,819)
Bonds and debt instruments	(1,249,013)	(1,247,521)
Liabilities resulting from options on minority interests	(379,616)	(379,616)
Purchase price liabilities	(44,990)	(38,000)
Lease liabilities	(377,293)	(33,277)
Other financial liabilities	(259,755)	(217,063)
	(2,533,757)	**(2,172,452)**
thereof:		
Current	(875,567)	(642,895)
Non-current	(1,658,190)	(1,529,557)

KNORR-BREMSE GROUP'S FINANCING STRUCTURE

Following the issue of a € 500 million corporate bond in December 2016 (maturing in 2021), in June 2018 we issued a € 750 million bond with an annual coupon of 1.125% and a 7-year term. Rating agency Moody's has given this bond an A2 rating. The bond is being used to finance the Knorr-Bremse Group's growth while simultaneously optimizing our financing structure between equity and debt. The existing Debt Issuance Program (DIP) expired in September 2018 and was not renewed. Table → 2.22

CASH FLOW

Cash Flow from Operating Activities

In 2019, the cash inflow from operating activities was significantly up on 2018, rising by € 260.3 million to € 985.8 million. Compared with the previous year, the result for the period increased by just € 2.6 million to € 632.0 million, impacted by losses from the disposal, consolidated companies and other business units totaling € 81.9 million. This was attributable to the sale of the Company's Powertech activities. Depreciation and amortization were up by € 60.2 million on the previous year, rising to € 265.8 million. Inventories, trade receivables and other assets decreased by € 187.4 million compared with the previous year. Consequently, net working capital fell by € -52.8 million to € 809.1 million (2018: € 861.9 million). As a result, the commitment period in days' sales improved by -4.9 days to 42.0 days (2018: 46.9 days). Table → 2.23

Cash Flow from Investing Activities

In fiscal 2019, cash outflow from capital spending activities rose by € 49.8 million to € -353.8 million. This increase over the previous year is attributable to a cash outflow totaling

2.23 ABBREVIATED CASH FLOW STATEMENT

in € thousand	2019	2018
Consolidated net income (including minority interests)	632,018	629,435
Adjustments for		
Depreciation, amortization and impairment of intangible assets and property, plant and equipment	265,780	205,570
Change of impairment on inventories	(3,105)	23,408
Change of impairment on trade accounts receivable	6,868	13,691
Loss / (gain) on the sale of consolidated companies and other business units	81,885	11,614
(Gain) / loss on the sale of property, plant, and equipment	(44,032)	7,320
Non-cash changes in provisions	186,819	186,847
Other non-cash expenses and income	56,185	(21,494)
Interest result	23,461	34,251
Investment result	2,236	(865)
Income tax expenses	275,099	246,070
Income tax payments	(224,181)	(234,292)
Changes of		
Inventories, trade accounts receivable as well as other assets, which cannot be allocated to investing or financing activities	(57,865)	(245,307)
Trade accounts payable as well as other assets, which cannot be allocated to investing or financing activities	(38,865)	21,962
Provisions	(176,411)	(152,685)
Cash flow from operating activities	**985,791**	**725,526**
Cash flow from investing activities	**(353,816)**	**(304,013)**
Cash flow from financing activities	**(505,167)**	**(286,173)**
Cash flow changes	**126,809**	**135,341**
Change in Cash and cash equivalents resulting from exchange rate and valuation-related movements	8,558	3,279
Change in Cash and cash equivalents resulting from changes to group structure	(596)	1,246
Net increase/decrease in cash and cash equivalents	**134,771**	**139,866**
Free cash flow	**860,557**	**430,894**

€ 194.4 million for the acquisition of consolidated companies, including Hitachi Automotive Systems, Ltd. and Snyder Equipment Company, as well as investments in financial assets made during the fiscal year in the amount of € 17.1 million. The cash outflow resulting from the disposal of consolidated companies in the year under review also rose by € 15.4 million to € 29.1 million due to the sale of the Powertech Group in 2019. On the other hand, cash inflows from the sale of property, plant and equipment saw a significant year-on-year increase by € 162.8 million to € 191.9 million as a result of the SLB transaction at our Munich site. Cash outflows for investments in intangible assets rose slightly by € 4.2 million to € 97.9 million, whereas cash outflows for capital expenditure on property, plant and equipment fell by € 9.8 million to € 220.3 million.

Cash Flow from Financing Activities

In the 2019 fiscal year, the cash outflow from financing activities came to € 505.2 million, representing a € 219.0 million increase on the previous year. The cash flow from financing activities is a result of, among other things, dividends in the amount of € 282.1 million paid out to parent company shareholders. This represents a reduction of € 568.1 million compared with the previous year, due primarily to the special dividend of € 500.2 million paid out in 2018, but also to dividends paid out to minority shareholders totaling € 55.1 million and cash outflows for leasing liabilities in the amount of € 53.5 million – a year-on-year increase of € 48.1 million due, among other things, to IFRS 16. There were also cash outflows for the repayment of loans totaling € 90.2 million, as well as offsetting cash inflows from borrowings in the amount of € 40.9 million. In 2018, the Company issued a fixed-interest bond for € 750 million, resulting in a cash inflow that was not offset by a comparable receipt in the 2019 reporting year.

Free Cash Flow

Compared with the definition in the 2018 Annual Report, the current definition of the ratio has been extended to include cash inflows from the sale of intangible assets and property, plant and equipment, effectively redefining the ratio. Consequently, **free cash flow [p. 202]** in 2019 amounted to € 860.6 million. This represents an increase of € 429.7 million, so significantly higher than the previous year's figure of € 430.9 million. In addition to the significant increase in cash flow from operating activities, this is also attributable to the cash inflow resulting from the SLB transaction. Based on the previous definition, free cash flow in 2019 would have amounted to € 667.6 million due to the increased cash flow from operating activities – still a significant € 265.8 million increase over the previous year (2018: € 401.8 million).

LIQUIDITY

The increase in cash and cash equivalents to € 1,853.5 million (2018: € 1,718.7 million) was primarily the result of the positive net cash inflow from operating activities (€ 985.8 million) versus the cash outflow from investing activities (€ -353.8 million) and the cash outflow from financing activities (€ -505.2 million). The net cash balance fell from € 250.2 million in the previous year to € 57.7 million in 2019. Table → 2.24

The ratio of the Group's net cash balance to equity is 3.0% (2018: 15.6%). This is primarily due to the significant increase in equity as a result of the gratifying growth of earnings, as well as the reduction in the net cash balance caused by the € 344.0 million increase in leasing liabilities. The Group has access to approved credit facilities totaling € 1,857.8 million (thereof € 100 million in loans from the European Investment Bank and € 150 million in medium-term facilities), of which € 1,157.2 million remained undrawn as at the end of the fiscal year. Interest rates on liabilities conform with prevailing market terms, according to maturity.

At year-end 2019, the undiscounted maximum level of liability for loan guarantees/sureties and contract performance guarantees/sureties for third-party services totaled € 20.7 million (2018: € 18.7 million). Other financial obligations included rental and leasing obligations, which, among other reasons, fell from € 242.3 million to € 136.1 million following the first-time application of IFRS 16. They also include financial obligations

2.24 CASH FUNDS (DEC. 31)

in € millions	2019	2018
Cash and cash equivalents (Jan. 1)	1,718.7	1,578.8
Cash flow from operating activities	985.8	725.5
Cash Flow from investing activities	(353.8)	(304.0)
Cash flow from financing activities	(505.2)	(286.2)
Other provisions	8.0	4.6
Cash and cash equivalents	**1,853.5**	**1,718.7**

2.25 BALANCE SHEET RATIOS

in € millions	2019	2018
Net cash balance (Dec. 31)	57.7	250.2
Net debt to EBITDA	0	0
Gearing (Dec. 31)	0	0
Net working capital (NWC) (Dec. 31)	809.1	861.9
Net working capital in days' sales	42.0	46.9
Turnover rate – inventories	8.5	7.9
Receivables/days' sales outstanding	59.6	67.3
Equity ratio (Dec. 31)	27.8%	25.7%
Total assets (Dec. 31)	**6,846.8**	**6,262.2**

2.26 EQUITY

in € millions	2019	2018
Subscribed capital	161.2	161.2
Other equity	1,623.2	1,340.7
Shareholders' equity	**1,784.4**	**1,501.9**
Non-controlling interests	117.1	105.2
Total equity	**1,901.5**	**1,607.1**

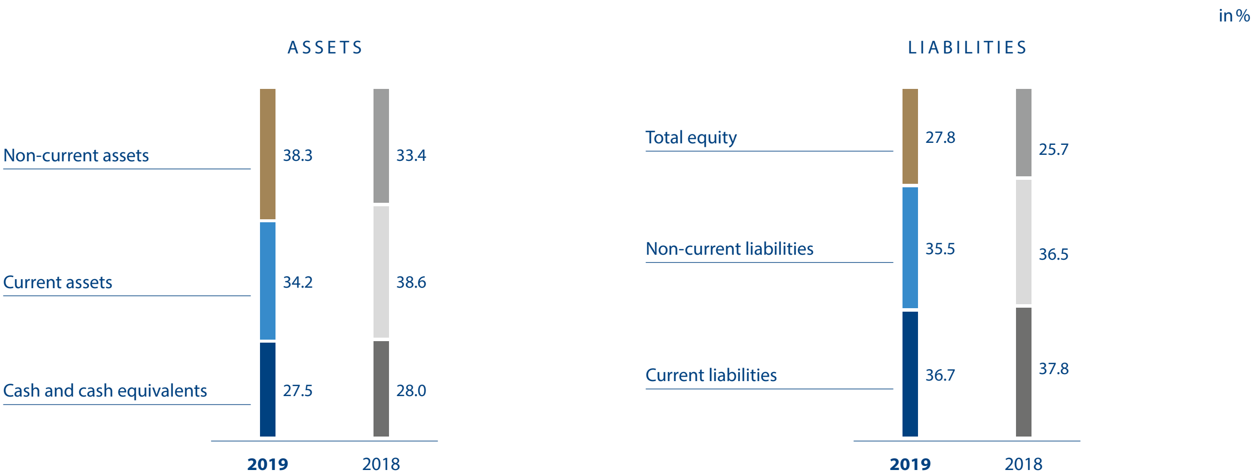
for capital expenditure projects (€ 80.5 million), liabilities associated with major maintenance and repair work (€ 7.0 million) and other liabilities (€ 65.5m). Other liabilities include loan commitments and bank guarantees. For further details, see also Sections H.7 and H.8 of the Notes to the consolidated financial statements.

With our ability to generate cash flows from operating activities, cash and cash equivalents, undrawn credit facilities, and the credit ratings we were given at year-end, we are confident that we have sufficient flexibility to cover our capital requirements for achieving sustainable organic growth and making strategic acquisitions.

Rating

Two external rating agencies, Standard & Poor's and Moody's, have been rating the Knorr-Bremse Group's economic standing since 2000. The rating was investment grade from the outset and has steadily improved over the years. In fiscal 2019, both rating agencies re-confirmed the Knorr-Bremse Group's 2016 rating of "A" and "A2" respectively, with a "stable" outlook. When reviewing the Group's rating, S&P changed its industry classification from "Automobiles & Components" to "Capital Goods". The new classification attests to our increased stability and reduced dependence on cyclical economic trends, due to the steadily growing contribution of the Group's rail vehicle business to revenues and earnings. Moody's – which continues to rate the Knorr-Bremse Group

2.27 ASSETS AND CAPITAL STRUCTURE



as "A2" and "outlook stable" – had already placed the Group in the "Capital Goods" category. Both rating agencies acknowledged the ongoing stable quality of the Group's earnings, the continuity of the Group's management performance, and the strengthening of the Group's competitive position through significant investments in research and development in particular. They also underscored the Knorr-Bremse Group's substantial growth through acquisitions and the creation of joint ventures.

According to rating agencies the current ratings place Knorr-Bremse among the world's top-ranking automotive, commercial vehicle and rail vehicle suppliers.

ASSETS AND CAPITAL STRUCTURE

The Group's **total assets** increased by 9.3% to € 6,846.8 million compared with December 31, 2018 (€ 6,262.2 million), primarily due to the balance sheet leveraging resulting from the first-time application of IFRS 16. Other contributing factors included acquisitions (as described under portfolio changes and asset deals), as well as capital expenditure (as described in the divisional reports) plus the sale-and-lease-back transaction. As at year-end 2019, committed assets represented 98.6% of revenues. Table → 2.25

Net working capital, defined as the sum of inventories, trade receivables and contractual assets less trade payables and contractual liabilities, stood at € 809.1 million at year-end 2019 (2018: € 861.9 million). Measured in terms of days' sales, this corresponds to a commitment of 42.0 days (2018: 46.9 days).

As at December 31, 2019, the Knorr-Bremse Group had an **equity ratio** of 27.8%. The improvement since December 31, 2018 (25.7%) – despite the increase in total assets due to IFRS 16 and capital spending activities – was achieved thanks to the significant strengthening of equity (€ 1,901.5 million compared with € 1,607.1 million in 2018) as a result of the overall growth in earnings. Table → 2.26, Chart → 2.27

2.28 CAPITAL, EXPENDITURE, DEPRECIATION AND AMORTIZATION

in € millions	2019	2018
Capital expenditure on property, plant and equipment	233.9[1]	235.4
Investments in intangible assets	97.9	73.1
Depreciation, amortization	265.8	205.6

[1] Adjusted for Munich SLB (€ 33.2 million); capital expenditure before IFRS 16 and acquisitions

CAPITAL EXPENDITURE

The Knorr-Bremse Group's capital expenditure on fixed and intangible assets reflected the Group's growth and innovation priorities. **Capital expenditure** reached € 331.8 million in fiscal 2019, representing 4.8% of revenues (2018: 4.7%). In addition to the expansion of production capacity at our North American sites in Huntington and Bowling Green, major capital investments were made in supplier tools, in production plant and equipment upgrades and expansion projects, and in IT projects. The € 33.2 million capital spending on our Munich site in 2019 as part of the sale-and-lease-back (SLB) transaction was subsequently deducted from capital expenditure as a result of the sale and thus eliminated. Table → 2.28

SUPPLEMENTARY REPORT

On January 30, 2020 Knorr-Bremse signed a contract to acquire R.H. Sheppard Co., Inc, USA. Knorr-Bremse acquires Sheppard from Wabco Holdings Inc., USA, which is disposing of Sheppard as a consequence of the intended takeover of WABCO by ZF Friedrichshafen AG. The purchase price is $149.5 million. The acquisition of Sheppard by Knorr-Bremse is subject to the usual closing conditions and regulatory approvals, and is dependent on completion of the WABCO acquisition by ZF. The completion of the takeover is expected in the first half of 2020.

The rapid spread of coronavirus (COVID-19) since the end of January has increasingly affected daily life and impacted the wider economy, including Knorr-Bremse AG's business activities. Although it is still too early to tell what the full ramifications of the pandemic will be, in this report we have set out the consequences for Knorr-Bremse as far as they are known at the present time. Whether or not these come to pass will greatly depend on how quickly measures to combat the virus take effect and the economy returns to normal.

In addition to the € 1.8 billion in liquidity available at year-end 2019, Knorr-Bremse drew on credit facilities totalling € 750 million. The Company used this liquidity to increase its operational latitude.

Further details are available in Section H.2 of the Notes to the consolidated financial statements.

REPORT ON RISKS, OPPORTUNITIES AND EXPECTED DEVELOPMENTS

Report on Risks and Opportunities

Risk Management System

PRINCIPLES AND OBJECTIVES

As an international corporate group with a global presence, Knorr-Bremse encounters both risks and opportunities in the course of its entrepreneurial activities. The goal of risk management is to identify risks across the Group and minimize their potential consequences on the Group's anticipated financial performance and position. The system should likewise identify and leverage opportunities to boost stakeholder value in the long term. The focus is on early, systematic identification and analysis of potential risks and opportunities in order to provide sufficient scope for effective risk management, including the timely introduction of suitable countermeasures. The basis for this is a transparent, systematic risk reporting system that covers all business processes.

We always carefully evaluate opportunities and risks in all our business activities. For this reason, Knorr-Bremse encourages all employees to proactively report risks, and requires them to deal with risks in a responsible manner. In addition to regular reporting periods, an internal ad-hoc reporting process enables risks of major significance to be identified at an early juncture and managed as rapidly as possible.

The risk management system established within the Group is subject to continuous development and improvement. In 2017, this resulted in a comprehensive overhaul of the system so that it fulfilled the latest requirements, including the introduction of IFRS-compliant accounting. It remained essentially unchanged in 2018 and 2019.

ORGANIZATION AND PROCESS

Our risk management structures and procedures are aligned with our overall organizational structure and anchored in a corporate policy that includes clear definitions of responsibilities and reporting structures. Under the direction of Corporate Controlling, our analysis of potential risks is conducted quarterly in the form of a worldwide bottom-up risk inventory covering all Group companies. Sites report potential risks in quantified form to regional managers, who in turn pass on the aggregated data to divisional managers. An essential component of regular risk reporting is a summary Group risk report. This is presented to the Knorr-Bremse Group's Executive Board at quarterly intervals and explained at the relevant Executive Board meeting. The Supervisory Board conducts an in-depth review of the risk report once a year, or also on an ad-hoc basis if necessary.

The identified risks are assigned to one of 14 specific risk categories that are aligned with the Company's value chain. In all, the risk management process comprises six stages, from identification to evaluation, mitigation and aggregation, through to reporting and monitoring. The identified risks are evaluated in terms of their impact on earnings and probability of occurrence. The priority is to present the risk portfolio transparently, together with an appraisal of effective risk limitation measures. Those responsible for risk management provide quantitative and qualitative assessments of these measures in their reports. Possible measures include the avoidance, reduction, transfer or acceptance of the respective risk.

As part of this process, risk mitigation measures designed to reduce any potential losses are considered, which gives a net risk value before probability of occurrence. Factoring in the probability of occurrence allows us to quantify each risk's potential impact on earnings. This is classified as follows, according to the risk's materiality to the Group:

- Very low (≤ € 5 million)
- Low (> € 5 million to ≤ € 15 million)
- Medium (> € 15 million to ≤ € 40 million)
- High (> € 40 million)

In response to this potential impact on earnings and to comply with accounting regulations for risk provisioning, appropriate provisions or value adjustments must be made in the annual financial statements. In the subsequent risk aggregation phase, the individual risks are aggregated based on identity of cause and allowing for possible interdependencies. Furthermore, in consultation with the divisions and those responsible for risk management, the Risk Management function performs a plausibility check on the net risk calculation and validates compliance with guidelines.

In addition to the quantified risks described above, risk management also assesses qualitative, abstract and strategic risks.

RISK REPORTING

The Executive Board provides the Supervisory Board and the relevant committees with regular, timely and comprehensive updates on all risks and opportunities of relevance to the Group. Examining and monitoring the risk management process is the task of the Internal Audit function. The Knorr-Bremse Group thus has a modern reporting and control system in place that enables it to globally implement efficient and effective risk monitoring and management.

KEY FEATURES OF THE INTERNAL CONTROL SYSTEM (ICS) FOR THE ACCOUNTING PROCESS:

We use our internal control system (ICS) to ensure compliance with the relevant legal requirements and applicable Group guidelines, the effectiveness and profitability of our business activities, and the accuracy and reliability of our internal and external accounting procedures. The ICS encompasses the entirety of all the principles, procedures and measures which senior management has implemented within the Company for the purpose of handling risks systematically and transparently.

The ICS is based on certain fundamental principles, including the cross-checking (dual-control) principle and the separation-of-functions principle. Group companies are responsible for complying with existing standardized Group-wide rules and country-specific regulations, and for documenting the internal controls they use to ensure reliable and appropriate financial reporting.

Corporate Controlling plays a supporting and coordinating role and centrally files the documentation of risks and controls. The Internal Audit function verifies the existence and effectiveness of the documented processes during its independent audits. Corporate Controlling reports to the Executive Board on the control system's effectiveness. The Executive Board provides the Supervisory Board with a detailed breakdown of ICS and Internal Audit results on a regular, annual basis.

The most important instruments, control and hedging routines in the accounting process are:

- Knorr-Bremse AG's accounting guideline defines the accounting process in the individual companies and within the Group. The guideline covers all relevant IFRS rules and is regularly updated by the Corporate Accounting function.
- All accounting processes are subject to multi-level validation in the form of spot checks, plausibility checks and other controls by the operating companies, the divisions, and the Corporate Controlling, Corporate Accounting/Taxes and Internal Audit functions. The controls relate to various aspects, such as the reliability and adequacy of IT systems, the completeness and accuracy of financial reporting, and the completeness of provisions.
- The fundamental ICS principles – the dual-control principle and separation-of-functions principle – apply generally, but in particular to the commercial processes that trigger entries in the consolidation system. For example, depending on the amounts involved, orders or invoices may have to be signed off by divisional management, senior management or the Executive Board. The process from ordering through to payment is secured by separating the functions of employees in Purchasing and Accounting.

- Access authorizations control access to the consolidation system; this is reserved for a selected group of employees in Corporate Accounting. Data that is entered for Group companies is checked in a multi-level process. First, it is validated by the Group company itself, then by the relevant segment's Controlling function, and finally by Corporate Accounting.

To ensure that financial statements are prepared correctly, we carefully consider significant regulations pertaining to and new developments in accounting and reporting. Particular attention is paid to the accounting treatment of construction contracts based on the over-time/percentage-of-completion method, the allocation of purchase prices during business mergers, impairment testing of goodwill, and the reliability of qualitative and predictive statements in the management report.

The breakdown in the table below shows the respective net risk (after allowing for probability – before provisioning) to the Group per risk category. Table → 2.29

The only material change in the risk portfolio compared with the previous year was in the Legal & Regulatory category. Uprating of the Legal & Regulatory category from medium to high is due to a potential carbon tax being mooted in political circles and to developments related to legal disputes, as set out in the Notes to the consolidated financial statements.

The currently unforeseeable consequences of the spread of coronavirus may result in risks which could impact several risk categories. These could cause restrictions in Purchasing, Production and Logistics, for example – but also and above all in the Market & Customers category.

The Knorr-Bremse Group's individual risk categories are explained in more detail below:

STRATEGIC RISKS

As a technology leader in the rail and commercial vehicle sectors, we are regularly exposed to the efforts of both established competitors and new market players to gain market share at our expense, such as the planned acquisition of American competitor WABCO by German enterprise ZF Friedrichshafen. We counter such strategic risks with a sustainable innovation strategy and intensive cultivation of customer relationships so we can continue to respond optimally to customer needs in terms of the technology, quality and pricing of our products and services. As well as continuously developing our existing product portfolio, we focus in particular on averting the risks of unsuccessful or delayed entry into new, promising product areas. For this purpose, we take steps to ensure the timely identification, evaluation and efficient implementation of development projects aimed at opening up new product areas. This applies in particular to product ranges linked to the current megatrends of urbanization, sustainability, Digitalization and mobility. As a systems supplier,

2.29 KNORR-BREMSE GROUP – RISK CATEGORIES

	Net risk			
	Very low (≤5 € million)	Low (> 5 € million to ≤ 15 € million)	Medium (> 15 € million to ≤40 € million)	High (>40 € million)
Strategy	■			
Legal & Regulatory				■
Research & Development	■			
Purchasing		■		
Market & Customers				■
Logistics	■			
Production		■		
Quality & Product Liability				■
HR	■			
Finance & Treasury			■	
M&A		■		
Project Management	■			
IT Systems & IT Security		■		
Other		■		

we are determined to continue offering our customers the greatest possible benefits in all these fields. Even so, risks may arise from strategic decisions involving portfolio adjustments or changes such as those that took place over the past two fiscal years. These may take the form of restructuring costs, value adjustments or similar risks, for example in the event of relocations or closures.

LEGAL AND REGULATORY RISKS

Our worldwide presence means that Knorr-Bremse is exposed to a wide variety of different legal systems. Current and potential future changes to these legal systems give rise, among other things, to risks associated with fiscal, competition, patent, environmental, labor and contract law. To avoid or minimize litigation and any potential financial exposure, strategic risks or reputational damage that might ensue, we rely on our Compliance Management function and Tax department, as well as the legal reviews and assessments carried out by our Legal department. For complex issues, we also seek the support of external specialist lawyers. In Compliance Management, the Company-wide Code of Conduct sets binding rules for all employees, who receive training with the help of mandatory e-learning courses rolled out worldwide. A web-based whistleblower system with predefined investigative processes helps us to identify and sanction any violations. To counter the potential damage to our business resulting from imitations and product piracy, the Company relies on the Patent department's in-depth scrutiny of our markets, its rigorous defense of our interests, and close collaboration with government agencies when necessary. In this risk category, we should highlight the current proceedings by the Department of Justice (DoJ) which are due to conclude soon, as well as our ongoing dispute with Robert Bosch GmbH concerning the exercise of a **put option** **[p. 203]** on the latter's shares in KB SfN GmbH and KB Japan. Further details of the latter proceedings can be found in Section H.9 of the Notes to the consolidated financial statements.

In addition, risks may potentially arise from changes to legal regulations, such as breaches of the EU General Data Protection Regulation (GDPR) or changes relating to employee rights or employee leasing. The impact of Brexit was no longer considered to be material at the time the financial statements were prepared. The risk of a disorderly Brexit is averted by an exit in accordance with the terms agreed on January 31, 2020. There are still uncertainties surrounding the end of the transition period at the end of 2020, however. Our assessment includes the possibility of additional operating expenses as a result of customs duties, freight costs or organizational changes, as well as the possible impact on our UK companies of exchange rate effects due to a devaluation of sterling against the euro. Cross-divisional Brexit teams were formed to identify or formulate measures such as alternative logistics concepts, stockpiling and organizational adjustments, for example. In 2019, sales revenues from our UK companies totaled 4% of Group revenues. It is not possible to reliably determine potential indirect effects such as a market slowdown in both the UK and the European Union; consequently, these have not yet been taken into account.

RISKS ASSOCIATED WITH RESEARCH AND DEVELOPMENT

Both product development and product optimization processes are generally associated with a range of risks, in particular time-to-market delays and deviations from product quality requirements, e.g. in respect of approval procedures. It is also important to safeguard against potential infringements of intellectual property (IP) rights. In addition, costs may overrun the original budget, especially in relatively long-term development projects. To meet these challenges, we have a global, highly qualified team of R&D specialists, cutting-edge R&D facilities, efficient and effective processes, all under tight project control. As well as the state-of-the-art Technology Center at our Munich head office, equipped with the latest measuring stations and test rigs, we should also mention our R&D Centers in Schwieberdingen (Germany), Budapest (Hungary), Pune (India), and in Elyria, Ohio (USA).

RISKS ASSOCIATED WITH PURCHASING

Potential risks in the procurement process include along with the impact of the coronavirus in particular late deliveries, quality defects and rising supplier prices that cannot always be passed on in full to customers, or possibly only after some time has elapsed. There is also a risk of supplier insolvencies – although experience has shown that this risk is rather low since we ensure the high quality of our suppliers both during the selection process and as part of our continuous monitoring program. Moreover, we have selected multiple suppliers for almost all strategically relevant product components in order to reduce our dependency on individual suppliers as far as possible. We conclude framework agreements with our suppliers in order to minimize supply risks. We also pool procurement volumes to obtain more advantageous purchasing terms.

MARKET AND CUSTOMER RISKS

Even after drawing up a detailed sales budget that fully reflects market expectations for a given fiscal year, unexpected market developments or individual customer risks can easily cause revenue targets and associated earnings targets to be missed. With respect to markets, the Commercial Vehicle Systems division's business is the main concern because it is generally more sensitive to cyclical fluctuations. Any decline in vehicle production usually has a direct impact on revenues from the division's original equipment (OE) business. Irrespective of order trends, customer pressure on prices may also have a negative impact on margins. In the Rail Vehicle Systems division, where project business plays a more important role, we focus not just on market movements, but also on possible strategic and operational project delays. In addition, price pressures can arise in both segments as a result of customers merging. This is currently the case in the rail vehicles market due to the planned takeover of Bombardier by Alstom. Thanks to the Group's broad global base, the effects of regional or segment-related market developments can often be offset, even across the divisions. During the coronavirus crisis, however, both divisions are exposed to considerable market risk in all regions. Depending on how the pandemic unfolds, the repercussions could prove to be even more detrimental than currently anticipated.

LOGISTICAL RISKS

Material risks affecting logistics include possible delays in the supply chain to Knorr-Bremse as well as in the Company's own supply chain through to its end customers. Such delays may result in production delays or downtime, which in turn may cause bottlenecks in deliveries to our customers. We counteract these risks by means of an integrated planning process that is closely coordinated with our production and delivery schedules. Optimized warehouse management also enables us to achieve a balance between availability on the one hand and capital-efficient inventories on the other. Even so, special freight (e.g. air freight) and other measures to eliminate delivery bottlenecks may be required, entailing higher logistics costs.

PRODUCTION-RELATED RISKS

Bottlenecks in production can result in particular from a lack of manpower or insufficient production capacity, or also because of machine downtimes. Risks may also arise in connection with the termination of supply contracts with major suppliers. We counteract these risks firstly by means of coordinated production planning and contractual covenants, and secondly by relying on state-of-the-art production facilities and regular maintenance, investing in replacement equipment whenever required in order to avoid equipment obsolescence. Integrated quality controls enable us to identify and remedy quality defects at an early stage so we can avoid rejects, waste and reworking. Our globally standardized manufacturing concept, the Knorr-Bremse Production System (KPS), ensures that all production sites meet our high quality standards. Comprehensive occupational safety and environmental protection standards have also been defined within the Group.

RISKS ASSOCIATED WITH QUALITY AND PRODUCT LIABILITY

The primary objective of quality management is to ensure that we reliably fulfill our customers' requirements. As a manufacturer of safety-relevant products, quality is an especially high priority and has been deeply embedded in our corporate values for many years. If, despite comprehensive quality assurance measures, we were on occasion to supply our customers with products that did not meet the expected quality standards, there is a risk of incurring additional costs for rectifying defects or settling customers' warranty claims. In such cases, we work closely with our customers to promptly find and implement solutions. Our overall exposure to quality and product liability risks is offset by extensive provisions that in most cases almost fully cover these risks (risk category after provisions = low).

RISKS ASSOCIATED WITH HUMAN RESOURCES (HR)

By comparison with Western Europe, employee turnover in other regions is significantly higher. To mitigate the risk of employee turnover, we offer attractive remuneration packages, working conditions and professional development opportunities. We are addressing the shortage of skilled workers with our own management development program aimed at recruiting young, talented, capable employees and retaining them in the Company over the long term. Nevertheless, the departure of highly qualified employees can result in a loss of expertise and resource bottlenecks. In addition to running in-house training courses, we also undertake targeted marketing in universities and offer dual vocational education and training (work-study programs). Rising pension benefits represent a further risk, as declining interest rates or longer life expectancies can drive up costs. However, these are relatively minor in relation to our total assets, and have already been partially outsourced to external pension funds.

RISKS ASSOCIATED WITH FINANCE AND TREASURY

Currency, interest rate and liquidity risks are described in detail in Section H.1 of the Notes to the consolidated financial statements. Detailed information on this risk category can also be found below under "Risk Report on the Use of Financial Instruments".

RISKS ASSOCIATED WITH MERGERS AND ACQUISITIONS (M&A)

Risks can arise from strategic and operational perspectives, both during the M&A process itself and in the post-merger integration (PMI) phase. Among other things, from a financial perspective such risks include possible mispricing, which we seek to prevent by conducting extensive due diligence. Other risks include higher than expected integration and onboarding costs, or delays during the integration process and subsequent changes to the purchase price. Provisions are set aside for these where necessary (risk category after provisions = very low). To reduce these risks, we involve employees holding key positions in the integration process at an early stage. This makes it easier to ensure effective integration with our corporate culture, working conditions, systems and processes.

RISKS ASSOCIATED WITH PROJECT MANAGEMENT

Owing to the division's reliance on project-related business, specific risks may arise from customer projects in the Rail Vehicle Systems division especially. Such risks include in particular budget or schedule overruns, as well as divergences from agreed product specifications. For instance, failure to deliver on time or with the warranted product features may result in additional remediation costs or lead to contractual compensation payments or penalties. We have set aside provisions to partially cover these risks (risk category after provisions = very low). To avoid such risks, we rely on effective project management and controlling, fine-grained monitoring and intensive interaction with our customers.

RISKS ASSOCIATED WITH IT SYSTEMS AND IT SECURITY

Insufficient system stability and inadequate data availability pose fundamental IT risks. In times of increasing cyberattacks in particular, we protect ourselves through our Group-wide IT organization and up-to-date security systems, including antivirus software and firewalls. In addition, we regularly make our employees aware of fraudulent emails and the best ways to deal with them. Redundant data centers in Europe, the USA and Asia protect us against possible data loss and the failure of critical systems. Further risks may also arise in connection with software licenses. Overall, we deem IT-related risks to be high in the event of an attack, but otherwise consider them to be average industry-standard risks when assessed against the usual probabilities.

OTHER RISKS

The Other Risks category includes all risks that do not fall into one of the above-mentioned categories. These include, for example, potential reputational damage, or financial losses caused by fraudulent activities (both internal and external), which we currently rate as low.

Risk Report on the Use of Financial Instruments

CURRENCY, INTEREST RATE, LIQUIDITY, COMMODITY PRICE AND CREDIT RISKS, AND FINANCIAL INSTRUMENTS FOR MINIMIZING RISKS

As a result of its international activities and the volatility of the world's financial markets, the Knorr-Bremse Group is exposed to various financial risks, especially market risks, liquidity risks and credit risks. Company policy aims to limit these risks through systematic financial management. The Group therefore utilizes a number of financial instruments such as forward exchange transactions, currency options, and various forms of swaps, including currency swaps. Derivative financial instruments are used solely to hedge existing positions (hedged items) against interest rate and exchange rate exposure (in line with market risk).

HEDGING OF FOREIGN CURRENCY RISKS

Forward exchange transactions and currency options are used solely to hedge the currency risks on selected assets and anticipated cash flows within the Knorr-Bremse Group. Knorr-Bremse AG's hedging transactions are designed to reduce risks arising from exchange rate fluctuations. We always enter into a separate hedging transaction for each individual major project. All financial derivatives and their hedged items are regularly monitored and measured. The effectiveness of the hedging relationship is also monitored, and hedges are adjusted under certain circumstances.

The high level of local manufacturing and local supply within the respective currency zones established by the Group's geographical diversification in recent years has minimized our transactional exposure. **Hedge accounting** **[p. 203]** was used for the first time in fiscal 2019 to record the offsetting of fluctuating cash flows that result from exchange rate movements and are associated with transactions that are highly likely to occur.

HEDGING OF INTEREST RATE RISKS

We pursue a conservative interest rate and financing strategy with three core elements: long-term interest rate and financing security, matching maturities, and a ban on speculation.

Our financial liabilities are primarily the bonds issued in 2016 and 2018. Our corporate financing is exposed to limited interest rate risks. The risk of interest rate fluctuations arising from operational activities is also of no great significance to the Knorr-Bremse Group at present, as the Group's geographical diversification in recent years has established a high level of local manufacturing and local supply within the respective regions. Our interest rate risk management covers all interest-bearing and interest-sensitive balance sheet items. Regular interest rate analyses allow us to identify risks at an early stage. Corporate Treasury is primarily responsible for debt financing, financial investment and interest rate hedging; exceptions above a certain size must be approved by the Chief Financial Officer.

Our pension risks are manageable. At € 343.3 million, pension provisions at the end of the year were above the previous year's level (2018: € 307.5 million), thus representing 5.0% (2018: 4.9%) of total assets.

HEDGING OF LIQUIDITY RISKS

Our liquidity requirements are largely covered by our operating cash flow. Cash and cash equivalents together with existing credit facilities allow us to meet our payment obligations at all times. By virtue of cash pooling in each of our respective currency zones, we can utilize individual companies' liquidity surpluses for other Group subsidiaries, to the extent permitted by national capital transfer regulations. This avoids recourse to loans and associated interest expenses.

CREDIT RISKS

Credit risks arise from deposits with banks, operating trade receivables from customers, and contractual assets. Where banks and lending institutions are concerned, the risk relates to counterparty default. Where customers are concerned, the risk relates to late or partial settlement or non-settlement of receivables without compensation, or outright default. The book value of the financial assets reported in the consolidated financial statements represents the maximum default risk. Banks and customers are regularly monitored and decisions on financial transactions are made on the basis of this monitoring. Contracts for derivative financial instruments and financial transactions are only concluded with financial institutions with high credit ratings to keep the counterparty default risk as low as possible. Commercial transactions are always exposed to some risk of a possible loss in value due to defaulting by business partners such as banks, suppliers or customers.

There was no material concentration of default risk in relation to a given counterparty or clearly identifiable group of counterparties. As at the reporting date, there were no material agreements in place that would limit the maximum risk of default.

HEDGING OF COMMODITY PRICE RISKS

Commodity price risks exist whenever raw materials required in the production process (especially metals) can only be purchased at higher costs due to fluctuating market prices and it is not possible to offset these higher costs by adjusting the selling price to customers. When analyzing commodity price risks, our calculations include both the planned purchases of raw materials – or of components containing raw materials – and the associated sales contracts. The resulting risk position, representing our exposure, is continuously monitored and hedged on a case-by-case basis using commodity swaps. Hedge accounting is not applied in this case.

FINANCING RISKS

Knorr-Bremse's financing situation is comfortable and reflects the Company's excellent credit standing and solid balance sheet structure. As at December 31, 2019, Knorr-Bremse had approved credit facilities of € 1,857.8 million in place, of which around 62.3% remained undrawn, plus two bonds totaling € 1,250 million which will mature in 2021 and 2025. Neither our credit facilities with banks nor the bonds we have issued include any **financial covenants** **[p. 202]**.

HEDGING OF INVESTMENT RISKS

Our investment guideline governs the handling of investment risks. Among other things, it defines approved asset classes and creditworthiness requirements. We do not hold any government bonds; consequently, there are no associated repayment or impairment risks.

RATING

See Financial Position (Financial Development) in the Liquidity section.

More information on the management of financial risks can also be found in Section H.1 of the Notes to the consolidated financial statements.

Opportunity Management System

Knorr-Bremse's opportunity management system is unchanged from the previous year, and follows the same processes as the risk management system. Alongside regular management reviews, opportunities are also reported in the quarterly report on risks and opportunities. It should always be borne in mind, however, that even opportunities may be associated with risks that must be carefully weighed up in all circumstances.

As part of the rigorous implementation of Knorr-Bremse's growth strategy, we continuously monitor current and future markets in order to pinpoint and evaluate potential global opportunities at an early stage. To do this, we stay in close contact with our customers and suppliers so we can identify future trends and any resulting market demand. Furthermore, we conduct regular benchmark analyses both against our direct competitors and against peer groups of subcontractors in the rail and commercial vehicle sectors. As well as the Executive Board and Corporate Development function, the divisions' central departments are also responsible for identifying potential opportunities to adapt existing products to meet future customer needs or add new product areas. Knorr-Bremse makes above-average investments in new technologies in order to further extend the Company's innovation and market leadership, safeguard our existing sales markets, and open up new markets. In addition to internal growth opportunities, we also exploit external opportunities by undertaking targeted acquisitions and setting up joint-venture companies.

Operational opportunities are discussed in regular reviews at divisional level, taking account of specific regional circumstances. Knorr-Bremse is constantly working to optimize cost management and streamline process efficiency to further enhance the competitiveness of the Company's products and services.

Synergies Between Divisions

Strategic opportunities are also pursued at Group level. The Executive Board and senior management continually monitor long-term trends and any associated potential opportunities that are important for future corporate development and planning.

Our presence in the two related market segments of rail vehicles and commercial vehicles offers numerous synergies. As our product offerings across the two divisions are based on similar core technologies, joint development projects enable the transfer of know-how, intellectual property and experience. Moreover, some systems for rail vehicles and systems for commercial vehicles use similar components and materials. Such synergistic areas include materials science for friction materials, and disk brake technology. Future development work in both product areas will benefit from shared experience in, for example, the use of sensors in environment detection systems.

Megatrends

The following megatrends represent important strategic opportunities for Knorr-Bremse:

URBANIZATION

Growing population sizes and increasing urbanization are opening up opportunities for our rail and commercial vehicle systems business as the demand for faster, safer and more reliable modes of transportation continues to grow.

SUSTAINABILITY

Knorr-Bremse is benefiting from opportunities to expand rail transportation as cities, states and countries make growing efforts to combat climate change. Electrification and other energy-efficient and eco-friendly solutions are the result of a growing public awareness of the importance of energy efficiency, combined with intensified government energy initiatives such as stricter emission regulations. End-to-end eco-design is helping to reduce the carbon footprint of our products and make transportation more energy-efficient.

DIGITALIZATION

Digitalization is accelerating system and subsystem connectivity for rail and commercial vehicles, and this in turn is enabling real-time data analysis and predictive maintenance, thereby improving life cycle costs. Artificial intelligence is used to develop new generations of products and create tomorrow's customer solutions. Other Digitalization solutions include automated train operation (ATO), condition-based maintenance of rail vehicles, and monitoring tools and telematics solutions for commercial vehicles.

MOBILITY

An increasingly mobile and interconnected global population is continuing to drive up the demand for safer and more efficient mobility and logistics solutions. Our product range across both divisions is making a decisive contribution to meeting this demand. New solutions are being developed in response to this growing trend, primarily in the form of automated driving features and driver assistance functions that aim to reduce accidents, transportation costs and emission levels.

All these megatrends are listed according to their importance for sector-specific industry trends and creating growth opportunities for both rail vehicle and commercial vehicle systems.

General Statement on the Risks and Opportunities Situation

Analysis of the Group-wide risk profile has revealed no identifiable risks that could threaten the survival of the Company.

Report on Expected Developments

Global Economy: Recession Expected in 2020

The economic climate in spring 2020 is marked by various political crises and above all, since the end of January, by the growing ramifications of coronavirus. On March 11, 2020, the World Health Organization (WHO) declared the coronavirus epidemic to be a "pandemic", clearly underscoring its global dimensions.

The resulting impact on the global economy is still very difficult to assess. Following the coronavirus outbreak, the International Monetary Fund (IMF) revised its global economic growth projection downward by 0.1 percentage points. The IMF is now assuming the global economy will grow by 3.2% in 2020. However, because this depends on the spread of the virus among other things, there is still a large measure of uncertainty surrounding this forecast. OECD analysts currently predict that global economic growth will plunge to 2.4% in 2020 (2019: 2.9%), with the real possibility of negative growth in the first quarter of 2020. If the effects of COVID-19 last longer and are more severe than currently assumed, and if the virus spreads throughout Europe, North America and the Asia/Pacific region, global growth could even fall to 1.5% in 2020. Once the pandemic has been successfully overcome, however, OECD analysts expect GDP growth to bounce back to 3.25% in 2021.

The eurozone is the region of the world most affected at present, and a number of countries have already responded with wide-ranging interventions that will have a significant impact on economic growth. The OECD's economic experts currently assume that in the eurozone, strong short-term recessionary pressure will be followed in the second half of the year by a recovery boosted by government support. On March 25, 2020, the ifo Business Climate Index fell from 96.0 points in February to 86.1 points, the steepest fall ever recorded since German reunification and the lowest value since July 2009. The ifo Institute is forecasting a severe recession lasting for at least two quarters.

As far as the United Kingdom is concerned, the now expected Brexit trajectory means that no significant effects that could materially affect EU growth are anticipated. Analysts are assuming a transitional year for trading activities between the European Union and the United Kingdom, although the actual shape of the agreement regarding the future relationship between the EU and the UK is still unclear.

As a result of the coronavirus crisis, the OECD downgraded growth forecasts for the Chinese market in the first quarter of 2020 to below 5%. It predicted growth would then rebound to 6% in 2021 thanks to government stimulus packages.

The picture in the USA at present is similar: a U-shaped trend in the form of a steep decline in economic activity in 2020 followed by a government-supported recovery in 2021 that will more than compensate for lost ground.

The financial markets' response to the international spread of coronavirus has been a flight to safe assets. Since the beginning of the last week in February, share indices have fallen sharply, albeit from a very high starting point, whereas gold prices and government bond rates have seen a strong rise.

The current assumptions and expectations reflect the assessments of the economic institutes in March 2020. Owing to rapidly changing developments associated with the worldwide spread of COVID-19, it is not currently possible to make a reliable statement regarding its economic impact on individual regions.

Clearly, the general economic climate has an impact on Knorr-Bremse's performance. This impact is more pronounced in the Commercial Vehicle Systems division. Thanks to public-sector demand and the higher proportion of aftermarket business, the Rail Vehicle Systems division is significantly less at the mercy of cyclical fluctuations.

Global Rail and Commercial Vehicle Markets

Our assessments suggest that medium to long-term demand will continue to be robust for both divisions. However, owing to the economic consequences of the coronavirus crisis, we expect sales for both divisions to show a significant drop in all regions in fiscal 2020. This will primarily impact original equipment (OE) business, although it is unlikely that aftermarket business will be entirely unaffected. In the commercial vehicles segment, the truck production rate reached such high levels in the previous year that it was expected to decline in all regions even before coronavirus intervened. The COVID-19 outbreak will significantly amplify this trend, however.

Revenues and Profitability

The rapidly spreading coronavirus pandemic will have a major impact on growth, both at the macroeconomic level and for Knorr-Bremse. At this point in time, it is not possible to reliably quantify the incalculable economic consequences of the coronavirus crisis.

The number of temporary plant closures among customers and suppliers ordered by the authorities has risen considerably. From today's perspective, we anticipate a sharp fall in 2020 revenues compared with 2019. Consequently, there will also be a significant decline in our EBITDA and EBIT margins (operating and reported), both of which will sink below the previous year's levels. Continuing from the groundwork laid in 2019, personnel related and other cost-cutting measures will be taken to stabilize earnings. These include short-time working, flexible workforce restructuring – in the production operations of the two divisions in particular – and strict cost management across the Group. We regard 2020 as an opportunity to demonstrate the robustness of our business model.

As a result of the decline in EBIT in 2020, **ROCE** **[p. 203]** is likely to fall well below the previous year's level. However, in 2020 we expect net working capital in days' sales to be well above the figure for the previous year. At the same time, we anticipate a disproportionately small operating decrease in net working capital compared with the decline in revenues. The decrease will be offset by measures to safeguard delivery capacity.

Employees

In line with the negative revenue growth, the headcount at the end of 2020 is likely to be significantly lower than in 2019.

Other Performance Indicators

Compared with 2019, we also anticipate a marked fall in other performance indicators, including incoming orders, order book and capital expenditure.

Despite currently unstable market conditions, we are standing by our dividend policy and proposing a dividend of € 1.80 per share (2018: € 1.75), more or less in the middle of the target range set down in our shareholder guidance. On the one hand, this proposal is based on a very successful 2019 fiscal year. On the other, Knorr-Bremse AG is still in a very stable financial position, even in these uncertain times.

Divisions

The Group's growth is reflected analogously in its two divisions, as in all regions in which it operates. Revenues and EBITDA margins are expected to be well down on the previous year in both divisions. We are taking a wide variety of steps to stabilize profitability.

Executive Board's Statement Summarizing Expected Developments

Owing to the incalculable economic impact of the coronavirus crisis, in the Executive Board's opinion it is impossible to reliably quantify future business performance at the present time.

Taking current assumptions about the impact of the coronavirus pandemic into account, in general we estimate that the Group's key performance indicators will evolve as follows in fiscal 2020:

We expect revenues, EBITDA margin and EBIT margin (both operating and reported), and ROCE in 2020 to be significantly down on the previous year. The working capital commitment period in days' sales should be significantly higher than in 2019. In line with the negative sales growth, the headcount is likely to be significantly lower than in the previous year.

As well as dealing with the effects of the coronavirus crisis, among the most significant challenges lying ahead are the imperatives to maintain our innovation leadership, respond rapidly to changing market circumstances, and continually

2.30 EXPECTED GROWTH RATES

Growth in % (GDP)*	2019	2020	2021
World	2.9	2.4	3.3
Eurozone	1.2	0.8	1.2
Germany	0.6	0.3	0.9
France	1.3	0.9	1.4
Italy	0.2	0.0	0.5
UK	1.4	0.8	0.8
Japan	0.7	0.2	0.7
China	6.1	4.9	6.4
India	4.9	5.1	5.6
USA	2.3	1.9	2.1
Canada	1.6	1.3	1.9
Brazil	1.1	1.7	1.8
Russia	1.0	1.2	1.3

*expected as of 2020. Source: OECD Interim Economic Assessment, March 2, 2020 improve our cost position. With this in mind, we are continuing to develop our competencies, invest in the future and adapt our organization to enhance our efficiency and satisfy market demands. This will safeguard Knorr-Bremse's global market leadership in both rail and commercial vehicle markets going forward. Coupled with our flexible utilization of liquidity measures, our robust business model gives us access to sufficient financial resources for us to continue to pursue a sustainable dividend policy and further expand the Group by means of acquisitions. Potential acquisition targets include providers of technologies that complement our core business.

KNORR-BREMSE AG (HGB)

The annual financial statements of Knorr-Bremse AG comply with the provisions of German GAAP (according to the German Commercial Code – HGB), whereas the consolidated financial statements have been prepared in compliance with IFRS. As the parent company of the Group, Knorr-Bremse AG performs the role of service provider and holding company, as well as operational management functions. The Company's commercial development depends primarily on the business performance of the operating Group companies. The economic environment in which Knorr-Bremse AG operates essentially corresponds to that of the Group as described in the Business Report starting on page 72, under "general economic and industry-related conditions".

Income (loss) from investments in affiliated companies is regarded as the most significant performance indicator. This includes income from participations, income from profit transfer agreements and expenses from loss transfers.

As at year-end 2019, Knorr-Bremse AG had 118 employees (2018: 103).

Net Assets, Financial Position and Results of Operations

Along with interests in affiliated companies, Knorr-Bremse AG's balance sheet largely reflects receivables from and payables to Group companies. These are centrally administered, partly within the framework of the cash-pooling process managed by Knorr-Bremse AG.

Total assets of Knorr-Bremse AG amounted to € 2,450.3 million (2018: € 2,424.9 million). Equity rose from € 551.7 million in 2018 to € 640.1 million in 2019, mainly as a result of profit retention in the fiscal year.

In 2019, higher income from investments in affiliates resulted in an increase in earnings before taxes to € 427.5 million (2018: € 395.8 million). Contrary to the forecast in 2018 of significantly lower income from investments, income from investments rose to € 507.1 million in 2019 (2018: € 480.9 million). Income from investments in Europe and Asia/Pacific rose sharply due to good business development, while special dividends were waived in North America in 2019.

Knorr-Bremse AG acts as an in-house bank for its subsidiaries around the world. This includes handling the central hedging of market price risks. The subsidiaries contract their hedging transactions with Knorr-Bremse AG, which in turn hedges part or all of the residual net risk for the Group with external banks. With the aid of the global process standardization and process transparency achieved through Knorr Excellence, Knorr-Bremse AG is able to efficiently manage its own business and that of its affiliated and related companies. The overall development of Knorr-Bremse AG was positive.

Appropriation of Retained Net Earnings

Knorr-Bremse AG posted retained net profit of € 461.7 million in fiscal 2019 (2018: € 373.4 million). The Annual General Meeting will be asked to approve the proposal that an amount of € 290.2 million from this net profit should be used to pay a dividend of € 1.80 per dividend-bearing share (161,200,000 shares), with the balance being carried forward.

Relationship with Affiliated Companies

In the view of the Executive Board, under Section 312 of the German Stock Corporation Act (AktG), Knorr-Bremse AG constitutes a company directly dependent on KB Holding GmbH, Grünwald/Germany, which directly holds more than half of the share capital of Knorr-Bremse AG. The Executive Board understands that the shares in KB Holding are held by TIB Vermögens- und Beteiligungsholding GmbH, Grünwald/Germany, the majority of whose shares are in turn held by Stella Vermögensverwaltungs GmbH, Grünwald/Germany. The Company is therefore indirectly dependent on TIB and Stella pursuant to Section 17 in conjunction with Section 16(4) AktG. To the Executive Board's knowledge, the majority of Stella's shares have been held by Mr. Heinz Hermann Thiele, Munich/Germany, since July 2017. The Executive Board therefore assumes that, through the intermediary of the respective majority shareholdings in KB Holding, TIB, and Stella, the Company is indirectly dependent on Mr. Thiele. Consequently, the companies dependent upon the Company under Section 17 AktG are also dependent upon Mr. Thiele.

Pursuant to Section 312 AktG, the Executive Board has drawn up a Report on Relations with Affiliated Companies which includes the following statement by the Executive Board:

"We declare that in the legal transactions and measures shown in the Report on Relations with Affiliated Companies, according to the circumstances known to us at the time at which the said legal transactions took place or measures were taken or refrained from, in each case Knorr-Bremse AG received appropriate consideration for the legal transactions and was not placed at a disadvantage as a result of measures taken or refrained from." The report was verified by the Auditor and received an unqualified opinion.

Risks and Opportunities

Knorr-Bremse AG participates in the risks and opportunities of its subsidiaries; the degree of participation depends on the respective shareholding. For more details, please refer to the "Report on Risks, Opportunities and Expected Developments" section starting on page 88. Furthermore, the liability relationships existing between Knorr-Bremse AG and its subsidiaries may result in exposure to risks.

Expected Developments

Knorr-Bremse AG's future business growth is closely linked to the Group's ongoing operating performance. The Report on Risks, Opportunities and Expected Developments (starting on page 88) provides more details of our prospects and plans for our operating activities.

Knorr-Bremse AG anticipates slightly lower income from investments in affiliated companies in 2020. This will not, however, affect our future ability to pay dividends. Based on the assumptions made for the Group, Knorr-Bremse AG's net assets, financial position and results of operations can be expected to remain stable.

Owing to the incalculable economic impact of the coronavirus crisis, in the Executive Board's opinion it is not possible to reliably quantify future business performance at the present time.

Munich, March 31, 2020

Knorr-Bremse AG

The Executive Board

BERND EULITZ RALPH HEUWING DR. PETER LAIER DR. JÜRGEN WILDER

Brake Control System EP2002 3.0
in the Knorr-Bremse Forum

03

CONSOLIDATED FINANCIAL STATEMENTS

Consolidated statement of income

of Knorr-Bremse AG, for the fiscal year from January 1 to December 31, 2019

3.01 CONSOLIDATED STATEMENT OF INCOME

in € thousand	Notes	2019	2018
Revenues	E.1.	6,936,530	6,615,800
Change in inventory of unfinished/finished products	E.2.	5,713	34,424
Own work capitalized	E.2.	73,316	48,047
Total operating performance		**7,015,558**	**6,698,271**
Other operating income	E.3.	116,976	66,233
Cost of materials	E.4.	(3,428,564)	(3,318,227)
Personnel expenses	E.5.	(1,593,772)	(1,496,981)
Other operating expenses	E.6.	(781,512)	(771,254)
Earnings before interest, tax, depreciation and amortization (EBITDA)		**1,328,687**	**1,178,042**
Depreciation and amortization	E.7.	(265,780)	(205,570)
Earnings before interests and taxes (EBIT)		**1,062,908**	**972,472**
Interest income	E.8.	27,598	20,128
Interest expenses	E.8.	(51,059)	(54,379)
Other financial result	E.8.	(132,330)	(62,715)
Income before taxes		**907,116**	**875,506**
Taxes on income	E.9.	(275,099)	(246,070)
Net income		**632,018**	**629,435**
Thereof attributable to:			
Profit (loss) attributable to non-controlling interests		43,595	36,644
Profit (loss) attributable to the shareholders of Knorr-Bremse AG		588,423	592,792
		632,018	**629,435**
Earnings per share in Euro	**E.10.**		
undiluted		3.65	3.68
diluted		3.65	3.68

Consolidated statement of comprehensive income

of Knorr-Bremse AG, for the fiscal year from January 1 to December 31, 2019

3.02 CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

in € thousand	Notes	2019	2018
Net income		**632,018**	**629,435**
Actuarial gains and losses	F.10.1.	(35,168)	4,571
Equity instruments recognized directly in equity	F.14.3.	(8,506)	(9,596)
Deferred taxes	E.9.5.	9,228	1,760
Items that will not be reclassified to profit or loss		**(34,446)**	**(3,264)**
Currency translation		20,382	(7,838)
Hedging transactions reserve		(1,298)	–
Reserve for costs of hedging		(2,937)	–
Deferred taxes		1,340	–
Items that may be reclassified to profit or loss		**17,487**	**(7,838)**
Other comprehensive income after taxes		**(16,958)**	**(11,102)**
Comprehensive income		**615,060**	**618,333**
Total comprehensive income attributable to non-controlling interests		45,332	31,158
Total comprehensive income attributable to the shareholders of Knorr-Bremse AG		569,728	587,175

Consolidated balance sheet

of Knorr-Bremse AG, as of December 31, 2019

3.03 CONSOLIDATED BALANCE SHEET – ASSETS

in € thousand	Notes	2019	2018
Assets			
Intangible assets and goodwill	F.1., F.2.	842,180	643,159
Property, plant and equipment	F.3.	1,469,212	1,167,184
Investments accounted for using the equity method		16,570	1,873
Other financial assets	F.4.	63,471	74,990
Other assets	F.5.	73,930	38,167
Assets from employee benefits	F.9.	31,611	28,373
Deferred tax assets	E.9.	126,598	138,101
Non-current assets		**2,623,572**	**2,091,847**
Inventories	F.6.	815,011	836,326
Trade accounts receivable	F.5.	1,148,999	1,237,381
Other financial assets	F.4.	62,565	24,260
Other assets	F.5.	152,088	123,433
Contract assets	B.1., E.1.	89,885	99,284
Income tax receivables	F.14.	73,900	93,650
Cash and cash equivalents	F.7.	1,880,738	1,756,033
Current assets		**4,223,186**	**4,170,367**
Balance sheet total		**6,846,758**	**6,262,213**

3.04 CONSOLIDATED BALANCE SHEET – LIABILITIES

in € thousand	Notes	2019	2018
Equity			
Subscribed capital	F.8.1.	161,200	161,200
Capital reserves	F.8.2.	13,884	13,884
Retained earnings	F.8.3.	34,156	39,924
Other components of equity		(179,311)	(161,024)
Profit carried forward		1,166,041	855,127
Profit attributable to the shareholders of Knorr-Bremse AG		588,423	592,792
Equity attributable to the shareholders of Knorr-Bremse AG		**1,784,393**	**1,501,902**
Equity attributable to non-controlling interests		117,121	105,208
thereof share of non-controlling interests in net income		43,595	36,644
Equity		**1,901,514**	**1,607,110**
Liabilities			
Provisions for pensions	F.9.	343,273	307,547
Provisions for other employee benefits	F.9.	19,545	24,511
Other provisions	F.10.	273,147	243,578
Financial liabilities	F.12.	1,658,190	1,529,557
Other liabilities	F.11.	5,627	4,741
Income tax liabilities	F.14.	51,908	92,599
Deferred tax liabilities	E.9.	80,789	82,603
Non-current liabilities		**2,432,480**	**2,285,136**
Provisions for other employee benefits	F.9.	29,136	11,612
Other provisions	F.10.	197,585	233,213
Trade accounts payable	F.11.	967,447	995,945
Financial liabilities	F.12.	875,567	642,895
Other liabilities	F.11.	131,044	133,303
Contract liabilities	B.1., E.1.	277,351	315,122
Income tax liabilities	F.14.	34,635	37,877
Current liabilities		**2,512,764**	**2,369,968**
Liabilities		**4,945,244**	**4,655,103**
Balance sheet total		**6,846,758**	**6,262,213**

Consolidated statement of cash flows

of Knorr-Bremse AG, for the fiscal year from January 1 to December 31, 2019

3.05 CONSOLIDATED STATEMENT OF CASH FLOWS

in € thousand	Notes	2019	2018
Consolidated net income (including minority interests)		632,018	629,435
Adjustments for			
Depreciation, amortization and impairment losses on intangible assets and property, plant and equipment		265,780	205,570
Change of impairment on inventories		(3,105)	23,408
Change of impairment on trade accounts receivable		6,868	13,691
Loss / (gain) on the sale of consolidated companies and other business units		81,885	11,614
(Gain) / loss on the sale of property, plant, and equipment		(44,032)	7,320
Non-cash changes in provisions		186,819	186,847
Other non-cash expenses and income		56,185	(21,494)
Interest result		23,461	34,251
Investment result		2,236	(865)
Income tax expense		275,099	246,070
Income tax payments		(224,181)	(234,292)
Changes of			
inventories, trade accounts receivable as well as other assets, which cannot be allocated to investing or financing activities		(57,865)	(245,307)
Trade accounts payable as well as other assets which cannot be allocated to investing or financing activities		(38,965)	21,962
Provisions		(176,411)	(152,685)
Cash flow from operating activities	**G.1.**	**985,791**	**725,526**
Proceeds from the sale of intangible assets		1,083	–
Disbursements for investments in intangible assets		(97,885)	(93,658)
Proceeds from the sale of property, plant and equipment		191,850	29,059
Disbursements for investments in property, plant and equipment		(220,262)	(230,033)
Proceeds from financial investments and from the sale of financial investments		485	499
Proceeds from/disbursements for the sale of consolidated companies and other business units		(29,070)	(13,679)
Disbursements for investments in financial investments		(17,088)	–
Disbursements for the acquisition of consolidated companies and other business units		(194,367)	(3,200)
Interest received		15,154	16,206
Disbursements for investments in plan assets (pensions)		(3,715)	(9,206)
Cash flow from investing activities	**G.2.**	**(353,816)**	**(304,013)**

in € thousand	Notes	2019	2018
Proceeds from borrowings		40,851	757,800
Disbursements from the repayment of borrowings		(90,244)	(8,663)
Disbursements for lease liabilities (until 2018: Disbursements for finance lease liabilities)		(53,450)	(5,332)
Interest paid (from 2019 including interest payments for IFRS 16)		(33,233)	(18,617)
Dividends paid to parent company shareholders		(282,100)	(850,200)
Dividends paid to non-controlling interests		(55,069)	(48,214)
Net payments from factoring		(2,649)	2,818
Payments for the repurchase of own shares		–	(130,615)
Deposits from shareholder contributions		–	14,850
Disbursements from restitution to silent partners		(10,000)	–
Disbursement from the settlement of derivatives		(19,273)	–
Cash flow from financing activities	**G.3.**	**(505,167)**	**(286,173)**
Cash flow changes		**126,809**	**135,341**
Change in cash funds resulting from exchange rate and valuation-related movements		8,558	3,279
Change in cash funds resulting from changes to the group structure		(596)	1,246
Change of cash fund		**134,771**	**139,866**
Cash and cash equivalents at the beginning of the period		1,718,695	1,578,829
Cash and cash equivalents at the end of the period	**G.4.**	**1,853,466**	**1,718,695**
Cash and cash equivalents		1,880,738	1,756,033
Short-term securities available for sale		2	51
Short-term liabilities to banks (less than 3 months)		(27,274)	(37,389)

Consolidated statement of changes in equity

of Knorr-Bremse AG, as of December 31, 2019

3.06 GROUP – STATEMENT OF CHANGES IN EQUITY

in € thousand	Notes	Subscribed capital	Capital reserves	Retained earnings	Group earnings
As of 12/31/2018		**161,200**	**13,884**	**39,924**	**1,447,918**
Initial application of IFRS 16		–	–	(5,768)	–
As of 01/01/2019		**161,200**	**13,884**	**34,156**	**1,447,918**
Dividend payment		–	–	–	(282,100)
Net income		**–**	**–**	**–**	**588,423**
Other comprehensive income after taxes		–	–	–	–
Comprehensive income		**–**	**–**	**–**	**588,423**
Capital increase from retained earnings		–	–	–	–
Deposits by shareholders		–	–	–	–
Allocation to retained earnings		–	–	–	–
Acquisition of non-controlling interests		–	–	–	(46)
Equity-settled share-based payment		–	–	–	–
Realized losses from financial assets measured at fair value through OCI		–	–	–	–
Gains and losses on hedging transactions and costs of hedging reclassified to inventories		–	–	–	–
Other changes		–	–	–	270
As of 12/31/2019	**F.9.**	**161,200**	**13,884**	**34,156**	**1,754,465**
As of 12/31/2017		**67,600**	**1,310**	**106,956**	**1,838,338**
Initial application of IFRS 15		–	–	8,749	–
As of 1/1/2018		**67,600**	**1,310**	**115,705**	**1,838,338**
Dividend payment		–	–	–	(871,289)
Net income		**–**	**–**	**–**	**592,792**
Other comprehensive income after taxes		–	–	–	–
Comprehensive income		**–**	**–**	**–**	**592,792**
Capital increase from retained earnings		93,600	–	(93,600)	–
Deposits by shareholders		–	10,047	–	–
Allocation to retained earnings		–	–	103,418	(103,418)
Acquisition of non-controlling interests		–	–	(85,599)	–
Equity-settled share-based payment		–	2,533	–	–
Realized losses from financial assets measured at fair value through OCI		–	–	–	–
Gains and losses on hedging transactions and costs of hedging reclassified to inventories		–	–	–	–
Other changes		–	(6)	–	(8,505)
As of 12/31/2018	**F.9.**	**161,200**	**13,884**	**39,924**	**1,447,918**

Other components of equity							
Currency translation	Reserve for costs of hedging	Hedging transactions reserve	Equity instruments recognized directly in equity	Revaluations from defined benefit plans (IAS 19)	Equity attributable to the shareholders of Knorr-Bremse AG	Equity attributable to non-controlling interests	Total equity
(89,198)	**–**	**–**	**(23,672)**	**(48,154)**	**1,501,902**	**105,208**	**1,607,110**
–	–	–	–	–	(5,768)	(13)	(5,781)
(89,198)	**–**	**–**	**(23,672)**	**(48,154)**	**1,496,134**	**105,196**	**1,601,329**
–	–	–	–	–	(282,100)	(33,452)	(315,552)
–	**–**	**–**	**–**	**–**	**588,423**	**43,595**	**632,018**
19,104	(2,008)	(887)	(8,302)	(26,602)	(18,695)	1,737	(16,958)
19,104	**(2,008)**	**(887)**	**(8,302)**	**(26,602)**	**569,728**	**45,332**	**615,060**
–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–
–	–	–	–	–	(46)	46	–
–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–
–	**322**	**236**	**–**	**–**	**558**	**–**	**558**
(611)	–	–	(203)	663	119	–	119
(70,705)	**(1,686)**	**(651)**	**(32,177)**	**(74,093)**	**1,784,393**	**117,121**	**1,901,514**
(97,864)	**–**	**–**	**(14,075)**	**(54,468)**	**1,847,798**	**147,951**	**1,995,748**
–	–	–	–	–	8,749	–	8,749
(97,864)	**–**	**–**	**(14,075)**	**(54,468)**	**1,856,547**	**147,951**	**2,004,498**
–	–	–	–	–	(871,289)	(27,125)	(898,414)
–	**–**	**–**	**–**	**–**	**592,792**	**36,644**	**629,435**
(2,335)	–	–	(9,596)	6,314	(5,617)	(5,485)	(11,102)
(2,335)	**–**	**–**	**(9,596)**	**6,314**	**587,175**	**31,158**	**618,333**
–	–	–	–	–	–	–	–
–	–	–	–	–	10,047	–	10,047
–	–	–	–	–	–	–	–
11,000	–	–	–	444	(74,155)	(56,460)	(130,615)
–	–	–	–	–	2,533	–	2,533
–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–
–	–	–	–	(444)	(8,955)	9,684	729
(89,198)	**–**	**–**	**(23,672)**	**(48,154)**	**1,501,902**	**105,208**	**1,607,110**

Notes to the consolidated financial statements

of Knorr-Bremse AG, for the period from January 1 to December 31, 2019

A. BASIS OF PREPARATION

A.1. About the Company

Knorr-Bremse AG ("Company") is a joint stock company domiciled in Germany. The Company's registered office and headquarters are located in Moosacher Str. 80, 80809, Munich, Germany. The Company is registered in the City of Munich commercial register under HRB 42031. The consolidated financial statements include the Company and its subsidiaries (jointly referred to as the "Group" or "Knorr-Bremse"). The Group is a global manufacturer of brake systems for rail and commercial vehicles and other Security critical systems. The product portfolio of the Rail Vehicle Systems Division also includes the product fields of platform screen doors, entry systems, power supply systems, driver assistance systems, air-conditioning systems, control systems, friction material, windscreen wipers, simulators and control components. The product portfolio of the Commercial Vehicles Systems Division also includes driver assistance systems, steering systems, torsional vibration dampers and solutions relating to the drive train and transmission controls to improve efficiency and save fuel.

A.2. Accounting principles

The Company's consolidated financial statements were prepared in accordance with the International Financial Reporting Standards (IFRS), as they are adopted in the European Union (EU), as well as the supplementary provisions of Chapter 315e (1) of the German Commercial Code (HGB in the version of December 12, 2019). All mandatory standards applicable on the reporting date were implemented. IFRS 16 Leases was applied for the first time in 2019. The consolidated statement of income is prepared based on the total cost method.

A.3. Measurement bases

The Group consistently applied the following accounting methods to all periods presented in these consolidated financial statements.

The consolidated financial statements were prepared according to historical purchase and production costs with the exception of the following balance sheet items with different measurement bases on the respective reporting dates. Table → 3.07

A.4. Functional and presentation currency

The consolidated financial statements are presented in euro, the Company's functional currency. All financial information presented in euro is rounded to thousands of euros (in € thousand), unless otherwise indicated. This may result in rounding differences.

A.5. Use of discretionary decisions and estimates

The preparation of the consolidated financial statements requires a certain amount of discretionary decisions, estimates and assumptions by management, which affect the application of the accounting methods and the stated amounts of

3.07 MEASUREMENT BASES

Asset	Method
Derivative financial instruments	Fair value
Non-derivative financial instruments, measured at fair value through profit or loss	Fair value
Non-derivative financial instruments, measured at fair value through OCI	Fair value
Contingent consideration in a business combination	Fair value
Net debt (asset) from defined benefit plans	Present value of the defined benefit obligation less the fair value of the plan assets

assets, liabilities, income and expenses. Actual results may differ from these estimates.

Estimates and underlying assumptions are on an ongoing basis reviewed. Changes of estimates are reported prospectively.

Discretionary decisions in the application of accounting policies influence the amounts recognized in the consolidated financial statements primarily in relation to consolidation (Chapter C.1. et seqq.) and in relation to revenues recognized over time in the Rail Vehicle Systems segment. This concerns in particular the identification of the respective performance obligations under contracts with customers and the determination of when (or as) they are satisfied (Chapter E.1). For more details on revenues, see Chapter D.1.

Material effects on the consolidated financial statements as a result of assumptions and estimation uncertainty particularly occur in the measurement of defined benefit obligations (Chapters D.14. and F.10.), impairment tests (Chapters D.17. and D.18.), the recognition and measurement of other provisions with respect to litigation and warranties (Chapters D.15. and F.10.) and the determination of the term or the determination of the borrowing cost for leases (Chapter H.11). If revenue is recognized over time according to project progress, assumptions and estimation uncertainty occur in particular in relation to planned project costs (Chapter E.1). The measurement of the warranty provisions is based on estimates regarding expected warranty claims. An important factor with an impact on these estimates is the expected number and size of future warranty claims. In this regard, there is a significant estimation uncertainty resulting from the large range of numbers of potential warranty claims.

The consolidated financial statements were approved for publication by the management board on March 31, 2020.

B. FINANCIAL REPORTING STANDARDS

B.1. Financial reporting standards issued by the IASB and applied for the first time

These consolidated financial statements are prepared by the Group in accordance with the IFRS regulations. All IFRS accounting standards mandatorily applicable in the European Union as of December 31, 2019 are applied. Early application options for new financial reporting standards before mandatory application are not used. The following financial reporting standard of significance for the Group was applied for the first time: Table → 3.08

The financial reporting standard IFRS 16 Leases was published in January 2016 and replaces IAS 17 Leases, IFRIC 4 Determining Whether an Arrangement Contains a Lease, SIC-15 Operating Leases – Incentives, and SIC-27 Evaluating the Substance of Transactions in the Legal Form of a Lease. IFRS 16 establishes the principles for the recognition, valuation, presentation and statement of leases and obligates the lessee to present all leases and associated contractual rights and obligations in the balance sheet, similar to accounting of finance leases in accordance with IAS 17. The standard includes two exceptions for lessees – lease agreements for "low value" assets (such as PCs) and short-term lease agreements (e.g. lease agreements with a term of 12 months or less).

At the start of a lease, a lessee enters a liability for future leasing liabilities and a right of use to the leased asset into the balance sheet for the future; this corresponds to the present value of the future leasing payments plus directly attributable costs and is amortized over the term of use. The lessee is obligated to present the interest expenses for the leasing liability and the depreciation expenses separately.

3.08 FINANCIAL REPORTING STANDARDS ISSUED BY THE IASB AND APPLIED FOR THE FIRST TIME

Standard	New or revised standards and interpretations	Date of mandatory application EU
IFRS 16	Leases	01/01/2019

The lessee is also obligated to remeasure the leasing liability if certain events occur (such as a change in the term of the lease, a change in the future leasing payments due to a change in the index or an (interest) rate used to determine these payments). The lessee will generally recognize the amount of the revaluation for the leasing liability as an adjustment to the capitalized right of use for the leased object.

As of January 1, 2019, the Knorr-Bremse Group has applied IFRS 16 according to the modified retrospective approach, under to which the cumulative effect of the initial application as of January 1, 2019 has been recognized in retained earnings. In the Knorr-Bremse Group, the initial application primarily affected leases previously classified as operating leases. Applying the exemption under IFRS 16.C3, the Knorr-Bremse Group has not applied the standard to contracts previously not classified as leases under IAS 17 and IFRIC 4.

Short-term lease agreements with a term of less than 12 months (and without a purchase option) and lease agreements for which the asset on which the lease agreement is based is of low value are not entered into the balance sheet according to IFRS 16, as per the elective right of IFRS 16.5. In addition, Knorr-Bremse applies the simplified transitional provision according to IFRS 16.C10(c) and does not enter leases with a term that ends within 12 months after the initial application into the balance sheet according to IFRS 16.

Under the initial application of IFRS 16 for operating leasing contracts, the right of use for the leased asset is valued at the amount of the leasing liability; the interest rate at the time of initial application is applied (IFRS 16.C8(b)(i)). The lease liabilities are discounted using the incremental borrowing rate as of January 1, 2019. The weighted average interest rate is 2.51%. For finance leases that were recognized under IAS 17 until December 31, 2018, the carrying amount of the right-of-use asset and the leasing liability as of January 1, 2019 are recognized at the book value of the leased asset and the leasing liability under IAS 17 directly before this date.

The comparative information for the 2018 fiscal year was not adjusted in accordance with IFRS 16.C7.

As part of the transition to IFRS 16, right-of-use assets of € 239,657 thousand and leasing liabilities of € 245,437 thousand were recognized as of January 1, 2019.

Based on the operating lease payment obligations as of December 31, 2018, this produces the following reconciliation to the opening balance sheet value of leasing liabilities as of January 1, 2019: Table → 3.09

Other changes

The following new or amended standards have no or no material effects on the consolidated financial statement.

- Changes to IFRS 9: Early repayment arrangement with negative compensation payment
- IFRS 23: Uncertainty over Income Tax Treatments
- Changes to IAS 28: Long-term Interests in Associates and Joint Ventures
- Changes to IAS 19: Plan changes, reductions or settlements
- 2015 – 2017 cycle: Changes to IAS 12, IAS 23, IFRS 3 and IFRS 11

3.09 INITIAL APPLICATION OF IFRS 16

in € thousand	01/01/2019
Operating lease payment obligations as of December 31, 2018	242,337
Minimum lease payments (nominal value) of the liabilities from finance leases as of December 31, 2018	41,949
Exemptions for short-term leases	(6,445)
Exemptions for leases of low value assets	(4,470)
Reasonably certain extension and termination options	54,795
Other	(6,426)
Gross leasing liabilities as of January 1, 2019	321,740
Discounting	(43,025)
Leasing liabilities as of January 1, 2019	278,715
Present value of the liabilities from finance leases as of December 31, 2018	(33,278)
Additional leasing liabilities as a result of initial application of IFRS 16 as of January 1, 2019	245,437

B.2. Standards issued by the IASB, which have not yet been applied

In addition to the standards presented above, the IASB has issued additional standards, interpretations and changes to standards or interpretations which are also not required to be applied at present and must still be included in EU law ("endorsement") to be applied. Currently, the Group does not assume that applying these standards, interpretations and changes will have a significant effect on the presentation of the financial statements.

- Changes to IFRS 3: Definition of business operation
- Changes to IAS 1 and IAS 8: Definition of materiality
- Amendments to references in the conceptual framework in IFRS standards
- Changes to IFRS 9, IAS 39 and IFRS 7: Reform of the benchmark rate
- Changes to IAS 1: Classification of liabilities as current or non-current

C. CONSOLIDATION

C.1. Principles of consolidation

The consolidated financial statements include the financial statements of the Company and all material affiliated companies. Subsidiaries controlled by the Group are fully consolidated. The Group controls a company, if it is exposed to fluctuating returns or is entitled to these returns and has the ability to influence these returns using its power of control over the company. The financial statements of subsidiaries are contained in the consolidated financial statements from the date on which the control starts and up to the date on which the control ends.

The Group recognizes business combinations based on the acquisition method. As part of the capital consolidation, the acquisition costs of the acquired shares are offset against the equity of the subsidiaries assigned to the Group. The acquired, identifiable net assets and the consideration transferred are basically recognized at fair value. A positive difference that arises between the acquisition costs of the acquired shares and the identifiable net assets upon initial consolidation is recognized as goodwill. Each goodwill is reviewed annually for impairment. A negative difference is reported directly in profit and loss.

The consideration transferred does not contain any amounts associated with the fulfillment of previously existing relationships. Such amounts are fundamentally reported in profit and loss.

Any conditional obligation to provide consideration is reported at the fair value at the time of acquisition. If the contingent consideration is classified as equity, it is not reassessed and a settlement is recognized in equity. Otherwise, other contingent considerations are assessed at fair value on each reporting date and subsequent changes to the fair value of the contingent considerations are reported in profit and loss.

Non-controlling interests are recognized with their corresponding share of the identifiable net assets of the acquired company at the date of acquisition.

Associated companies are companies in which the Group has significant influence, but no control or joint control in relation to finance and business policy. A joint venture is an agreement over which the Group exercises joint control, whereby the Group has rights to the net assets of the agreement rather than rights to its assets and obligations for its liabilities.

Shares in associated companies and joint ventures are reported based on the equity method. They are initially recognized at the acquisition costs, which also include transaction costs. After the initial recognition, the consolidated financial statements contain the Group's share in the comprehensive income, less distributions received, of the investments reported based on the equity method up to the date on which the significant influence or joint control ends.

For interests in joint arrangements that are to be classified as a joint operation according to IFRS 11, the Group recognizes the direct rights to assets, liabilities, revenue and expenses and its interest in any jointly controlled or created assets, liabilities, revenue or expenses. These are included in the financial statements under the respective item designations.

All intragroup receivables and payables as well as expenses and income are eliminated within the scope of the debt consolidation as well as the consolidation of expense and income. Unrealized gains from transactions with companies that are recognized based on the equity method are derecognized against the investment in the amount of the Group's interest in the associated company. Unrealized losses are eliminated in the same manner as unrealized gains, but only if there is no indication of an impairment.

C.2. Foreign currency translation

Foreign currency receivables and payables of the companies included in the consolidated financial statements are reported at the spot exchange rate on the date of the transaction. These items are translated at the spot rate on the reporting date.

Annual financial statements of consolidated group companies prepared in a foreign currency are translated using the modified reporting date method. Accordingly, assets and liabilities from foreign group companies are translated at the spot rate on the reporting date, while income and expenses from foreign group companies are translated at the average rate for the respective fiscal year. The resulting currency translation differences are reported in other comprehensive income and recognized in the line item currency translation as long as the currency translation difference is not assigned to the non-controlling interests.

The exchange rates on which the foreign currency translation is based, which have a material effect on the consolidated financial statements are listed below: Table → 3.10

3.10 CURRENCY EXCHANGE RATES

		12/31/2019		12/31/2018	
		Spot rate	Average rate	Spot rate	Average rate
USA	USD	0.89015	0.89318	0.87336	0.84673
China	CNY	0.12787	0.12931	0.12698	0.12811
Hungary	HUF	0.00303	0.00307	0.00312	0.00314
Czech Republic	CZK	0.03936	0.03896	0.03887	0.03899
United Kingdom	GBP	1.17536	1.13981	1.11791	1.13036
India	INR	0.01247	0.01268	0.01254	0.01240
Japan	JPY	0.00820	0.00819	0.00795	0.00767
Hongkong	HKD	0.11432	0.11400	0.11151	0.10803
South Africa	ZAR	0.06338	0.06189	0.06076	0.06405
Brazil	BRL	0.22145	0.22665	0.22502	0.23218
Thailand	THB	0.02993	0.02876	–	–

C.3. Changes to the Group

C.3.1. Additions to the consolidated companies and business combinations

With regard to the accounting methods for business combinations, we refer to the information under Chapter C.1.

C.3.1.1. CHANGES IN THE SCOPE OF CONSOLIDATION AND ACQUISITION OF BUSINESSES

The following Group companies were fully consolidated for the first time: Knorr-Bremse Steering Systems Japan Ltd., Saitama/Japan (Hitachi), Knorr-Bremse Commercial Vehicles Systems (Thailand) Ltd., Bangkok/Thailand (Hitachi) and Sentient Heavy Vehicles AB, Gothenburg/Sweden.

Sentient IP AB, Gothenburg/Sweden is proportionately consolidated as a joint operation, but is of minor significance to the Group.

The investments in RailVision Ltd., Ra'anana/Israel and Railnova SA, Brussels/Belgium have been included using the equity method since their acquisition in the first half of the year.

New York Air Brake LLC, Watertown/USA has wholly acquired the business of Snyder Equipment Company, Inc. USA.

C.3.1.2. MATERIAL BUSINESS COMBINATIONS ACQUISITION OF HITACHI AUTOMOTIVE SYSTEMS

As of December 7, 2018, Knorr-Bremse Asia Pacific (Holding) Ltd., Hong Kong/China signed a purchase agreement with Hitachi Automotive Systems, Ltd., Japan to acquire 100% of the shares in the commercial vehicle steering business ("IPS Business") and signed a purchase agreement with Hitachi Automotive Systems Asia, Ltd., Thailand for the acquisition of IPS-related assets that represent parts of the overall business combination.

Effective March 29, 2019 (closing), Knorr-Bremse expanded its portfolio of steering systems and system solutions in the assisted driving and highly automated driving areas. In addition, the Group is ensuring better access to the Japanese and Southeast Asian markets.

In the 2019 fiscal year, Hitachi Automotive Systems, Ltd., Japan and Hitachi Automotive Systems Asia, Ltd., Thailand contributed revenue of € 65,830 thousand and a loss of € 7,241 thousand to consolidated earnings. This also takes account of the € 4,849 thousand amortization of hidden reserves realized as part of the purchase price allocation.

a) Consideration transferred

The purchase price for Hitachi Automotive Systems was € 174.4 million of which € 164.8 million was for the Japan part and € 9.6 million for the Thailand part. € 173.0 million of the purchase price has already been settled in cash. The remaining amount of the purchase price is expected to be paid in the first half of 2021. At the time of the acquisition, Hitachi Automotive Systems reported cash and cash equivalents of € 3 thousand in its balance sheet.

b) Costs associated with the business combination

The Group has incurred € 1.4 million in costs associated with the business combination for due diligence, legal fees and notary fees to date. These costs are recognized in other operating expenses.

c) Identifiable assets and liabilities acquired

The fair values of the assets and liabilities acquired at the date of acquisition are summarized below: Table → 3.11

3.11 FAIR VALUES OF THE ASSETS AND LIABILITIES ACQUIRED

in € thousand	
Customer relationships	51,197
Other intangible assets	17,817
Property, plant and equipment	42,125
Inventories	2,581
Provisions	(4,041)
Total identifiable net assets	**109,679**

3.12 DETERMINATION OF GOODWILL

in € thousand	
Consideration transferred	174,405
Fair value of the net identifiable assets	(109,679)
Goodwill	**64,726**

d) Goodwill

The goodwill as a result of the acquisition was recognized as follows: Table → 3.12

The goodwill primarily results from the future development potential of the existing technologies, the anticipated broadening of the product and customer base and the know-how of the staff. This is allocated to the Commercial Vehicle Systems segment. The goodwill recognized in the amount of € 55.8 million from the acquisition of shares in commercial vehicle steering systems ("IPS Business") from Japan is deductible for tax purposes.

If the acquisition had occurred at the start of the fiscal year, consolidated revenue would have been increased by a further € 19.7 million to € 6,956.2 million and consolidated earnings before interest and tax would have decreased by € -0.8 million to € 1,062.1 million. When calculating the amounts, the management board assumed that the fair values from the purchase price allocation at the respective date of acquisition would also have been valid in the event of an acquisition on January 1, 2019.

C.3.2. Divestments – disposals of consolidated companies

In the 2019 fiscal year, the following companies/investments were combined, liquidated, sold or deconsolidated:

- Knorr-Bremse Powertech GmbH, Berlin/Germany
- Knorr-Bremse Powertech GmbH & Co. KG, Holzkirchen/Germany
- Knorr-Bremse Powertech Verwaltungs GmbH, Holzkirchen/Germany
- Knorr-Bremse Powertech Corp, Atlanta/USA
- MORCAR Grundstücksgesellschaft mbH & Co. oHG, Grünwald/Germany
- MST Electroteknik Sanayi ve Ticaret Limited Sirketi, Serifali, Istanbul/Turkey
- Casram Rail S.p.A., Crimido/Italy
- IFE-Tebel Technologies B.V., Leeuwarden/Netherlands
- Sigma Transit Systems Pty. Ltd., Granville/Australia
- Sigma Air Conditioning Pty. Ltd., Granville/Australia
- Black River Logistics Company LLC, Watertown, New York/USA
- Kiepe Electric (Pty) Ltd. South Africa, Woodstock/South Africa

SALE OF POWERTECH

The Powertech segment (power supply systems for rail transport and industrial applications) was sold with the agreement of September 30, 2019. The three German companies Knorr-Bremse Powertech GmbH, Knorr-Bremse Powertech GmbH & Co. KG and Knorr-Bremse Powertech Verwaltungs GmbH, the US company Knorr-Bremse Powertech Corp. and further business activities in Australia, Spain and People's Republic of China belong to Powertech. In 2018, the segment generated a loss (EBIT) of around € -18,577 thousand and revenue of around € 86,299 thousand. In the 2019 fiscal year, a loss (EBIT) of € -19,623 thousand was generated up to and including September 2019 and revenue of € 58,786 thousand. As a result of implementing the transaction, consolidated earnings were reduced by € 82,069 thousand taking account of a negative purchase price, negative deconsolidation effects and further transaction-related one-time expenses.

C.3.3. Changes of company names

The following companies were renamed in fiscal year 2019:

- Kiepe Electric LLC., Alpharetta/USA (formerly: Kiepe Electric Inc., Alpharetta/USA)

C.4. Composition of the Group

For details on the group of consolidated companies, refer to the list of shareholdings pursuant to Section 313 (2) No. 4 of the German Commercial Code (HGB) under H.12. Table → 3.95. Table → 3.13

3.13 COMPOSITION OF THE GROUP

	2019		2018	
Number of fully-consolidated subsidiaries	Domestic	International	Domestic	International
As of January 1	27	115	28	118
Additions	–	3	–	1
Disposals	(3)	(7)	–	(7)
Reclassifications	(1)	–	(1)	3
As of December 31	23	111	27	115
Number of proportionately consolidated companies	Domestic	International	Domestic	International
As of January 1	–	–	–	–
Additions	–	1	–	–
Disposals	–	–	–	–
Reclassifications	–	–	–	–
As of December 31	–	1	–	–
Number of associated companies	Domestic	International	Domestic	International
As of January 1	2	1	2	2
Additions	–	2	–	–
Disposals	–	–	–	–
Reclassifications	–	–	–	(1)
As of December 31	2	3	2	1
Non-consolidated subsidiaries	Domestic	International	Domestic	International
As of January 1	2	11	2	16
Additions	–	1	–	–
Disposals	–	(1)	–	(2)
Reclassifications	–	–	–	(3)
As of December 31	2	11	2	11
Investments	Domestic	International	Domestic	International
As of January 1	2	3	4	2
Additions	–	–	–	1
Disposals	(1)	–	(3)	(1)
Reclassifications	1	–	1	1
As of December 31	2	3	2	3

C.5. Significant non-controlling interests

Table → 3.14

The Group holds a 50% interest in Knorr-Bremse CARS LD Vehicle Brake Disc Manufacturing (Beijing) Co., Ltd., Daxing/China (Knorr-Bremse CARS). Knorr-Bremse has a controlling interest in this company due to the possibility of obtaining a majority interest in the relevant bodies. This company is therefore fully consolidated in accordance with IFRS 10. Bendix Spicer Foundation Brake LLC, Elyria, Ohio/USA is fully consolidated because the Company holds an 80% interest.

Table → 3.15 and Table → 3.16 below show summarized financial information, prepared in accordance with IFRS, for Knorr-Bremse CARS LD Vehicle Brake Disc Manufacturing and Bendix Spicer Foundation Brake LLC. This is information before eliminations, which is carried out with other group companies.

The remaining non-controlling interests are not significant, individually or in total.

3.14 NON-CONTROLLING INTERESTS

Name	Registered Office/ Country of foundation	Ownership shares constituting non-controlling interests	
in %		12/31/2019	12/31/2018
Knorr-Bremse CARS LD Vehicle Brake Disc Manufacturing (Beijing) Co., Ltd.	Daxing/China	50.0	50.0
Bendix Spicer Foundation Brake LLC	Elyria, Ohio/USA	20.0	20.0

3.15 KNORR-BREMSE CARS

in € thousand	2019	2018
Revenues	182,323	170,978
Profit	41,056	34,018
Profit attributable to non-controlling interests	20,528	17,009
Other income	5,324	5,240
Comprehensive income	46,380	39,258
Total comprehensive income attributable to non-controlling interests	23,190	19,629
	12/31/2019	12/31/2018
Current assets	117,787	131,144
Non-current assets	16,779	15,171
Current liabilities	(50,115)	(84,745)
Non-current liabilities	(26,999)	(265)
Net assets	57,452	61,306
Net assets attributable to non-controlling interests	28,726	30,653
	2019	2018
Cash flows from ongoing operating activities	53,861	14,466
Cash flows from investing activities	378	581
Cash flows from financing activities	(45,756)	(44,005)
Net increase in cash and cash equivalents	8,483	(28,958)
	2019	2018
Dividends paid during the year to non-controlling interests	22,497	19,601

MINORITY INTERESTS PUT OPTION

Knorr-Bremse holds only 80% of the shares in both Knorr-Bremse Systeme für Nutzfahrzeuge GmbH and Knorr-Bremse Commercial Vehicle Systems Japan Ltd. The remaining 20% is held by the minority shareholder Robert Bosch GmbH. A put option (**Put Option [p. 203]**) for the minority shareholder and a call option for the company were agreed for this 20%.

If the put option is exercised lawfully, the Group cannot avoid bidding for the remaining shares. In addition, the Group has no direct control over a possible transaction triggering the put option, since this can also be a company acquisition at a higher corporate level.

The Group therefore accounts for the put option using the Anticipated Acquisition Method. Accordingly, a liability is recognized at amortized cost of the put option and minority interests are presented as if they were attributable to the Group. Changes in the fair value of the put option are recognized as income or expense. Dividends paid are recognized through profit or loss as from the fiscal year under review. See Chapter F.13 for more information.

3.16 BENDIX SPICER

in € thousand	2019	2018
Revenues	465,976	399,431
Profit	51,367	30,053
Profit attributable to non-controlling interests	10,273	6,011
Other income	9,442	8,112
Comprehensive income	60,809	38,164
Total comprehensive income attributable to non-controlling interests	12,162	7,633
	12/31/2019	**12/31/2018**
Current assets	137,603	115,116
Non-current assets	65,854	39,913
Current liabilities	(85,587)	(72,862)
Non-current liabilities	(4,381)	(1,825)
Net assets	113,488	80,342
Net assets attributable to non-controlling interests	22,698	16,068
	2019	**2018**
Cash flows from ongoing operating activities	44,420	26,424
Cash flows from investing activities	(19,329)	7,687
Cash flows from financing activities	(26,402)	18,628
Net increase in cash and cash equivalents	(1,311)	109
	2019	**2018**
Dividends paid during the year to non-controlling interests	(3,909)	(3,727)

D. NOTES TO THE ACCOUNTING AND MEASUREMENT METHODS

D.1. Revenues

Knorr-Bremse generates revenue from contracts with customers in the two divisions Rail Vehicle Systems and Commercial Vehicle Systems, which also represent the reportable segments of the consolidated financial statements. Revenue is recognized in accordance with IFRS 15 when the customer would obtain control over the goods and services which Knorr-Bremse is obligated to perform and provide. Control is either transferred at a point-in-time or over a period of time.

RAIL VEHICLES SYSTEMS DIVISION

In the Rail Vehicle Systems segment, the timing of revenue recognition is based on, whether the contract represents a project or not. Most OE business is project business. Projects in the aftermarket segment are an exception.

The majority of the project business relates to contracts for design, production and delivery of braking systems with a precisely defined function for a certain number of trains or locomotives. There are projects with similar structures for door systems and air conditioning systems. In projects, the entire scope of services represents one performance obligation. This is primarily because the engineering services form the framework for the systems of all trains or locomotives to be outfitted with hardware in the specific project. Therefore, there is a very high level of dependency between the engineering of the system and the hardware, as well as the production, delivery and commissioning of the system. Therefore, Knorr-Bremse performs a high percentage of integration services for each single train or each single locomotive for a project. In addition, this integration service applies to all systems to be outfitted in a specific project: all of them must meet exactly the same functionality.

When assessing revenue recognition over time, Knorr-Bremse applies the regulation of IFRS 15.35(c) for project agreements. There is no alternative use for Knorr-Bremse for systems installed in the trains or locomotives; since simply for practical reasons it is not possible to use customer and vehicle specific systems which have been installed and operated in some other application. Therefore, revenue from project business is recognized over time if Knorr-Bremse has a right to "compensation for services performed up to a certain time" over the entire term of the project. This assessment is based on an assessment of the respective contract with the customer. In particular, the question here is whether the customer has the right to terminate the contract without requiring any failure on Knorr-Bremse's part to perform. If there is no such right of termination, Knorr-Bremse has a right to satisfy the contract. In this case, the requirement of "compensation for services performed up to a certain time" is fulfilled. If there are statutory termination rights without any failure by Knorr-Bremse, the assumption is that there is also a right to compensation including a margin share for services performed. If the contract grants a termination right to the customer without any failure by Knorr-Bremse, the question is whether Knorr-Bremse would have a right in such cases to compensation of costs incurred up until such a termination becomes effective, including a margin share. Only if such right is confirmed the criterion of "compensation for services performed up to a certain time" is met and revenue is recognized over time. The percentage-of-completion-method is used to recognize revenue over time. Progress is determined using the cost-to-cost method, since the output method, which could be used as an alternative, is unsuitable for presenting project progress as of the reporting date because of the existence of unfinished goods over which control has already transferred to the customer. The costs incurred are compared to the planned costs for each project. This determines the stage of progress and the revenue to be recognized up to a period end date. By applying this method, the engineering input and hardware delivery performed by Knorr-Bremse are reflected properly in revenue across the entire term of a project, since it is applied independent of invoicing or payment dates. Estimates are required in particular when determining planned costs and are dependent on the range of delivery and performance. The amount of revenue is determined based on the contractually agreed prices for the contractually stipulated quantity of systems. Generally, these are fixed prices, possibly supplemented by price escalation clauses. The effects of price escalation clauses are taken into consideration if it is possible to reliably assess requirements for such clauses to become effective.

Knorr-Bremse is generally entitled to invoice all hardware deliveries in projects. Customers make advance payments, however these are low based on the ongoing invoices for delivered hardware components. Therefore, there are generally no significant financing components. Engineering work required after the contract is concluded, but before the start of hardware production and delivery and the production and delivery of hardware generally result in the recognition of contract assets. The partially agreed compensation payments for one-time engineering services, invoices for delivered hardware and customer advance payments have a counter effect. These payments and invoices result in contract liabilities depending on their amount and degree of progress.

The revenue from other business in the segment are generally the result of short-term services and deliveries, and primarily for replacement part deliveries in the aftermarket segment. Each of these deliveries and services represents a separate performance obligation. Revenue for such services is recognized at the time of delivery. The amount of revenue is determined based on the contractually agreed prices.

In general, there is a warranty assuring freedom from defects and over the term determined by law. Customary longer terms may exist in the project business.

COMMERCIAL VEHICLE SYSTEMS DIVISION

In the Commercial Vehicle Systems segment, revenue in OE and aftermarket business is generated from the series production of components for braking systems and other subsystems. Ordering is primarily based on electronic processes in which an ordered quantity only becomes binding at the start of the so-called frozen zone. The frozen zone is a certain number of days before the notified delivery deadline. Each delivery represents a separate performance obligation according to IFRS 15. Revenue is recognized upon transfer of risk. The amount of revenue is determined based on the prices set forth in framework agreements or individual contracts and the quantities delivered.

Payments of nomination fees from Knorr-Bremse to customers are capitalized and amortized against revenue over the term of series delivery. The development work required for the start of series production is generally based on framework agreements without binding order of quantities and may last up to several years. If future series delivery is at least highly likely to occur based on such framework agreements and costs are covered, these development costs are capitalized as costs to fulfil the anticipated series production and depreciated written off at the start of series production over the projected term. The depreciation is recognized in change in inventory. Compensation payments by customers during the development phase are recognized as contract liabilities and amortized against revenue with the start of series production over the term of series production.

Frequently, there are agreements on volume bonuses for series delivery, which Knorr-Bremse must reimburse to the customer depending on the defined delivery quantities for one year. The delivery quantity for the completed period is used to allocate and measure the reimbursement obligations according to the contractually defined quantity corridors. These reimbursement obligations are recognized as a decrease in revenue and recorded as a liability in the balance sheet.

In general, there is a warranty assuring freedom from defects and over the term determined by law.

D.2. Government grants

Government grants are recognized, if adequate certainty exists that the conditions associated with the grant will be met and the grants will be provided.

These can be divided into grants for assets and performance-related grants.

IAS 20.24 provides for an accounting option.

Grants for assets must either be deducted from the book value of the corresponding asset or reported as deferred income, which must be released to income over the useful life of the asset. The Company deducts grants for assets from the carrying amount of the asset.

According to IAS 20.29, a right to choose between accounting in the other operating income or the offsetting of the corresponding expense with the income from the grants exists for performance-related grants. The Company exercises the first option.

D.3. Earnings before interests and taxes (EBIT)

The operating income is the result from the Group's main activity as well as other income and expenses from business activities. The earnings before interest and taxes (EBIT) do not include interest income and interest expense, as well as the other financial result, and taxes on income.

D.4. EBITDA

EBITDA corresponds to earnings before depreciation and amortization and impairment as reported in the statement of income.

D.5. Net Working Capital

Net working capital corresponds to inventories, trade accounts receivable and contract assets less trade accounts payable and contract liabilities.

D.6. Financial income and financing expenses

Interest income and expenses are recognized in profit or loss based on the effective interest method. Dividend income is recognized in profit or loss at the time at which the Group's legal entitlement to payment arises.

D.7. Borrowing costs

Borrowing costs are capitalized if they are directly attributable to the acquisition or production of a qualifying asset for which a longer period of time is required to bring it to its intended usable or saleable condition. All other borrowing costs are expensed as incurred. The Group did not capitalize any borrowing costs in the reporting periods.

D.8. Income taxes

Current taxes are the expected tax debt or tax claim in relation to the taxable income or tax loss for the fiscal year based on the tax rates that apply on the reporting date, or which will be in place shortly, as well as all adjustments to the tax debt in previous years. In addition, the current tax also includes adjustments for any tax payments or refunds due for any years not yet finally assessed (however without interest payments or refunds). In case amounts recognized in the tax returns probably cannot be realized (uncertain tax positions), provisions for taxes are recognized. The amount is calculated from the best possible estimate of the expected tax payment (expected value or most likely value of the tax uncertainty). Tax receivables from uncertain tax positions are then recognized if it is more likely than not and thus reasonably certain that they can be realized. Current tax debts also include all tax debts, which arise as a result of dividends.

Current tax claims and liabilities are only netted under certain conditions.

Deferred taxes are recognized with regard to temporary differences between the book values of the assets and liabilities for group accounting purposes and the amounts used for tax purposes. Deferred taxes are not recognized for:

- temporary differences in the event of the initial reporting of assets or debts for a transaction, which does not relate to a business combination and which does not influence the accounting earnings before taxes or the taxable earnings
- temporary differences in connection with shares in subsidiaries, associates and jointly controlled entities, if the Group is able to manage the timing of the reversal of the temporary differences and it is likely that they will not be reversed in the foreseeable future
- taxable temporary differences in the event of the initial reporting of goodwill.

A deferred tax claim is recognized for unused tax losses, unused tax credits and deductible temporary differences to the extent that it is likely that future taxable earnings will be available for which they can be used. Future taxable profits are determined on the basis of the individual business plans of the subsidiaries, taking into account the reversal of temporary differences. Unrecognized deferred tax claims are reassessed on every reporting date and recognized in the amount likely to be permitted by the realization of future taxable earnings.

Deferred tax liabilities are additionally recognized for temporary differences arising from future dividend distributions of a subsidiary (outside basis differences).

Deferred tax claims are reviewed on every reporting date and reduced to the extent to which it is no longer likely that the associated tax benefit will be realized; write-ups are reported, if the probability of future taxable earnings improves.

Deferred taxes are measured based on the tax rates, which are expected to be applied to temporary differences, as soon as they reverse, namely, using tax rates that apply or have been announced on the reporting date.

The measurement of deferred taxes reflects the tax consequences that arise from the Group's expectation with regard to the manner of recognition of the book values of its assets and the settlement of its debts as at the reporting date.

Deferred tax claims and deferred tax debts are netted if certain conditions are met.

D.9. Intangible assets

Intangible assets, which were not acquired as part of a business combination, with a determinable useful life, are recognized at the acquisition or production costs less cumulative depreciation and amortization and cumulative impairments.

The goodwill resulting from a business combination is recognized with the acquisition costs, less any necessary impairment.

Expenditure for research activities is recognized in profit or loss in the period in which it arises.

Development projects are capitalized at acquisition or production costs, including development-related overheads, if the development costs can be reliably measured, the product or process is technically and commercially appropriate, a future commercial benefit is probable, and the Group intends and has adequate resources to complete the development and use or sell the asset.

Development projects are measured at the acquisition or production costs, less cumulative amortization and cumulative impairment expenses.

Intangible assets with a determinable useful life are subject to linear amortization over their estimated useful lives. The amortization is fundamentally recognized in profit and loss. Goodwill as well as intangible assets without a determinable useful life are not subject to regular depreciation and amortization. All capitalized intangible assets, with the exception of goodwill, have a limited useful life.

The estimated useful lives amount to:

- Licenses and acquired rights: 1 – 20 years
- Brands and customer relations: 3 – 20 years
- Internally generated intangible assets: 3 – 10 years

Depreciation methods, useful lives, and residual values are reviewed on every reporting date and adjusted where necessary.

Goodwill is tested annually for impairment.

Please refer to Chapter D.18. for information on the fair value of non-financial assets.

D.10. Property, plant and equipment

Property, plant and equipment (PPE) are measured at acquisition or production costs, less cumulative depreciation and cumulative impairment expenses.

Depreciation and amortization is calculated on a scheduled, linear basis over the estimated useful life. Depreciation is fundamentally recognized in profit and loss.

If indications of an impairment of individual items of PPE exist, and the recoverable amount is lower than the book value, an impairment test is performed for this asset. The recoverable amount is the higher of the fair value less the costs of sale and the useful value. If the recoverable amount is below the book value, the difference is recognized in profit and loss and the basis for the regular depreciation is reassessed. Please refer to Chapter D.18. for information on the fair value of non-financial assets.

Right-of-use assets held under leases for which there is no reasonable certainty that the Group will obtain ownership at the end of the lease are depreciated over the shorter of the term of the lease and its useful life.

Land is not subject to regular depreciation.

The estimated useful lives for the PPE of the current year and comparison years amount to:

- Buildings: 3–50 years
- Technical equipment and machinery: 3–25 years
- Other equipment, factory and office equipment: 1–25 years

Depreciation methods, useful lives, and residual values are reviewed on every reporting date and adjusted where necessary.

D.11. Leases

D.11.1. Accounting for leases until 2018

Until December 31, 2018, leases were accounted for in accordance with IAS 17. For every significant agreement, the Group checks whether the agreement is or contains a lease.

For agreements that contain a lease, the Group separates the payments required from this type of agreement and other remuneration into those for the lease and those for other items based on their relative fair value.

If, as part of a lease relating to PPE, all of the fundamental risks and opportunities are transferred to the Group, the lease is classified as a financing lease. If, for a finance lease, the Group cannot reliably separate the payments into those for the lease and those for other items, an asset and a debt are recognized based on the fair value of the underlying asset. The debt is subsequently reduced by applying the Group's incremental borrowing rate, if payments have occurred and the financing costs added to the debt have been reported. The leasing object is initially recognized at the lower of the fair value and the present value of the minimum lease payments. The subsequent measurement takes place in accordance with the accounting methods applicable for this asset. The minimum lease payments made as part of financing leases are divided into financing expense and the repayment portion of the residual debt. The distribution of the financing expense across the term of the lease is based on a constant interest rate for the remaining residual debt.

Other leases are classified as operating leases. The corresponding assets are not reported in the Group's balance sheet.

The payments made as part of operating leases are recognized in profit and loss on a linear basis over the term of the lease. If leasing incentives are agreed, these are recognized over the term of the lease as part of the total leasing expense.

For leases with regard to a plant, a property, and/or a building, which legally exist in the form of a lease (sale and leaseback transaction), but not economically, any sales proceeds that exceed the book value are accrued and reported in profit and loss over the term of the lease.

D.11.2. Accounting for leases from 2019

From January 1, 2019, leases are accounted for in accordance with IFRS 16. At inception of a contract, the Group assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration.

GROUP AS LESSEE

The Group recognizes and measures all leases (except for short-term leases and leases for which the underlying asset is of low value) in accordance with a single model. It recognizes liabilities for making leasing payments and right-of-use assets for the right to use the underlying asset.

i) Right-of-use assets

The Group recognizes right-of-use assets as of the commencement date of the lease (i.e. as of the date on which the underlying leased asset is available for use). Right-of-use assets are measured at cost less any accumulated depreciation and any accumulated impairment losses and adjusted for any remeasurement of the leasing liability. The costs of the right-of-use assets contain the leasing liabilities recognized, the initial direct costs incurred and the lease payments made at or before the commencement date, less any lease incentives received and the estimate of costs for dismantling or removing the underlying asset or for restoring the underlying asset or the site on which it is located, less any lease incentives received.

Right-of-use assets are depreciated as follows over the shorter of the lease term and the expected useful life of the leased asset:

- Land and buildings: 1 to 78 years
- Equipment and machinery: 1 to 15 years
- Vehicles and other equipment: 1 to 9 years

If ownership of the leased asset transfers to the Group at the end of the lease term or the exercise of a purchase option is reflected in the costs, the depreciation will be calculated on the basis of the expected useful life of the leased asset.

The right-of-use assets will also be tested for impairment. Details on the accounting policies can be found in section D.18. Impairment of financial assets.

The Group's right-of-use assets are included in "property, plant and equipment" (see note H.11).

ii) Leasing liabilities

On the commencement date, the Group recognizes the leasing liabilities at the present value of the lease payments to be made over the lease term. In determining the lease term, extension and termination options are taken into account, if it is reasonably certain that they will be exercised or not exercised (see Chapter H.11.1 for details). The lease payments include fixed payments (including in-substance fixed payments), less any lease incentives receivable, variable lease payments that depend on an index or rate and amounts expected to be payable under residual value guarantees. The lease payments further include the exercise price of a purchase option if the Group is reasonably certain to exercise that option and payments of penalties for terminating the lease if the lease term reflects the Group exercising an option to terminate the lease.

Variable lease payments that do not depend on an index or a rate in the period in which the event or condition that triggers this payment occurs are recognized as an expense (unless the payments are incurred to produce inventories).

When calculating the present value of the lease payments, the Group normally uses its incremental borrowing rate at the commencement date because the interest rate implicit in the lease cannot be readily determined. Following the commencement date, the amount of the leasing liability is increased to reflect higher interest and reduced to reflect the lease payments made. In addition, the carrying amount of the leasing liability is revalued in the event of changes to the lease, changes to the lease term, changes to the lease payments (e.g. changes in future lease payments as a result of a change in an index or a rate used to determine those payments) or in the event of a change in the assessment of an option to purchase the underlying asset.

The Group's leasing liabilities are included in "property, plant and equipment" (see notes F.12 and H.11).

iii) Short-term leases and leases of low value assets

The Group applies the exemption for short-term leases (i.e. leases whose term from the commencement date is a maximum of twelve months and which do not include a purchase option) for leases of machinery and technical equipment. It also applies the exemption for leases of low value assets to leases of items of office equipment classified as low value. Lease payments for short-term leases and for leases of low value assets are recognized as an expense on a straight-line basis over the lease term.

D.12. Inventories

Inventories are essentially valued at the lower of the acquisition or production costs and the net realizable value. Unfinished and finished products include manufacturing costs that can be attributed directly to the production process as well as an adequate share of production overheads. Production-related administration costs are also capitalized.

The net realizable value is calculated based on the proceeds that can be realized on the market in the normal course of business, less the costs for manufacturing the product and sales costs.

D.13. Assets held for sale or disposal groups

Non-current assets held for sale or disposal groups are classified as "Assets held for sale and discontinued operations", if it is highly probable that the associated book value will largely be realized by a sale transaction and not by continued utilization.

Non-current assets, respectively non-current and current assets included in disposal groups, are recognized at their book value or the lower fair value less costs of disposal. Intangible assets and PPE are no longer subject to regular depreciation and amortization, and any associated company recognized using the equity method is no longer recognized using the equity method as soon as it is classified as held for sale.

D.14. Employee benefits

The Group recognizes defined contribution as well as defined benefit plans.

Obligations for contributions to defined contribution plans are reported as an expense once the associated work performance has been provided. From group perspective those obligations are of subordinated importance. Prepaid benefits are reported as an asset if a right to the reimbursement or reduction of future payments exists. Under the company pension scheme, pension commitments are provided with employees waiving their right to cash compensation.

The Group's net obligation with regard to defined benefit plans is calculated separately for every plan in that the future benefits, which the employees earned in the current period and earlier periods, are estimated. This amount is discounted and the fair value of any plan asset is deducted from this amount.

The calculation of defined benefit obligations is based on actuarial reports on the basis of the projected unit credit method.

Revaluations of net debt from defined benefit plans are reported directly in the other comprehensive income. The revaluation includes actuarial profits and losses, the income from plan assets (not including interest) and the impact of any asset cap (not including interest).

D.15. Other provisions

Provisions are recognized for legal or constructive obligations in relation to third parties, which are caused by events from the past, which are likely to lead to the outflow of resources and their amount can be reliably estimated. The maturity and/or amount of provisions are uncertain.

The amount of provisions is calculated based on the best estimate of the amount of the expected outflow of resources. If the provisions are expected to be utilized within the normal business cycle, they are classified as short-term. Long-term provisions with a term of more than one year are discounted on the reporting date using the corresponding interest rates.

WARRANTIES

Provisions for warranty obligations are established for the expected warranty obligations from the sale of products and services. The national law on sales contracts and individual agreements are taken into account. The provisions are based on the best estimates with regard to the fulfilment of the obligations in consideration of empirical values for claims from the past. They also include provisions for claims already raised by customers.

RESTRUCTURING MEASURES

An accrued liability for restructuring measures is reported as soon as the Group has approved a detailed and formal restructuring plan, and the restructuring measures have either started or have been publicly announced by the affected parties. Future operating losses are not taken into account.

CONTRACT ACCRUALS

Contract accruals are established for existing contracts based on the imminent obligation excess of unavoidable costs over proceeds. The accrued liability is valued at the present value of the expected excess obligation from the continuation of the contract. Before an accrued liability is established for an onerous contract, the Group reports a value reduction on the assets associated with this contract.

SUNDRY OTHER PROVISIONS

Sundry other provisions are recognized as of the closing date at the present value of the required settlement amount based on reasonable judgment.

PROVISIONS FOR TAXES

The Group reports all risks and obligations arising from tax matters under tax liabilities.

D.16. Financial instruments

In accordance with IAS 32.11, all contracts, which lead to a financial asset for a company and to a financial debt or equity instrument for another company, are considered financial instruments. Financial instruments are initially recognized at fair value on the trading day, taking into account attributable transaction prices.

Classification of financial instruments:

FINANCIAL ASSETS FROM DEBT INSTRUMENTS

Financial assets are classified in the following measurement categories: "at amortized cost", "at fair value through OCI", and "at fair value through profit and loss". A classification into the three categories takes place based on the Group's business model for managing the financial assets as well as the characteristics of the contractual payment flows of the assessed financial assets.

The "at amortized cost" category contains all financial assets whose business model is associated with the aim of collecting the contractually agreed payment flows (business model: "hold"). Likewise, the contractual terms and conditions of the financial asset must be such that cash flows occur at fixed dates that exclusively represent repayments and interest payments on the outstanding capital amount (SPPI – criterion "cash flow condition").

Measurement at fair value not recognized in profit or loss is to be applied to financial assets with the aim of realizing cash flows both through the receipt of contractual payments and through sale ("holding and selling" business model). At the same time, the contractual conditions of the financial asset must also be structured so that payment flows, which exclusively represent principal and interest payments on the outstanding nominal amount, are generated on defined dates (criterion: SPPI cash flow condition).

Financial assets at fair value through profit or loss are those that are either held for trading or managed on the basis of their fair value or whose cash flows are maximized through sales. If financial instruments are classified at fair value through OCI, transaction costs are reported in profit and loss directly in the period in which they arise. This relates to a residual category, which contains all financial assets that cannot be assigned to the "hold" or "hold and sell" business model (business model: "trade/other"), as well as assets for which the criterion: cash flow condition does not result in a positive decision. Financial assets for which the "fair value option" is exercised for the initial recognition are also classified as "at fair value through profit and loss".

Financial assets in the "at amortized cost" category particularly include trade accounts receivable (not including factoring), cash and cash equivalents and other receivables.

Cash equivalents are short-term, extremely liquid financial investments, which can be converted to cash at any time, and which are only subject to insignificant risks of changes in value.

Financial assets in the category "at fair value through OCI" exist in the Group in the form of trade accounts receivable for which factoring with derecognition is applied.

Financial assets in the category "at fair value through profit or loss" take the form of freestanding derivatives and equity investments. Financial assets that fall under the "fair value option" do not exist.

Reclassifications between the measurement categories did not occur in 2019.

FINANCIAL LIABILITIES

Financial liabilities are classified in the "at amortized cost" category. The Knorr-Bremse Group only recognizes financial liabilities from derivatives with negative fair values at fair value. If the "fair value option" is exercised for the initial recognition, they are classified as "at fair value through profit and loss". There are no financial liabilities which fall under "fair value option".

Financial liabilities in the category "at amortized cost" are mainly bonds issued, liabilities to banks and trade account payables.

Financial liabilities in the category "at fair value through profit or loss" in the Group are exclusively freestanding derivatives with a negative market value.

EQUITY INSTRUMENTS

Equity instruments under IFRS 9 are essentially classified at fair value through profit and loss. For the initial recognition of a financial investment in an equity instrument, which is held as a long-term strategic investment, rather than for trading purposes, IFRS 9 provides for an irrevocable option to report the changes to fair value in the other operating income ("FVOCI option"). In this case, the classification takes place in the "at fair value through OCI" category. In one case, an equity investment was classified as "at fair value through OCI" at initial recognition. Dividends are recognized in the statement of income. Furthermore, the fair value changes recognized in equity are not reclassified to the statement of income upon disposal of the equity instrument.

The fair value corresponds to the prices quoted on an active market, where applicable. If such a market does not exist, the fair value is calculated based on measurement models using current market parameters.

DERECOGNITIONS AND MODIFICATIONS

Financial assets are derecognized, if the contractual rights to payments, which arise from the instrument, expire or, alternatively, the financial assets are transferred with all material risks and opportunities. Financial liabilities are derecognized, if the contractual obligations are settled, canceled, or expire. In the event of adjustments to loan conditions or extensions of terms, the Group validates whether this involves substantial modifications within the meaning of IFRS 9. The assessment as to whether a modification is substantial is made on the basis of qualitative and quantitative criteria. The criteria used by the Group for financial assets correspond to the criteria for financial liabilities. If there is a substantial modification, the existing financial instrument is derecognized and the substantially modified financial instrument is rebooked. If there is a non-substantial modification, the book value of the financial instrument is adjusted through profit or loss.

DERIVATIVE FINANCIAL INSTRUMENTS

Within the Group, financial derivatives must be recognized as financial assets or financial liabilities at fair value, irrespective of the purpose. The fair value of derivatives is calculated by discounting the future payment flows at the market interest rate and using other established actuarial methods, such as option price models. Derivatives are recognized on the trading day. The fair value of unconditional derivatives is zero at initial recognition under market conditions. Options are initially recognized at fair value (equal to the premium paid or received). Counterparty-specific credit risks are taken into account as part of the measurement of financial derivatives.

The Group uses financial derivatives in the form of forward exchange transactions and foreign exchange options, interest rate swaps, cross-currency interest rate swaps as well as commodity derivatives to hedge against currency, interest rate and commodity risks. While currency risks primarily arise due to sales in foreign currencies, interest rate risks are predominantly caused by variable-rate liabilities, while commodity price risks arise as a result of the procurement of metals in the production process.

IMPAIRMENTS

IFRS 9 requires expected losses to be reported for all assets within the scope of the impairment provisions. The loss reported as well as the interest collected are calculated based on the assignment of the instrument to the categories listed below.

According to the general impairment model ("general approach"), the change in value is determined based on the following three levels:

Level 1: All relevant instruments are initially assigned to level 1. The present value of the expected losses from possible default events within the next twelve months ("12-month expected credit loss") after the reporting date must be reported and recognized as an expense. Interest is recognized on the basis of the gross book value. Consequently, the effective interest method is applied on the basis of the book value before risk provisioning is taken into account.

Level 2: This includes all instruments, which have undergone a significant increase in the default risk since their initial reporting. The monitoring for a significant increase in the default risk as of the closing date is carried out in connection with a screening process of the relevant changes in ratings, respectively CDS spreads, of the business partner. Generally, a significant increase in the default risk is assumed in the event of an amount overdue in excess of 30 days. If the business partner for the financial instruments is showing an investment-grade rating, an assessment of a significant increase in the credit risk is not made. The impairment corresponds to the present value of the expected losses from possible default events over the remaining term of the instrument ("lifetime expected credit loss"). The interest is reported analogous to level 1.

Level 3: If, in addition to an increased risk of default, there is objective evidence of an impairment of an instrument, the impairment is also measured based on the present value of the expected losses from possible default events over the remaining term. The reporting of the interest in the following periods must be adjusted so that the interest income is calculated based on the net book value and therefore based on the book value after taking account of the loan loss provision.

At each balance sheet date, the Group tests whether there is objective evidence of impairment for financial instruments carried at "acquisition costs" or "at fair value through OCI". Criteria for impairment include default or default of debtors, indications of imminent insolvency or the disappearance of an active market for a security due to financial difficulties.

A default event exists when it is considered probable that a debtor cannot or will not be able to meet his payment obligations or meet them in full. Where a default event exists, the gross carrying amounts of the financial assets (fully or partially) are written off so that the gross carrying amount after write-off represents the expected recoverable amount. In addition, a default event is assumed in the event of significant payment delays. For financial instruments within the scope of the "general approach", a default event is assumed in connection with an amount overdue by more than 90 days.

For the Group, in particular, cash and cash equivalents are subject to the impairment requirements in accordance with the "general approach".

For trade accounts receivable and leasing receivables, IFRS 9 provides for a simplified approach to impairment ("simplified approach") under which an impairment in the amount of the expected losses must be reported over the remaining term for all instruments, irrespective of the credit quality. Consequently, no distinction is made for these financial instruments between allocations to level 1 or level 2 of the impairment model under IFRS 9. A transfer to level 3 takes place if there is objective evidence of impairment. With respect to trade accounts receivable, a default event is assumed in the case that there are delays in payment in excess of 12 months. A default also exists if it is considered probable that a debtor cannot meet or cannot entirely meet its payment obligations.

Trade accounts receivable of business partners are divided into three groups:

Group 1: the probability of default can be determined using the public issuer rating

Group 2: the probability of default can be determined via an information agency

Group 3: Benchmark default probability

Rating and default probability data are updated annually.

For the Group, in particular, trade accounts receivable are subject to the impairment requirements in accordance with the "simplified approach".

Leasing receivables as well as any financial guarantees or loan commitments, which would fall under the impairment provisions, did not exist for the Company.

HEDGE ACCOUNTING

Derivatives are measured at fair value. If a derivative is (or components of a derivative are) included in hedge accounting as a cash flow hedging instrument, the effective changes are recognized in other comprehensive income and cumulatively included in the hedge reserve. In the Group, the undesignated parts of the hedging instruments, the forward components, are accounted for as costs of hedging. They are transferred to the reserve for the costs of hedging without effect on profit or loss.

If a hedged forecast transaction later leads to the recognition of a non-financial item, such as inventories, the cumulative amount from the reserve for hedging relationships and the reserve for costs of hedging is included directly in the cost of the non-financial item when this is recognized.

In the case of all other hedged forecast transactions, the cumulative amount that is transferred to the hedge reserve and the reserve for the costs of hedging is reclassified to profit or loss in the period or periods in which the hedged expected future cash flows affect profit or loss.

If the hedge no longer meets the criteria for the recognition of hedging relationships or the hedging instrument is sold, expires, is terminated or is exercised, the hedge accounting is discontinued prospectively.

If the occurrence of the hedged transaction can no longer be expected, the hedge reserve and the reserve for costs of hedging are directly released to the income statement and thus recognized in profit and loss. In the event of a revival of the hedged item's probability of occurrence, the usual accounting treatment of the hedge reserve and the reserve for costs of hedging is applied.

D.17. Fair value – financial instruments (financial assets)

Measurement of fair value: In the Knorr-Bremse Group, financial instruments classified as "at fair value through profit or loss" and "at fair value through OCI" (in particular derivatives and equity instruments) are measured at fair value. In addition, the fair value of financial instruments that are not measured at fair value is disclosed in the notes to the consolidated financial statements.

The fair value is the price that would be received in an orderly transaction between market participants on the assessment date for the sale of an asset or that would be paid for the transfer of a liability. When measuring the fair value, it is assumed that the transaction is concluded on the principal market for the asset or liability, or on the most favorable market for the asset or liability, if no principal market is available.

The Group must have access to the principal market or to the most favorable market. The fair value of an asset or liability is measured based on the assumptions, which the market participants would use as a basis for the pricing in their best commercial interest.

The Group uses measurement techniques that are appropriate under the circumstances and for which adequate data to measure the fair value is available. In this respect, the use of material input factors which can be observed must be as high as possible, while the use of input factors that cannot be observed must be kept to a minimum.

All financial assets and liabilities measured at fair value or whose fair value is disclosed in the notes are classified in the fair value hierarchies described below based on the input parameter of the lowest level, which is material for the overall measurement at fair value.

Level 1: (Unadjusted) prices listed in active markets

Level 2: Assessment methods in which key market parameters for assessment can be observed directly or indirectly

Level 3: Assessment methods in which significant parameters for valuation are not observable on the market

The assessment procedures and the input parameters used are reviewed regularly. The aim of the reviews is to use observable input factors in determining fair value as far as possible. Rearrangements in the hierarchy level are made at the end of the period in which the change occurred.

D.18. Fair value – non-financial assets

The book values of the Group's non-financial assets are reviewed on every reporting date in order to determine whether there is any indication of an impairment. If this is the case, the recoverable amount of the asset is estimated. Goodwill is reviewed annually for impairment.

To check whether an impairment exists, assets are combined into the smallest group of assets, which generate cash inflows from continued use, which are largely independent of the cash inflows of other assets or cash-generating units (CGUs). Goodwill that was acquired as part of a business combination is assigned to one or more groups of CGUs from which a benefit from the use of the synergies of the business combination is expected.

The recoverable amount of an asset or a CGU is the higher of the amounts from the value in use and the fair value less costs to sell. When assessing the value in use, the estimated future cash flows are discounted to their present value, whereby a weighted average cost of capital (WACC) before tax is used, which reflects the current market valuations of the interest effect and the specific risks of an asset or a CGU.

An impairment expense is reported if the book value of an asset or a CGU exceeds its recoverable amount.

Impairment expenses are reported in profit and loss.

An impairment expense with regard to the goodwill would not be reversed. For other assets, an impairment expense is only reversed to the extent that the book value of the asset does not exceed the book value that would have been calculated, less the depreciation or amortization, if no impairment expense had been reported.

E. NOTES TO THE CONSOLIDATED STATEMENT OF INCOME

E.1. Revenues

REVENUES BY SEGMENTS

The following table shows revenue by segment. Table → 3.17

CLASSIFICATION OF REVENUE AND RECONCILIATION WITH SEGMENT REVENUES

Table → 3.18 presents a breakdown, by region and timing, of consolidated revenue that is generally within the scope of IFRS 15 and reconciles this to revenue of the segment reporting. The reconciliation impact from IFRS to revenue according to segment reporting totals € 100,813 thousand. Thereof, € 68,367 thousand resulted from the Rail Vehicle Systems segment and € 32,661 thousand from the Commercial Vehicle Systems segment. € -215 thousand is attributable to "Other segments and consolidation". Table → 3.19

REVENUE OF THE REPORTING PERIOD FOR PERFORMANCE OBLIGATIONS SATISFIED IN PREVIOUS PERIODS

The revenue of the 2019 period includes € 2,221 thousand from performance obligations fulfilled in the past.

TRANSACTION PRICE ALLOCATED TO THE REMAINING PERFORMANCE OBLIGATIONS

The transaction price allocated to the remaining performance obligations amounts to € 2,349,578 thousand as of December 31, 2019 (2018: 2,553,373 thousand). This relates to the project

3.17 REVENUES BY SEGMENTS

in € thousand	Rail Vehicle Systems		Commercial Vehicle Systems		Other segments and consolidation		Total	
	2019	2018	2019	2018	2019	2018	2019	2018
Total	3,656,077	**3,461,855**	3,280,238	**3,160,113**	215	**(6,168)**	6,936,530	**6,615,800**

3.18 CLASSIFICATION OF REVENUE AND RECONCILIATION WITH SEGMENT REVENUES

	IFRS revenue			Reconciliation to segment revenue			Revenue according to segment reporting		
in € thousand	Rail Vehicle Systems	Commercial Vehicle Systems	Total	Rail Vehicle Systems	Commercial Vehicle Systems	Total	Rail Vehicle Systems	Commercial Vehicle Systems	Total
									Fiscal year 2019
1. Disaggregation									
a) Region (by registered offices of the Group Companies)									
Europe/Africa	1,806,660	1,391,041	3,197,702	77,945	15,038	92,983	1,884,605	1,406,080	3,290,684
North America	449,494	1,193,054	1,642,548	(6,139)	12,646	6,507	443,354	1,205,700	1,649,055
South America	22,906	81,828	104,734	202	1,618	1,820	23,108	83,446	106,554
Asia-Pacific	1,377,017	614,314	1,991,332	(3,640)	3,358	(282)	1,373,377	617,673	1,991,050
	3,656,077	**3,280,238**	**6,936,315**	**68,367**	**32,661**	**101,028**	**3,724,444**	**3,312,899**	**7,037,343**
b) Type of time recording									
Recording over a period	1,217,824	–	1,217,824	(1,217,824)	–	(1,217,824)	–	–	–
Recording at a specific time	2,438,252	3,280,238	5,718,491	1,286,192	32,661	1,318,852	3,724,444	3,312,899	7,037,343
	3,656,077	**3,280,238**	**6,936,315**	**68,367**	**32,661**	**101,028**	**3,724,444**	**3,312,899**	**7,037,343**
2. Other segments and consolidation	–	–	**215**	–	–	**(215)**	–	–	–
3. Total	**3,656,077**	**3,280,238**	**6,936,530**	**68,367**	**32,661**	**100,813**	**3,724,444**	**3,312,899**	**7,037,343**

in € thousand	IFRS revenue Rail Vehicle Systems	IFRS revenue Commercial Vehicle Systems	IFRS revenue Total	Reconciliation to segment revenue Rail Vehicle Systems	Reconciliation to segment revenue Commercial Vehicle Systems	Reconciliation to segment revenue Total	Revenue according to segment reporting Rail Vehicle Systems	Revenue according to segment reporting Commercial Vehicle Systems	Revenue according to segment reporting Total
									Fiscal year 2018
1. Disaggregation									
a) Region (by registered offices of the Group Companies)									
Europe/Africa	1,750,513	1,517,067	3,267,581	83,836	10,577	94,413	1,834,349	1,527,644	3,361,994
North America	404,775	1,064,502	1,469,277	(1,201)	9,449	8,247	403,573	1,073,951	1,477,524
South America	25,899	76,776	102,675	161	1,708	1,869	26,060	78,484	104,544
Asia-Pacific	1,280,668	501,767	1,782,435	1,727	1,545	3,272	1,282,396	503,312	1,785,708
	3,461,855	**3,160,113**	**6,621,968**	**84,523**	**23,279**	**107,801**	**3,546,378**	**3,183,392**	**6,729,770**
b) Type of time recording									
Recording over a period	1,348,413	–	1,348,413	(1,348,413)	–	(1,348,413)	–	–	–
Recording at a specific time	2,113,442	3,160,113	5,273,555	1,432,936	23,279	1,456,214	3,546,378	3,183,392	6,729,770
	3,461,855	**3,160,113**	**6,621,968**	**84,523**	**23,279**	**107,801**	**3,546,378**	**3,183,392**	**6,729,770**
2. Other segments and consolidation	**–**	**–**	**(6,168)**	**–**	**–**	**6,168**	**–**	**–**	**–**
3. Total	**3,461,855**	**3,160,113**	**6,615,800**	**84,523**	**23,279**	**113,970**	**3,546,378**	**3,183,392**	**6,729,770**

3.19 RECONCILIATION EFFECT OF IFRS ON REVENUES ACCORDING TO SEGMENT REPORTING

in € thousand	Rail Vehicle Systems	Commercial Vehicle Systems	Other segments and consolidation	Total
				Fiscal year 2019
Elimination of the effect of the over-time recognition of revenue	43,888	–	–	43,888
Application of the German Accounting Directive Implementation Act (BilRuG), proceeds from the disposal of prototypes and scrap sales and other effects	24,007	34,935	(215)	58,727
Recognition of additions to and releases of transaction-price related provisions and accruals	472	(2,274)	–	(1,802)
Total	**68,367**	**32,661**	**(215)**	**100,813**
				Fiscal year 2018
Elimination of the effect of the over-time recognition of revenue	63,101	–	5,000	68,101
Application of the German Accounting Directive Implementation Act (BilRuG), proceeds from the disposal of prototypes and scrap sales and other effects	22,824	35,502	1,168	59,494
Recognition of additions to and releases of transaction-price related provisions and accruals	(1,402)	(12,223)	–	(13,625)
Total	**84,523**	**23,279**	**6,168**	**113,970**

business for the Rail Vehicle Systems segment and includes only customer contracts with an original contractual term of over one year. As in the previous year, the project business has an average term of 4 years. As of December 31, 2019, contracts from project business will last through the year 2031.

There are no customer contracts in the Commercial Vehicle Systems segment with an original contractual term of over one year.

INFORMATION ON CONTRACT BALANCES IN CONNECTION WITH IFRS 15

a) Contract assets and contract liabilities

The contract assets and contract liabilities primarily relate to the presentation of project business in the Rail Vehicle Systems segment according to the method of revenue recognition over a period of time.

According to this method, contract assets result from services performed, insofar as these are not settled through invoices. Advance payments from customers have a counter effect. Depending on the relationship between the degree of progress in the specific project, invoices and advance payments, therefore, there may be either contract assets or liabilities.

The impairment under IFRS 9 on contract assets was € 848 thousand as of December 31, 2019 (2018: € 304 thousand).

For contracts with revenue not recognized over a time period, advance payments are also recognized as contract liabilities if the relevant performance obligations have not yet been fulfilled. In addition, compensation payments for development costs before series production are recognized as contract liabilities. As in the previous year, the latter only refers to the Commercial Vehicle Systems segment as of December 31, 2019.

Table → 3.20 shows the effects in the reconciliation from the final balance of contract assets and liabilities as at December 31, 2018, to December 31, 2019.

Revenue of the reporting period, which was included in the opening balance of contract liabilities as of January 1, 2019, amounted to € 172,479 thousand.

b) Other assets

The other assets include € 20,993 thousand (non-current: € 20,993 thousand, current: € 0 thousand) so-called nomination fees from the Commercial Vehicle Systems segment. The capitalized amounts will be depreciated against revenue from the start of series production and over the term of series

3.20 RECONCILIATION FROM THE CLOSING BALANCE OF CONTRACT ASSETS AND LIABILITIES

in € thousand	Contract assets	Contract liabilities
		2019 fiscal year
As of 12/31/2018	**99,284**	**315,122**
Increase in contract liabilities from invoice and effects from changes in advance payments	–	–
Transfer of the opening balance for contract assets to trade receivables through invoices	(95,434)	–
Change as a result of the recognition of revenue	98,018	(38,405)
Other	(11,982)	634
Closing balance as of 12/31/2019	**89,885**	**277,351**
		2018 fiscal year
As of 12/31/2017	**116,171**	**230,750**
Initial application of IFRS 15	8,828	(8,056)
As of 1/1/2018	**124,999**	**222,694**
Increase in contract liabilities from invoice and effects from changes in advance payments	–	90,128
Transfer of the opening balance for contract assets to trade receivables through invoices	(117,229)	–
Change as a result of the recognition of revenue	89,950	–
Other	1,564	2,299
Closing balance as of 12/31/2018	**99,284**	**315,122**

production. In 2019, depreciation recognized on these assets amounted to € 13 thousand.

The other non-current assets include costs to fulfil a contract of € 16,187 thousand. These relate to engineering costs in the Commercial Vehicle Systems segment before series production. These will be depreciated against change in inventory as from the start of series production and over the term of series production. In 2019, depreciation recognized on these assets amounted to € 297 thousand.

E.2. Change in inventory and own work capitalized

The change in inventory reflects the change in finished and unfinished products. Table → 3.21 The development of finished and unfinished products is covered in Chapter F.6. Inventories.

Own work capitalized results from the capitalization of development projects.

E.3. Other operating income Table → 3.22

Other operating income includes in particular income from the disposal of land and buildings; an amount of € 45,068 thousand relates to income from the sale and leaseback transaction concerning the Munich site. In addition, this item consists mainly of income from other services, income from insurance compensation and compensation payments, and income from government grants. Other services mainly relate to development and testing services to third parties. The other operating income item includes mainly realized and unrealized income denominated in foreign currency, which rose as compared with the previous year.

E.4. Cost of materials Table → 3.23

The cost of materials is comprised of the expenditure on materials, supplies and purchased goods as well as on services purchased. The 3.3% increase in the cost of materials was more moderate than the 4.8% increase in revenues due to a lower cost of materials and stronger relative revenues growth in the Rail Vehicles Systems segment.

Therefore, the cost of materials ratio as a percentage of sales revenues decreased to 49.4% in 2019, in comparison to 50.2% in 2018.

In the reporting period, inventories in the amount of € 3,169,137 thousand (2018: € 3,073,037 thousand) were recognized as expenses.

Please refer to Chapter F.6 for more information on the changes to inventories.

3.21 CHANGE IN INVENTORY AND OWN WORK CAPITALIZED

in € thousand	2019	2018
Change in inventory of finished and unfinished products	5,713	34,424
Own work capitalized	73,316	48,047

3.22 OTHER OPERATING INCOME

in € thousand	2019	2018
Income from the disposal of land and buildings	48,708	3,228
Income from other services	11,139	13,890
Insurance compensation and compensation payments	9,878	9,232
Income from government grants	6,200	6,507
Rental income	2,006	6,250
Other income	39,045	27,126
	116,976	**66,233**

3.23 COST OF MATERIALS

in € thousand	2019	2018
Expenses for raw materials, consumables and supplies and for purchased goods	(3,169,137)	(3,073,037)
Expenses for purchased services	(259,427)	(245,190)
	(3,428,564)	**(3,318,227)**

3.24 PERSONNEL EXPENSES

in € thousand	2019	2018
Wages and salaries	(1,230,868)	(1,154,969)
Social security contributions	(237,387)	(219,789)
Expenses for personnel leasing	(80,151)	(108,101)
Termination benefits	(36,712)	(4,163)
Expenses in connection with defined benefit plans	(8,654)	(9,958)
	(1,593,772)	**(1,496,981)**

E.5. Personnel expenses Table → 3.24

The personnel expenses primarily include wages and salaries, as well as social security contributions.

The increase in wages and salaries by approximately 6.6% in 2019 (2018: 6.5%) was based largely on an increase in the average number of employees excluding leased personnel by 2.7% from 25,907 (2018) to 26,615 (2019). The increase resulted in particular from hiring of new employees in the personnel-intensive service business, as well as in research and development.

For the 2019 fiscal year, expenses for defined contribution pension plans amount to € 28,256 thousand (2018: € 26,052 thousand) and include the contributions paid to the statutory pension insurance.

Personnel adjustment measures due to severance payments that did not result from restructuring measures affected personnel expenses in fiscal year 2019 with € 17,712 thousand as compared to € 4,163 thousand in 2018. Restructuring personnel expenses in the 2019 fiscal year of € 19,000 thousand (2018: € 0 thousand) are included.

E.6. Other operating expenses Table → 3.25

The order-related expenses decreased in particular as a result of decreased freight costs and commissions.

The decrease in legal, consulting and audit costs is primarily associated with the preparation for the IPO that took place in 2018.

Other services include services such as logistics, security and building services and cleaning. Other expenses primarily consist of communication and administration costs. Moreover, the fees for societies, associations and chambers, insurance costs as well as costs for marketing are included in other expenses.

As a result of the initial application of IFRS 16 as of January 1, 2019, rent and lease expenses decreased. Lease expenses particularly include short-term leases, leases of low value assets and expenses from variable lease payments.

The other operating expenses item includes primarily realized and unrealized foreign currency expenses as well as reversals of provisions that are allocated to other operating expenses. In the 2019 fiscal year, foreign currency effects increased in particular, while the reversal of provisions declined compared to the previous year.

E.7. Depreciation and amortization

Depreciation and amortization is comprised as follows: Table → 3.26

Depreciation and amortization increased by 29%, or € 60,210 thousand in 2019, from € 205,570 thousand to € 265,780 thousand.

3.25 OTHER OPERATING EXPENSES

in € thousand	2019	2018
Order-related expenses	(125,653)	(152,135)
Maintenance expenses	(106,549)	(98,842)
Personnel expenses	(102,321)	(110,345)
Legal, consulting and audit costs	(99,735)	(113,128)
Other services	(90,490)	(98,691)
External research and development costs	(43,095)	(40,644)
Administrative expenses	(36,641)	(25,593)
Other taxes	(31,228)	(23,921)
License and patent fees	(28,879)	(24,188)
Rents and leases	(18,405)	(53,869)
Energy, insurance and utility costs	(17,288)	(18,189)
Impairment losses and gains	(6,867)	1,662
Losses from the disposal of land and buildings	(4,534)	(8,254)
Donations	(4,214)	(3,010)
Other expenses	(65,613)	(2,107)
	(781,512)	**(771,254)**

3.26 DEPRECIATION AND AMORTIZATION

in € thousand	2019	2018
Depreciation and amortization of intangible assets	**(52,628)**	**(40,866)**
thereof regular depreciation and amortization of intangible assets	(47,074)	(40,866)
thereof impairments of intangible assets	(5,554)	–
Depreciation of property, plant, and equipment	**(213,152)**	**(145,564)**
thereof regular depreciation of property, plant, and equipment	(201,414)	(145,564)
thereof impairments of property, plant and equipment	(11,738)	–
Impairment of disposal groups	–	**(19,140)**
	(265,780)	**(205,570)**

Due to the initial application of IFRS 16, depreciation of lease assets increased by € 45,879 thousand from € 3,930 thousand to € 49,809 thousand compared with IAS 17 leasing. This amount is included in depreciation of property, plant, and equipment.

In the current fiscal year, impairment losses were recognized in the Commercial Vehicle Systems segment; they amounted to € 10,211 thousand in connection with the closure of KB Steering Systems and € 6,174 thousand for tools.

E.8. Financial result Table → 3.27

The foreign currency results of financial instruments carried at amortized cost (AC) mainly result from the currency translation differences of cash and cash equivalents at the closing rate; these foreign currency results are netted. The currency results from financial instruments recognized at fair value through profit or loss (FVTPL) result from the realized results from currency derivatives and the valuation effects from existing currency derivatives.

3.27 FINANCIAL RESULT

in € thousand	2019	2018
Interest income from financial instruments, thereof	17,226	13,764
a) Financial instruments (AC)	15,946	13,107
b) Financial instruments (FVTPL)	1,280	657
Interest income from defined benefit plans	6,723	6,228
Other	3,649	135
Interest income	**27,598**	**20,128**
Interest expenses from financial investments, thereof	(27,188)	(33,955)
a) Financial instruments (AC)	(26,301)	(33,955)
b) Financial instruments (FVTPL)	(887)	–
Interest expenses from defined benefit plans	(12,177)	(11,451)
Compounding of provisions	(3,797)	(6,712)
Lease interest expenses	(7,470)	(1,663)
Other	(428)	(598)
Interest expenses	**(51,059)**	**(54,379)**
Currency translation differences, thereof	32	–
a) Financial instruments (FVOCI)	32	–
Other	483	1,266
Other financial income	**514**	**1,266**
Currency translation differences, thereof	(18,513)	(58,888)
a) Financial instruments (AC)	(4,962)	(23,713)
b) Financial instruments (FVOCI)	–	(60)
c) Financial instruments (FVTPL)	(13,551)	(35,116)
Expenses from the deconsolidation of subsidiaries	(82,069)	0
Expenses from the revaluation of financial instruments (FVTPL)	(2,489)	(1,266)
Share of profits and losses of companies accounted for using the equity method, after taxes	(2,489)	(3,591)
Dividends to non-controlling interests	(21,617)	–
Other	(5,668)	(235)
Other financial expenses	**(132,844)**	**(63,981)**
Other financial result from other financial income and other financial expenses	**(132,330)**	**(62,715)**
Financial result	**(155,791)**	**(96,966)**

In 2019, the share of profit and loss of companies accounted for using the equity method arises mainly from the investment in the results of RailVision Ltd., Raanana/Israel and Railnova SA, Brussels/Belgium.

In the previous fiscal year, the dividend of € 21,089 thousand paid to the minority shareholder Bosch had been reported directly in equity as a dividend to shareholders. For the 2019 fiscal year, it was recognized in the financial result for the first time in an amount of € 21,617 thousand.

Interest income and expenses from financial instruments measured at fair value (FVTPL) are attributable to the fair value measurement of the interest rate swaps. Interest income and expense from financial instruments (AC) carried at amortized cost represent the total interest expense and income of these assets and liabilities determined using the effective interest method.

For further information on interest income and interest expenses from defined benefit plans, please refer to Chapter F.9. Employee benefits.

The development of the provisions is dealt with in Chapter F.10. Other provisions.

3.28 TAXES REPORTED IN PROFIT AND LOSS

in € thousand	2019	2018
Current year	(272,238)	(231,754)
Previous years	16,806	(15,725)
Current tax expense	**(255,432)**	**(247,480)**
Recognition/reversal of temporary differences	(6,595)	939
Temporary differences from previous years	(15,762)	–
Tax losses/credits	2,691	471
Deferred tax expense (previous year: deferred tax income)	**(19,666)**	**1,410**
Tax expenses	**(275,099)**	**(246,070)**

3.29 TAXES REPORTED IN OTHER COMPREHENSIVE INCOME

in € thousand	Before tax	Deferred tax assets (-)/ liabilities (+)	After tax
			12/31/2019
Revaluation of net debt from defined benefit plans	164,590	(31,066)	133,524
Revaluation of net debt from pension plan assets	(59,760)	330	(59,431)
Currency translation differences	70,705	–	70,705
Revaluation of equity instruments	32,177	–	32,177
Hedge Accounting	3,417	(1,081)	2,336
Total	**211,129**	**(31,818)**	**179,311**
			12/31/2018
Revaluation of net debt from defined benefit plans	117,609	(21,414)	96,195
Revaluation of net debt from pension plan assets	(47,947)	(93)	(48,040)
Currency translation differences	89,198	–	89,198
Revaluation of equity instruments	23,672	–	23,672
Total	**182,532**	**(21,507)**	**161,024**

E.9. Taxes on income

E.9.1. Taxes reported in profit and loss Table → 3.28

The tax expenses include current and deferred taxes. Current and deferred taxes are reported in profit and loss, except for the extent to which they are associated with a business combination or with items reported directly in equity or in the other comprehensive income.

The change in deferred taxes attributable to previous years arises primarily from better information based on completed tax assessments.

E.9.2. Taxes reported in other comprehensive income

The breakdown of taxes reported in other comprehensive income is presented in Table → 3.29.

E.9.3. Taxes reported directly in equity

In 2019, no taxes were recognized directly in equity, the tax expenses of € 4,803 thousand recognized directly in equity (in the capital reserve) in 2018 relate to reimbursement payments (IPO costs) by the main shareholder.

E.9.4. Reconciliation of the effective tax rate

The difference between the effective and expected tax expenses in both fiscal years results mainly from lower local tax rates compared to the hypothetical tax rate at group level. Material negative effects on the tax rate are due to the disposal of the Powertech Group (included in "non-tax-deductible expenses" effect) and the unrecognized losses from the closure of KB Steering Systems. In addition, reclassification of dividends to minority shareholders (included in "non-tax-deductible expenses" effect) and the adjustment to income tax liabilities for the years for which the tax audit has not yet been completed had an impact. Table → 3.30

3.30 RECONCILIATION OF THE EFFECTIVE TAX RATE

	12/31/2019		12/31/2018	
	%	€ thousand	%	€ thousand
Earnings before taxes		907,116		875,506
Expected taxes	32.3	292,999	32.3	282,788
Differences between the local and hypothetical tax rate at the top level	(10.7)	(97,016)	(10.7)	(93,928)
Changes to the tax rate	1.1	9,569	(0.2)	(1,546)
Effect from at-equity investments	0.0	–	(0.0)	(168)
Effects from permanent differences due to different accounting under the IFRS and tax return	(0.1)	(565)	(0.3)	(2,763)
Increase in tax due to non-tax deductible expenses	7.3	65,998	4.7	41,271
Tax-exempt income	(0.4)	(3,986)	(0.9)	(7,487)
Non-recognition of losses in the current year	1.8	16,016	1.9	16,716
Utilization of loss carry-forwards on which no deferred taxes were recognized	(0.2)	(2,090)	(0.8)	(7,414)
Change/adjustment of unrecognized temporary differences	0.2	1,748	0.0	–
Initial recognition/adjustment of deferred taxes on temporary differences	0.0	–	(0.0)	(68)
Tax from previous year	(0.1)	(1,044)	1.8	15,725
Other	(0.7)	(6,530)	0.3	2,945
Effective taxes	**30.3**	**275,099**	**28.1**	**246,070**

E.9.5. Change in deferred taxes

The allocation and development of deferred tax positions shows a steadily decreasing asset surplus. The changes in other comprehensive income mainly relate to pension obligations. Effects from first-time consolidations and deconsolidations, changes in tax rates and effects from the previous years are reported under "Other". Table → 3.31

E.9.6. Unrecognized deferred tax assets

Deferred tax assets were not reported with regard to the following items, as it is not likely that taxable income, against which the Group can settle deferred tax assets, will be available in the future. Table → 3.32

The non-recognized tax loss carry-forwards expire as follows: Table → 3.33

E.9.7. Additional disclosures

As of December 31, 2019, the Group's parent company recorded deferred tax liabilities of € 7,866 thousand (2018: € 6,061 thousand) for temporary differences on future dividend payments (outside basis differences). No other deferred tax liabilities in connection with temporary differences (outside basis differences) in the amount of € 157,478 thousand (2018: € 98,557 thousand) in connection with investments in subsidiaries, associated companies or jointly controlled companies were reported as of the reporting date.

The Group is of the opinion that the income tax liabilities formed are adequate for the years where the tax audit is not closed in consideration of all available information, including the interpretation of tax law and previous experience.

3.31 CHANGE IN DEFERRED TAXES IN THE VALANCE SHEET DURING THE YEAR

							As of 12/31		
in € thousand	Net as of 01/01	Initial application of IFRS 16	In profit/loss	In other income	Other	Net currency translation differences	Net	Deferred tax assets	Deferred tax liabilities
									2019 fiscal year
Intangible assets	(54,215)	–	(16,543)	–	1,954	(594)	(69,398)	1,721	(71,120)
Property, plant and equipment	(47,851)	(58,728)	(11,819)	–	(224)	(321)	(118,943)	1,311	(120,254)
Investments	(9,967)	–	(11,140)	1,081	(1,684)	(158)	(21,868)	4,123	(25,990)
Inventories	23,964	–	3,591	–	(188)	(24)	27,343	36,953	(9,610)
Other assets	(28,681)	–	27,854	(423)	(11,459)	(3,177)	(15,886)	15,073	(30,959)
Tax loss carry-forwards	10,546	–	2,691	–	2,518	315	16,070	16,070	–
Pension obligations	37,739	–	(9,112)	9,652	14,240	65	52,584	61,668	(9,084)
Other provisions	62,756	–	(17,389)	–	669	230	46,266	49,858	(3,592)
Liabilities	61,208	58,728	12,201	–	(6,397)	3,901	129,641	165,965	(36,324)
Tax assets (liabilities) before netting	**55,499**	**–**	**(19,666)**	**10,310**	**(571)**	**237**	**45,809**	**352,742**	**(306,933)**
Netting of taxes	–	–	–	–	–	–	–	(226,144)	226,144
Net tax assets (liabilities)	**55,499**	**–**	**(19,666)**	**10,310**	**(571)**	**237**	**45,809**	**126,598**	**(80,789)**
									2018 fiscal year
Intangible assets	(28,566)	–	(23,185)	–	(1,558)	(907)	(54,215)	5,526	(59,741)
Property, plant and equipment	(45,200)	–	4,667	–	(6,963)	(355)	(47,851)	1,049	(48,900)
Investments	(2,217)	–	2,261	–	(8,942)	(1,070)	(9,967)	3,161	(13,128)
Inventories	22,879	–	(4,080)	–	4,929	236	23,964	51,996	(28,032)
Other assets	(58,965)	–	22,553	–	7,374	357	(28,681)	15,572	(44,253)
Tax loss carry-forwards	14,816	–	471	–	(4,362)	(379)	10,546	10,546	–
Pension obligations	44,000	–	(11,355)	1,760	3,323	10	37,739	46,702	(8,963)
Other provisions	59,539	–	8,276	–	(4,940)	(119)	62,756	62,756	–
Liabilities	51,459	–	1,803	–	3,643	4,304	61,208	70,695	(9,487)
Tax assets (liabilities) before netting	**57,746**	**–**	**1,410**	**1,760**	**(7,495)**	**2,077**	**55,500**	**268,002**	**(212,504)**
Netting of taxes	–	–	–	–	–	–	–	(129,901)	129,901
Net tax assets (liabilities)	**57,746**	**–**	**1,410**	**1,760**	**(7,495)**	**2,077**	**55,500**	**138,101**	**(82,604)**

E.10. Earnings per share

In 2019, the Group's net income grew slightly by 0.4% or € 2,583 thousand from € 629,435 thousand to € 632,018 thousand.

Basic earnings per share are calculated in accordance with IAS 33 from the earnings attributable to Knorr-Bremse Aktiengesellschaft shareholders and the weighted average number of shares outstanding during the year. Table → 3.34

The number of shares in circulation is unchanged at 161,200,000 for the whole of 2019 and is thus also the same as the weighted average. Table → 3.35

Diluted earnings per share correspond to basic earnings per share.

For further information on the share split and capital increase, see Chapter F.8.1. Subscribed capital.

3.32 UNRECOGNIZED DEFERRED TAX ASSETS

	12/31/2019		12/31/2018	
in € thousand	Gross	Tax effect	Gross	Tax effect
from deductible temporary differences	7,319	2,126	9,866	3,187
from tax losses	97,061	27,635	95,269	30,772
	104,380	**29,761**	**105,135**	**33,959**

3.33 NON-CAPITALIZED TAX LOSS CARRY-FORWARDS

	12/31/2019		12/31/2018	
in € thousand		Expiration date		Expiration date
Expirable	21,990	1–10 years	15,041	1–10 years
Non-expirable	75,071		80,228	–
	97,061		**95,269**	

3.34 EARNINGS PER SHARE

in € thousand	2019	2018
Net income	632,018	629,435
Earnings after taxes from continuing operations (attributable to Knorr-Bremse shareholders) (in € thousand)	588,423	592,792
Weighted average of shares outstanding (in thousand pieces)	161,200	161,200
Earnings per share in Euro (undiluted)	3.65	3.68
Earnings per share in Euro (diluted)	3.65	3.68

3.35 CHANGE IN NUMBER OF SHARES

	in thousand Pcs	Nominal amount in €	Subscribed capital in € thousand
Shares as of 1/1/2019	161,200	1.00	161,200
Shares as of 12/31/2019	161,200	1.00	161,200

F. NOTES TO THE CONSOLIDATED STATEMENTS OF BALANCE SHEET

F.1. Intangible assets Table → 3.36

3.36 INTAGIBLE ASSETS

in € thousand	Goodwill	Software, licenses and acquired rights	Brands and customer relationships	Internally generated intangible assets	Advance payments on intangible assets and assets under construction	Other assets	Total
Acquisition and production costs							
As of 1/1/2018	**299,737**	**319,047**	**98,060**	**117,921**	**5,136**	**20,633**	**860,535**
Currency translation differences	4,702	8,223	541	1,371	24	344	15,204
Additions	–	13,362	–	43,075	79,633	–	136,070
Disposals	–	(4,602)	–	–	–	(339)	(4,941)
Acquisitions classifying as business combinations	1,454	–	–	–	–	–	1,454
Reclassifications	–	802	–	–	(692)	–	110
As of 12/31/2018	**305,892**	**336,833**	**98,601**	**162,366**	**84,101**	**20,638**	**1,008,431**
As of 1/1/2019	**305,892**	**336,833**	**98,601**	**162,366**	**84,101**	**20,638**	**1,008,431**
Currency translation differences	8,552	3,076	3,515	1,422	49	709	17,323
Additions	–	15,656	–	64,483	17,747	–	97,885
Disposals	–	(2,878)	–	(84)	–	–	(2,962)
Acquisitions classifying as business combinations	66,693	5,225	60,124	17,364	926	(1)	150,331
Disposal from the scope of consolidation	–	(4,044)	(7,125)	(3,658)	–	(5,505)	(20,332)
Reclassifications	–	17,001	(2,779)	2,221	(16,444)	–	(0)
As of 12/31/2019	**381,137**	**370,869**	**152,337**	**244,116**	**86,377**	**15,842**	**1,250,676**
Accumulated depreciation and amortization and impairment expenses							
As of 1/1/2018	**–**	**(264,211)**	**(29,084)**	**(25,957)**	**63**	**(850)**	**(320,039)**
Currency translation differences	–	(5,740)	(639)	(527)	–	(117)	(7,023)
Additions	–	(17,245)	(11,864)	(7,459)	–	(4,298)	(40,866)
Disposals	–	2,657	–	–	–	–	2,657
As of 12/31/2018	**–**	**(284,539)**	**(41,586)**	**(33,942)**	**63**	**(5,266)**	**(365,271)**
As of 1/1/2019	**–**	**(284,539)**	**(41,586)**	**(33,942)**	**63**	**(5,266)**	**(365,271)**
Currency translation differences	–	(3,120)	(801)	(235)	–	(199)	(4,355)
Additions	–	(18,599)	(13,042)	(11,365)	–	(4,068)	(47,074)
Disposals	–	338	–	–	(63)	–	276
Impairments	–	(1,976)	(3,426)	(151)	–	–	(5,554)
Disposal from the scope of consolidation	–	3,761	4,585	87	–	5,049	13,481
As of 12/31/2019	**–**	**(304,134)**	**(54,271)**	**(45,606)**	**–**	**(4,485)**	**(408,496)**
Book value as of 12/31/2018	**305,892**	**52,294**	**57,015**	**128,424**	**84,163**	**15,372**	**643,159**
Book value as of 12/31/2019	**381,137**	**66,734**	**98,066**	**198,510**	**86,377**	**11,357**	**842,180**

The increase in goodwill this fiscal year is mainly attributable to the acquisition of Hitachi Automotive Systems, Ltd., Japan and Hitachi Automotive Systems Asia, Ltd., Thailand. For further details, please refer to Chapter C.3.1. Additions to the consolidated companies.

In 2019, additions to intangible assets decreased by -28%, or € -38,184 thousand, from € 136,070 thousand to € 97,885 thousand. This was mostly due to the acquisition of rail friction know-how from Federal Mogul for € 63,000 thousand in the previous year.

The intangible assets internally generated relate to the finished and unfinished capitalized costs of the Group's development activities. Development costs are capitalized if the requirements defined in IAS 38 are met. These are subject to straight-line depreciation over the respective useful life. Additions in the fiscal year amounted to € 64,483 thousand. Thereof, € 34,522 thousand resulted from the Rail Vehicle Systems area, and € 29,961 thousand from the Commercial Vehicle Systems area.

As long as know-how is not ready for use, an impairment test is performed as a minimum as of December 31 of the relevant fiscal year.

The Group uses the total cost method in determining period results. Hence, expenditures assigned to the function research and development which were recognized as expense cannot be directly determined. The research and development costs recognized in the statement of income as expense are retroactively determined. Table → 3.37

F.2. Goodwill

According to IFRS, goodwill essentially has an unlimited useful life. Goodwill is allocated between the Group's cash-generating units (CGU) and the value is assessed annually.

The segments Rail Vehicle Systems and Commercial Vehicle Systems are defined as groups of cash-generating units.

For the purpose of impairment testing, the following goodwill is allocated to the groups of cash-generating units of the Group. Table → 3.38.

The year-on-year increase in goodwill is mainly due to the acquisition of Hitachi Automotive Systems in the Commercial Vehicle Systems segment (€ 64,726 thousand) and to exchange rate fluctuation.

The determination of the recoverable amount for the respective group of cash-generating units is based in each case on the fair value less the costs of disposal, which was estimated by discounted future cash flows of the cash-generating units. The measurements at fair value were classified as fair values in level 3 based on the input factors of the valuation technique used.

The cash flow forecasts contained specific estimates for each group of cash-generating units for three years, a subsequent rough planning period of two years and a sustainable growth rate for the period thereafter.

The discount rate used was the historical weighted average cost of capital (WACC) after corporate taxes calculated on the basis of a group of peer companies.

The key assumptions used in estimating the recoverable amount are set out below:

The sales growth rates forecast in the detailed planning stage are based on a consolidation of detailed bottom-up plans of the significant legal entities included in cash-generating units and take into account past order data as well as industry-specific market information from external sources. In the rough planning period, the sales growth rates are deter-

3.37 RESEARCH AND DEVELOPMENT COSTS RECOGNIZED IN EXPENSES

in € thousand	2019	2018
Research and development expenses according to HGB	(396,891)	(363,637)
Own work capitalized	73,316	48,047
Revenues-related expenditures for research and development	279,626	260,043
	(43,949)	**(55,547)**

3.38 GOODWILL

in € thousand	12/31/2019	12/31/2018
Rail Vehicle Systems	189,343	184,538
Commercial Vehicle Systems	191,793	121,354
	381,137	**305,892**

mined with a view to the longer-term growth rates obtained from external sources.

The EBITDA margins forecast in the detailed planning stage take past experience and current data from the respective order backlogs into account. Average EBITDA margins extrapolated from the past are used in the rough planning period.

The Table → 3.39 shows the discount rates and growth rates used to extrapolate the cash flow forecasts in determining the recoverable amount of the cash-generating units.

The sustainable growth rate was calculated based on the estimate of long-term inflation expectations and is based on the assumptions that a market participant would make.

Knorr-Bremse reviews the book value of goodwill at the end of each fiscal year for impairment.

The impairments tests did not indicate any need for impairment.

F.3. Property, plant and equipment

Table → 3.40

Additions to property, plant, and equipment increased by 73%, or € 171,059 thousand, in 2019, from € 235,364 thousand to € 406,423 thousand.

Additions and disposals of land and buildings related primarily to the sale and leaseback transaction at the Munich site. The sale of land and buildings led to the derecognition of carrying amounts totaling € 94,148 thousand. New leases entered into led to the recognition of right-of-use assets of € 49,944 thousand in accordance with IFRS 16.

Other right-of-use assets under IFRS 16 were recognized in an amount of € 81,396 thousand, of which € 72,407 thousand is mainly attributable to land and buildings.

Investments in technical equipment and machinery as well as other equipment, factory and office equipment in the Rail Vehicle Systems division focused on investments in capacity expansions, automation, as well as replacement and expansion projects for production equipment and improving its efficiency. In addition to worldwide investments in supplier tools, the primary investments in the Commercial Vehicle Systems area were in the expansion of production capacities at the North American sites in Huntington and Bowling Green.

Disposals of assets under construction in an amount of € 44,507 thousand related to real estate that had not yet been completed or transferred and was sold in a civil law transaction.

Other changes to PPE resulted from business sales. Please refer to Chapter C.3.2.

The PPE item is subject to annual scheduled depreciation and amortization. Impairment losses on property, plant, and equipment are reported separately (see Chapter E.7. Depreciation and amortization). Table → 3.26

3.39 GROUPS OF CASH-FLOW-GENERATING UNITS (CGU GROUP)

in %	12/31/2019	12/31/2018
CGU Group Rail Vehicle Systems		
Weighted average cost of capital (WACC)	8.2	8.2
Sustainable growth rate	1.0	1.0
CGU Group Commercial Vehicle Systems		
Weighted average cost of capital (WACC)	8.3	8.6
Sustainable growth rate	1.0	1.0

3.40 PROPERTY, PLANT AND EQUIPMENT

in € thousand	Land, land rights and buildings, including buildings on land owned by others	Technical equipment and machinery	Other equipment, factory and office equipment	Advance payments and plant under construction	Total
Acquisition and production costs					
As of 1/1/2018	**619,473**	**845,754**	**659,852**	**116,446**	**2,241,526**
Currency translation differences	(2,308)	(4,838)	3,712	405	(3,030)
Additions	20,459	44,219	52,508	118,178	235,364
Disposals	(31,677)	(16,996)	(32,553)	(3,737)	(84,963)
Reclassifications	5,122	27,634	21,944	(54,810)	(110)
As of 12/31/2018	**611,069**	**895,774**	**705,464**	**176,482**	**2,388,788**
Initial application of IFRS 16	224,489	999	14,169	–	239,657
As 1/1/2019	**835,558**	**896,773**	**719,632**	**176,482**	**2,628,445**
Currency translation differences	3,408	4,190	9,204	(462)	16,340
Additions	146,097	52,581	51,446	156,300	406,423
Disposals	(140,970)	(7,179)	(23,553)	(49,605)	(221,307)
Acquisitions classifying as business combinations	21,485	21,948	1,619	251	45,304
Disposal from the scope of consolidation	(7,750)	(8,195)	(4,727)	(82)	(20,754)
Reclassifications	17,351	46,485	24,466	(88,302)	–
As of 12/31/2019	**875,178**	**1,006,603**	**778,088**	**194,581**	**2,854,450**
Accumulated depreciation and amortization and impairment expenses					
As of 1/1/2018	**(173,791)**	**(479,276)**	**(469,443)**	**(2,619)**	**(1,125,128)**
Currency translation differences	(19)	2,767	(4,090)	87	(1,255)
Additions	(17,939)	(57,497)	(69,873)	(256)	(145,564)
Disposals	17,635	13,450	19,258	–	50,343
As of 12/31/2018	**(174,114)**	**(520,555)**	**(524,148)**	**(2,787)**	**(1,221,604)**
As 1/1/2019	**(174,114)**	**(520,555)**	**(524,148)**	**(2,787)**	**(1,221,604)**
Currency translation differences	(4,944)	(1,167)	(2,756)	342	(8,525)
Additions	(59,356)	(64,791)	(77,290)	23	(201,414)
Disposals	13,370	6,743	23,861	4,041	48,014
Impairments	–	(3,860)	(2,620)	(5,258)	(11,738)
Disposal from the scope of consolidation	1,706	4,844	3,479	–	10,028
Reclassifications	4,078	544	(4,108)	(514)	0
As of 12/31/2019	**(219,259)**	**(578,243)**	**(583,583)**	**(4,154)**	**(1,385,238)**
Book value as of 12/31/2018	**436,955**	**375,219**	**181,316**	**173,694**	**1,167,184**
Book value as of 12/31/2019	**655,920**	**428,360**	**194,505**	**190,427**	**1,469,212**

As of December 31, 2019, as in the previous year, properties in the property leasing companies K&D Progetto and Sanctor are encumbered by land charges. The land charge at K&D Progetto is € 13,450 thousand (2018: € 13,450 thousand) and at Sanctor is € 28,924 thousand (2018: € 28,924 thousand). The property leasing company MORCAR was deconsolidated through a sale and leaseback transaction towards the end of the fiscal year; this company had been encumbered by a land charge of € 55,000 thousand.

The carrying amounts of the land and buildings, as well as the values of the land charges, have developed as follows: Table → 3.41.

F.4. Other financial assets

Table → 3.42

Other financial assets for the fiscal year mainly include outstanding payments amounting to € 17,376 thousand relating to a sale and leaseback transaction.

F.5. Trade accounts receivable and other assets Table → 3.43, Table → 3.44

Trade accounts receivable decreased in the reporting period by 7.1% or € 88,382 thousand from € 1,237,381 thousand to € 1,148,999 thousand. There was a 10.1% decline in the Rail

3.41 BOOK VALUES

	2019		2018	
in € thousand	Book value	Value land charge	Book value	Value land charge
K&D Progetto	7,753	7,753	8,304	8,304
Sanctor	24,530	27,385	25,363	27,391
MORCAR	-	-	48,995	42,468
	32,283	**35,138**	**82,662**	**78,163**

3.42 OTHER FINANCIAL ASSETS

in € thousand	12/31/2019	12/31/2018
Derivates	16,091	8,102
Equity instruments	27,499	39,814
Purchase price receivables from disposal of land	31,111	28,335
Other financial assets	51,335	22,998
	126,036	**99,250**
Current	62,565	24,260
Non-current	63,471	74,990

3.43 TRAD ACCOUNTS RECEIVABLE

in € thousand	12/31/2019	12/31/2018
Accounts receivable due from associated and related companies and parties	40,696	35,677
Trade accounts receivable	1,108,303	1,201,704
Current	1,148,999	1,237,381
Non-current	–	–

Vehicle Systems division and a 2.0% decline in the Commercial Vehicle Systems division.

Despite an increase in revenues, the "days sales outstanding" indicator was reduced from an average of 67.3 days to 59.6 days. Changes in impairments under IFRS 9 and a breakdown of trade accounts receivable by industry can be found in Chapter F.13.2.

The remaining other assets include primarily real estate that had not yet been completed or transferred and was sold in a civil law sale and leaseback transaction at the Munich site in an amount of € 35,601 thousand, of which € 11,812 thousand is classified as current assets and € 23,789 thousand as non-current assets. The properties will be transferred after their expected completion in 2020 and 2021 respectively.

Other reasons for the increase in other current assets include an escrow account recognized in the amount of € 14,137 thousand.

3.44 OTHER CURRENT AND NON-CURRENT ASSETS

in € thousand	12/31/2019	12/31/2018
Non-current		
Nomination costs	20,993	15,147
Costs to fulfil a contract	16,187	12,365
Prepaid expenses	6,900	6,341
Tax receivables	3,797	4,097
Other	26,052	217
Other non-current assets	**73,930**	**38,167**
Current		
Receivables from other taxes	72,462	63,057
Deferred assets	31,159	34,263
Advance payments	9,882	2,988
Advance payments to third parties		2,221
Advance on wages	–	1,319
Advance on travel expenses	1,230	288
Other	37,354	19,298
Other current assets	**152,088**	**123,433**
Other assets	**226,017**	**161,600**

F.6. Inventories Table → 3.45

As of December 31, 2019, the inventories amounted to € 815,011 thousand. Compared to the end of 2018, when inventories stood at € 836,326 thousand, this represents an increase of € -21,314 thousand or -3%. This is mainly attributable to an € 18,781 thousand decrease in advance payments made. Despite the growth in revenues, at € 649,615 thousand the total figure for materials and supplies, unfinished goods, and finished goods was almost on a level with the previous year (2018: € 649,039 thousand).

3.45 INVENTORIES

in € thousand	Materials and supplies	Unfinished goods	Finished goods	Merchandise	Goods in transit	Advance payments	Total
Gross inventory as of 12/31/2018	**457,377**	**129,204**	**142,931**	**102,511**	**60,330**	**31,703**	**924,056**
Depreciation and amortization of net realizable value	(45,875)	(11,532)	(23,014)	(7,350)	(1)	–	(87,772)
Currency translation differences	79	(79)	(52)	93	–	–	42
As of 12/31/2018	**411,581**	**117,593**	**119,865**	**95,254**	**60,329**	**31,703**	**836,326**
Gross inventory as of 12/31/2019	**444,660**	**112,482**	**150,448**	**106,124**	**56,264**	**12,922**	**882,900**
Depreciation and amortization of net realizable value	(38,214)	(3,456)	(16,327)	(9,865)	–	–	(67,861)
Currency translation differences	(2)	16	7	(48)	–	–	(27)
As of 12/31/2019	**406,445**	**109,042**	**134,129**	**96,211**	**56,264**	**12,922**	**815,011**

F.7. Cash and cash equivalents Table → 3.46

Cash and cash equivalents include cash and demand deposits at credit institutions as well as highly liquid assets in different currencies that can be converted to cash quickly and are only subject to insignificant risks of changes in value. On all reporting period dates, there were no cash and cash equivalents in the categories "at fair value through profit and loss" and "recognition of valuation change in through OCI."

The cash and cash equivalents are measured at acquisition cost and adapted by an adjustment for the probability of default in relation to the banks ("expected credit loss") based on a public issuer rating for core and principal commercial banks. For the small percentage of liquid funds outside the core and principal banks, these balances are adjusted based on the average values of the probabilities of default of the core and principal commercial banks. Further information on the rating is provided in Chapter H.1.4 Credit risks.

F.8. Equity

F.8.1. Subscribed capital

Knorr-Bremse AG's capital stock is divided into 161,200,000 no-par-value bearer shares with full voting rights, each representing a share of the capital stock of € 1.00. In total, the capital stock thus amounts to € 161,200,000. Each share guarantees the right to the dividend resolved by the shareholders' meeting.

3.46 CASH AND CASH EQUIVALENTS

in € thousand	12/31/2019	12/31/2018
Cash and cash equivalents	**1,880,738**	**1,756,033**

3.47 RETAINED EARNINGS

in € thousand	12/31/2019	12/31/2018
Legal reserves	15,967	15,967
Other retained earnings	18,188	23,957
Total	**34,156**	**39,924**

The management board is authorized, with the approval of the Supervisory Board, to increase the capital stock of the Company on one or more occasions in the period up to May 28, 2023 by up to € 40,300,000 by issuing up to 40,300,000 new bearer shares against cash and/or non-cash contributions (Authorized Capital 2018). The new shares are generally to be offered directly or indirectly to the shareholders for subscription. The management board is, however, entitled, under certain conditions, to completely or partially exclude the subscription right with the consent of the Supervisory Board.

Furthermore, subject to the approval of the Supervisory Board, the management board was authorized until May 28, 2023 to issue convertible bonds and/or bonds with warrants, profit participation rights and/or income bonds (or combinations of these instruments) possibly excluding the subscription right to create conditional capital (Conditional Capital 2018). To this end, the capital stock of Knorr-Bremse AG is conditionally increased by up to € 16,120,000 by issuing up to 16,120,000 new no-par-value bearer shares. The conditional capital increase is only to be implemented to the extent that conversion or option rights are exercised.

Stella Vermögensverwaltungs-GmbH, Grünwald/Germany, TIB Vermögens- und Beteiligungsholding GmbH, Grünwald/Germany, and KB Holding GmbH, Grünwald/Germany, have informed the Company that they hold a majority interest in the Company, either directly or indirectly. To the knowledge of the management board, the majority of shares in Stella are held by Mr. Heinz Hermann Thiele as of July 6, 2017.

F.8.2. Capital reserves

The Group's capital reserve remains unchanged at € 13,884 thousand as of December 31, 2019.

F.8.3. Retained earnings

In addition to the legal reserve of the parent company, retained earnings contain the parent company's other retained earnings and the effect of IFRS transitions. Table → 3.47.

The year-on-year decline in retained earnings is attributable to the initial application of IFRS 16 and the recognition of right-of-use assets and lease liabilities as of January 1, 2019.

F.8.4. Other equity components

Other equity components contain the changes in equity with no effect on profit and loss. This includes currency translation differences as a result of the translation of annual financial statements of foreign subsidiaries, changes in the measurement of financial assets whose changes in fair value are recognized (optionally in OCI), the actuarial gains and losses from the measurement of benefits to employees reported in the year under review, the effects of hedge accounting introduced in the year under review, as well as taxes recognized directly in equity.

F.8.5. Takeover disclosures required by law pursuant to Section 289a (1) HGB and Section 315a (1) HGB

A) PARTICIPATION IN CAPITAL EXCEEDING 10% OF VOTING RIGHTS

On the basis of the voting rights notifications received by the Company in accordance with the provisions of the German Securities Trading Act (WpHG), there is a participation in the capital of the Company that exceeds 10% of the voting rights. KB Holding GmbH, Grünwald, Germany, currently holds 70.35% of the voting rights in Knorr-Bremse AG (based on not mandatory notification in 2019). Pursuant to Section 34 (1) WpHG, these voting rights are attributable to TIB Vermögens- und Beteiligungsholding GmbH, Grünwald, Germany, Stella Vermögensverwaltung GmbH, Grünwald, Germany, and Heinz Hermann Thiele, Munich, Germany. Table → 3.48

B) NOTIFICATIONS IN ACCORDANCE WITH THE GERMAN SECURITIES TRADING ACT:

Pursuant to Section 160 (1) No. 8 of the German Stock Corporation Act (AktG), information must be provided on the existence of equity interests notified to Knorr-Bremse AG pursuant to Section 20 (1) and (3) of the German Stock Corporation Act (AktG) or pursuant to Section 33 (1) or (2) of the German Securities Trading Act (WpHG).

The German Securities Trading Act requires investors whose share of voting rights in listed companies reaches certain thresholds to make a disclosure. The following reportable investments were notified to Knorr-Bremse AG in writing in the 2019 fiscal year as of the balance sheet date; the information relates in each case to the most recent notification made to Knorr-Bremse AG by a reportable entity. All disclosures made by Knorr-Bremse AG regarding equity investments in the year under review and beyond can be found on the company's website (https://ir.Knorr-Bremse.com). Table → 3.48

The voting rights in Knorr-Bremse AG held by KB Holding GmbH are attributable to TIB Vermögens- und Beteiligungsholding GmbH, Stella Vermögensverwaltungs GmbH and Mr. Heinz Hermann Thiele in accordance with Section 34 (1) Sentence 1 No. 1 of the German Securities Trading Act (WpHG).

F.8.6. Dividends

In the fiscal year, Knorr-Bremse AG declared and paid the dividends summarized in the Table → 3.49.

The dividends relate in all cases to the prior year. For the 2018 fiscal year, in the 2019 fiscal year a dividend of € 1.75 per bearer share was declared and therefore paid in the total amount of € 282,100 thousand.

The dividend of € 21,089 thousand paid to the minority shareholder Bosch in the previous fiscal year, which was shown in equity as a dividend to shareholders, was reflected in the financial result in the amount of € 21,617 thousand for the first time in the 2019 fiscal year.

The Management Board of Knorr-Bremse AG will suggest that the Supervisory Board distribute a total dividend of € 290,160 thousand for the past fiscal year. This corresponds to a dividend per share of € 1.80.

3.49 DIVIDENDS

in € thousand	2019	2018
€ 1.75 per bearer share (2018: € 327)	**282,100**	**850,200**

3.48 VOTING RIGHTS NOTIFICATION

Party obligated to disclose	Date of reaching, exceeding or falling below the thresholds	Threshold value reached	Disclosure obligations and/or additions pursuant to WpHG1[1)]	New share of voting rights in %	New share of voting rights absolute
Herr Heinz Hermann Thiele, Germany	10/24/2018	50% exceeded	Section 34 WpHG	70.16	113,097,851
Black Rock, Inc	2/15/2019	3% exceeded	Section 34 WpHG	3.01	4,848,580
Black Rock, Inc	2/18/2019	fell below 3 %	Section 34 WpHG	2.96	4,772,820
Black Rock, Inc	2/19/2019	3% exceeded	Section 34 WpHG	3.00	4,839,531
Black Rock, Inc	2/28/2019	fell below 3 %	Section 34 WpHG	2.98	4,798,251
Black Rock, Inc	3/15/2019	3% exceeded	Section 34 WpHG	3.06	4,940,041
The Capital Group Companies, Inc.	7/15/2019	3% exceeded	Section 34 WpHG	3.04	4,899,186

[1)] The aforementioned provisions of the WpHG refer to the version applicable at the time of publication of the voting rights announcement.

F.8.7. Capital management

The Group's objective is to maintain a strong capital base and ensure the sustainable development of the Company.

To this end, the Group prepares short-term and long-term liquidity planning. Short-term liquidity planning covers a three-month planning horizon with precise expected cash flows including currency changes. Long-term liquidity planning is carried out twice a year with a planning horizon of three years.

To manage **free cash flow [p. 202],** the Group has established a net working capital management and investment process. Demand-oriented investments, which serve to maintain and further develop the Company, are made within the annual target of around 3% to 5% of annual sales. The goal of 40 to 50 days sales outstanding for net working capital is achieved by closely monitoring the divisions' **working capital [p. 203]** positions and liquidity management programs such as factoring and the Supplier Early Payment Program.

In addition, Knorr-Bremse makes targeted use of retained earnings to maintain a stable **equity ratio [p. 202]**. In future, the Group plans to distribute between 40% and 50% of consolidated net income as dividends and to retain the remaining profit. This serves to strengthen the equity ratio with a target figure of between 20% and 30%. The Group defines the equity ratio as the ratio of equity to total assets.

3.50 EMPLOYEE BENEFITS

in € thousand	12/31/2019	12/31/2018
Assets from employee benefits	**31,611**	**28,373**
Provisions for pensions	(343,273)	(307,547)
Other personnel related provisions	(48,681)	(36,123)
Provisions for employee benefits	**(391,954)**	**(343,670)**
Non-current	(362,818)	(332,058)
Current	(29,136)	(11,612)

F.9. Employee benefits Table → 3.50

F.9.1. Employee benefits

In various countries, Knorr-Bremse makes pension commitments to its employees based on defined benefit plans, the benefits of which depend either on the employee's pensionable remuneration or contain other guarantees. Pension commitments are measured based on actuarial principles using the projected unit credit method. The pension plan provisions reported in the balance sheet correspond to the present value of the defined benefit obligation in consideration of future salary and pension increases as at the reporting date, less the fair value of the plan assets. An excess of plan assets beyond the present value of the defined benefit obligation is limited to the present value of the benefit attributable to the Company, from the reimbursement of contributions or the reduction of future contribution payments.

The defined benefit plans in Germany and the United Kingdom represent the majority of the gross obligation at approximately 78%. Minor pension obligations from defined benefit pension schemes also exist in France, India, Italy, Japan, Mexico, Austria, Sweden, Switzerland, South Korea and the USA. In Germany, the United Kingdom, Japan, South Korea, Austria (in some cases), and the USA, the benefits are granted on a voluntary basis, while, in the other countries, the benefits are based on statutory regulations.

GERMANY

Employees benefits are granted from pension schemes for which the benefits in old age, in the event of disability or death are calculated depending on the period of employment, the salary at the time of commencement of the annuity, and the relevant assessment ceiling in the statutory pension insurance scheme (BBG), as well as a defined benchmark figure. The benefits are paid in the form of an annuity. The plan was closed to new admissions with effect from January 1, 2003. Plan participants primarily include beneficiaries. Moreover, individual plans also exist, especially amongst managers, which were concluded on an individual contractual basis.

The obligations in Germany are largely completely unfunded, which means that no plan assets exist, which are solely intended to meet pension commitments – with the exception of one company for which a pledged reinsurance policy exists.

In Germany, the interest rate risk as well as the life expectancy of the plant participants play a major role as part of a risk consideration, as the benefits are primarily paid in the form of an annuity. However, the risk was reduced by closing the pension plan to new admissions.

UNITED KINGDOM

In the United Kingdom, the employees and managers benefit from defined benefit plans, which are closed to new admissions; in addition, existing plan participants are no longer entitled to any increase in entitlements, with the exception of a few special cases for which the benefits continue to increase together with the salary. At the time, the plan was introduced on a voluntary basis. The plan provides for benefits upon retirement and death, which depend on the salary and period of employment up to the closure of the plan in 2012. Payment essentially occurs in the form of an annuity, whereby part of the benefit can also be paid out as a one-off capital payment at the request of the plan participant.

In the United Kingdom, a board of trustees, which is comprised of Company and employee representatives, is responsible for asset management. The investment strategy targets long-term value additions with a low volatility.

The pension schemes in the United Kingdom are exposed to the interest rate risk, due to the payment as a lifelong pension, as well as the risk of a higher life expectancy than assumed so that the pensions will have to be paid out for longer than planned. However, the risks were limited by closing the pension plan. Moreover, an investment risk also exists, in that the plan assets may not develop as expected and that the plan assets may therefore only be able to partially offset changes to the scope of obligations.

Please refer to Section E.5. with regard to expenses in connection with defined benefit pension plans.

F.9.2. Change in net debt Table → 3.51

3.51 CHANGE IN NET DEBT

	Defined benefit obligation		Fair value of plan asset		Net liabilities (net assets) from defined benefit plans	
in € thousand	2019	2018	2019	2018	2019	2018
As of 01/01	**(533,754)**	**(545,122)**	**254,579**	**256,513**	**(279,174)**	**(288,609)**
Current service costs	(8,677)	(9,298)	–	–	(8,677)	(9,298)
Past service costs	23	(660)	–	–	23	(660)
Interest income	–	–	6,723	6,228	6,723	6,228
Interest expense	(12,177)	(11,451)	–	–	(12,177)	(11,451)
Net cash flow	4,751	12,910	(6,585)	(3,948)	(1,834)	8,962
Remeasurements	(60,982)	9,267	25,815	(4,696)	(35,167)	4,571
a) Return on plan assets	–	–	25,815	(4,696)	25,815	(4,696)
b) Actuarial gains/losses (change in demographic assumptions)	(136)	1,121	–	–	(136)	1,121
c) Actuarial gains/losses (change in financial assumptions)	(60,039)	11,237	–	–	(60,039)	11,237
d) Effect of experience adjustments	(806)	(3,090)	–	–	(806)	(3,090)
Currency translation differences	(11,814)	(2,305)	13,140	743	1,326	(1,562)
Employer contributions	14,048	12,644	3,715	–	17,763	12,644
Participant contributions	(970)	(856)	970	856	–	–
Increase/decrease due to effect of business combinations/divestitures	(4,947)	1,117	4,479	(1,117)	(468)	–
As of 12/31	**(614,497)**	**(533,754)**	**302,835**	**254,579**	**(311,662)**	**(279,174)**
thereof						
Germany	(268,653)	(253,439)	1,618	1,603	(267,035)	(251,837)
United Kingdom	(212,642)	(180,565)	244,253	208,938	31,611	28,372
Other countries	(133,202)	(99,749)	56,964	44,038	(76,238)	(55,711)

F.9.3. Plan assets

Some of the pension obligations are secured by assets that correspond to the definition of plan assets in accordance with IAS 19. For these pension obligations, the net debt is reported from the defined benefit obligation and the fair value of the plan assets.

For plans with a positive excess of the fair value of plan assets over the present value of the related obligation, the resulting asset is tested for impairment and, if necessary, limited to the present value of the economic benefits that the Group can derive from refunds or reductions in future contributions.

The plan assets primarily contain debt securities, investment funds and insurance policies, which are largely held by long-term, external carriers (funds). Plan assets are mainly held in the United Kingdom and Switzerland.

In order to reduce asset and liability risks (Asset-Liability-Matching, ALM), Knorr-Bremse has developed a risk minimization program in cooperation with trustees. The investment strategy is transferred to a qualified actuary who implements the investment strategy in relation to the pension plans and carries out the investment strategy.

The assets controlled as part of this transfer are allocated to a "Growth" or "Liability Hedging" portfolio. The allocation ratio is agreed at regular intervals.

The "Growth" portfolio comprises a combination of shares, fixed-income securities and other available funds that are available in the manager's portfolio. The fund manager determines the investment mix.

The liability hedging portfolio comprises LDI funds (Liability Driven Investment), fixed-income securities, index-linked funds and other funds that are available in the manager's portfolio. The fund manager determines the investment mix.

The objectives of the risk minimization strategy are to minimize the risk from the pension plans by increasing the allocation of assets to the liability hedging portfolio. Such reallocation must take place if agreed key figures are exceeded in order to make it possible to align assets with liabilities.

The pension obligations in Switzerland are largely covered by legally independent pension schemes. Any return of funds to the employer is precluded. The contracts meet the requirements for qualified insurance policies pursuant to IAS 19.8.

The plan assets include the investments shown in Table → 3.52.

3.52 Plan assets

in € thousand	12/31/2019	12/31/2018
Cash and cash equivalents	9,635	240
Equity instruments	4,462	36,797
Debt instruments	221,461	137,780
Real estate	10	–
Assets held by insurance companies	43,413	40,522
Other	23,854	39,240
Fair value of plan assets	**302,835**	**254,579**
thereof		
United Kingdom	244,253	208,938
Other countries	58,582	45,641
Return on plan assets (including interest income)	**32,538**	**1,532**
thereof		
United Kingdom	28,798	450
Other countries	3,740	1,082

3.53 ACTUARIAL ASSUMPTIONS

in %	12/31/2019	12/31/2018
Defined benefit obligation		
Discount rate	1.54	2.31
Salary increase	3.04	3.09
Pension increases	1.86	2.02

F.9.4. Actuarial assumptions

The Table → 3.53 lists the key actuarial assumptions (in the form of weighted averages in %) used on the reporting date.

The most important defined benefit plans exist in Germany and the United Kingdom. The biometric basis for valuating these obligations in Germany is the generation-dependent guideline tables 2018 G from Prof. Klaus Heubeck, published by Heubeck Richttafeln GmbH on July 20, 2018. These tables are based on the newest statistics of the statutory pension insurance and the Federal Statistical Office and therefore reflect the most recent developments in probabilities of life expectancy, disability, marriage and fluctuation. Since the average life expectancy has continued to rise (albeit more slowly than in the past), the pension obligations for domestic companies increased slightly.

In the United Kingdom, the S2PA mortality tables with projection CMI 2017 are used as the biometric basis.

Age-dependent turnover tables are also taken into account.

F.9.5. Future cash flows

In the following 2020 fiscal year, employer payments into the plan assets are expected to amount to € 3,614 thousand. As of December 31, 2019, average annual benefit payments from pension plans in the amount of € 24,031 thousand (2018: € 29,757 thousand) were expected.

As of December 31, 2019, the weighted average term of the defined benefit obligation was 16.96 years (2018: 16.41 years).

F.9.6. Sensitivity analysis

The following sensitivity analysis presents the effects of reasonable changes of individual factors on the defined benefit obligation as at the reporting date. Table → 3.54

Although the analysis does not take account of the complete distribution of the expected cash flows according to the plan, it provides an approximate value of the sensitivity of the presented assumptions.

3.54 SENSITIVITY ANALYSIS

	12/31/2019		12/31/2018	
in € thousand	Increase	Decrease	Increase	Decrease
Present value of defined benefit obligation				
Change in discount rate 0.5%	(46,393)	52,377	(37,958)	47,097
Change in salary increase rate 0.5%	6,609	(6,164)	5,917	(6,904)
Change in future pension increases 0.5%	33,001	(26,191)	26,762	(27,274)

F.10. Other provisions Table → 3.55

The provisions for warranty obligations cover obligations from cases that have already occurred as well as future obligations that are based on empirical values. The latter are essentially directly related to the development and structure of revenue. The provisions are based on estimates from historical warranty data for similar products and services. For the long-term components, outflows are expected within the next two to five years.

Contractual provisions include contingency reserves from pending transactions of € 22,564 thousand (2018: € 28,284 thousand).

Other provisions were related to individual identifiable risks and obligations, especially environmental protection obligations and process risks.

Expenses of € 3,796 thousand (2018: € 6,712 thousand) were recognized in the statement of income from compounding provisions.

3.55 OTHER PROVISIONS INCLUDING PROVISIONS FOR OTHER EMPLOYEE BENEFITS

in € thousand	Warranty provisions	Contractual provisions	Other provisions	Total
As of 12/31/2017	**335,981**	**31,475**	**98,406**	**465,862**
Initial application of IFRS 15	–	19,410	–	19,410
As of 1/1/2018	**335,981**	**50,885**	**98,406**	**485,272**
Currency translation differences	(487)	(248)	(256)	(991)
Additions	173,574	21,945	43,962	239,481
Utilization	(136,360)	(21,313)	(35,029)	(192,701)
Reversals	(36,622)	(18,711)	(5,648)	(60,981)
Compounding	4,843	825	1,044	6,712
As of 12/31/2018	**340,928**	**33,383**	**102,480**	**476,791**
thereof current	182,966	8,251	41,996	233,213
thereof non-current	157,962	25,132	60,484	243,578
As of 01/01/2019	**340,928**	**33,383**	**102,480**	**476,791**
Currency translation differences	1,846	114	(15)	1,945
Additions	170,102	2,923	39,538	212,562
Utilization	(94,664)	(6,129)	(27,598)	(128,390)
Reversals	(63,743)	(2,853)	(8,321)	(74,916)
Disposals from the scope of consolidation	(15,343)	(5,604)	(109)	(21,056)
Compounding	3,052	730	15	3,796
As of 12/31/2019	**342,178**	**22,564**	**105,990**	**470,732**
thereof current	152,721	4,286	40,577	197,585
thereof non-current	189,456	18,279	65,413	273,147

F.11. Trade account payables and other liabilities Table → 3.56, 3.57

Trade accounts payable decreased in the reporting period by 2.9% or € 28,498 thousand from € 995,945 thousand to € 967,447 thousand.

Other liabilities are valued as described in Chapter D.16.

3.56 TRADE ACCOUNT PAYABLES

in € thousand	12/31/2019	12/31/2018
Trade account payables	(967,447)	(995,945)
Current	(967,447)	(995,945)
Non-current	-	-

3.57 OTHER LIABILITIES

in € thousand	12/31/2019	12/31/2018
Deferred income	(4,316)	(3,478)
Other	(1,310)	(1,263)
Non-current	**(5,627)**	**(4,741)**
Liabilities from other taxes	(72,374)	(45,197)
Deferred income	(17,866)	(21,377)
Social security liabilities	(18,694)	(17,946)
Other	(22,109)	(48,784)
Current	**(131,044)**	**(133,303)**
Other liabilities	**(136,671)**	**(138,044)**

F.12. Financial liabilities Table → 3.58

Financial liabilities increased by € 361,305 thousand, from € 2,172,452 thousand to € 2,533,757 thousand. The increase is mainly attributable to the initial application of IFRS 16 and the resulting rise in lease liabilities.

Bonds and debt instruments include two corporate bonds, one with an issued volume of € 500,000 thousand and another with a volume of € 750,000 thousand. The first bond was issued in 2016 and matures in December 2021, the second dates from 2018 and matures in June 2025.

Other financial liabilities primarily reflect a rise in liabilities to employees.

For information on liabilities from options on minority interests, please refer to Chapters C.5 and F.13.

The acquisition of rail friction know-how from Federal Mogul has resulted in a purchase price liability of € 38,000 thousand, which is to be paid in three installments by December 2021 (cf. Chapter F.1). The first installment will be due in August 2020 and will amount to € 15,000 thousand, the second installment of € 20,000 thousand will be due in August 2021 and the final installment of € 3,000 thousand will be due in December 2021. In Addition current purchase price liabilities to OPES of € 3,090 thousand and current purchase price liabilities of € 2,500 thousand for the acquisition of Sentient IP AB are also included. A remaining purchase price liability of € 1,400 thousand is reported for the acquisition of Hitachi Automotive Systems, which will become due for payment in the second half of 2021. Table → 3.59

3.58 FINANCIAL LIABILITIES

in € thousand	12/31/2019	12/31/2018
Derivatives	(26,377)	(27,157)
Bank loans	(196,713)	(229,819)
Bonds and debt instruments	(1,249,013)	(1,247,521)
Liabilities from options for minority interests	(379,616)	(379,616)
Purchase price liabilities	(44,990)	(38,000)
Lease liabilities	(377,293)	(33,277)
Other financial liabilities	(259,755)	(217,063)
	(2,533,757)	**(2,172,452)**
Current	(875,567)	(642,895)
Non-current	(1,658,190)	(1,529,557)

3.59 RECONCILIATION OF MOVEMENTS OF LIABILITIES TO CASH FLOWS ARISING FROM FINANCING ACTIVITIES IN 2019

	Liabilities				
in € thousand	Bank loans	Bonds and debt instruments	Liabilities from options for minority interests	Other financial liabilities	Leasing liabilities
As of 12/31/2018	**229,819**	**1,247,521**	**379,616**	**217,063**	**33,277**
Initial application of IFRS 16	–	–	–	–	245,437
As of 01/01/2019	**229,819**	**1,247,521**	**379,616**	**217,063**	**278,714**
Change in cash flows from financing activities	**–**	**–**	**–**	**–**	**–**
Proceeds from borrowings	40,851	–	–	–	–
Disbursements from the repayment of borrowings	(90,244)	–	–	–	–
Disbursements for lease liabilities	–	–	–	–	(53,450)
Interest paid	(15,474)	(10,915)	–	–	(6,845)
Dividends paid to parent company shareholders	–	–	–	–	–
Dividends paid to non-controlling interests	–	–	(21,617)	–	–
Net payments from factoring	(2,649)	–	–	–	–
Deposits from shareholder contributions	–	–	–	–	–
Disbursements from restitution to silent partners	–	–	–	(10,000)	–
Disbursements from the settlement of derivatives	(19,273)	–	–	–	–
Cash flow from financing activities	**(86,788)**	**(10,915)**	**(21,617)**	**(10,000)**	**(60,295)**
Changes arising from obtaining or losing control of subsidiaries or other businesses	**–**	**–**	**–**	**(5,025)**	**(4,384)**
Effects in foreign exchange rates	**38,209**	**–**	**–**	**–**	**(11)**
Other changes related to liabilities	**–**	**–**	**–**	**–**	**–**
Other non-cash expenses and income	–	652	21,617	52,305	–
Interest income	–	–	–	–	–
Interest expenses	15,474	11,755	–	387	7,470
New leases	–	–	–	–	155,798
Changes in fair value	–	–	–	–	–
Total other changes, related to liabilities	**15,474**	**12,407**	**21,617**	**57,717**	**163,268**
Total other changes, related to equity	**–**	**–**	**–**	**–**	**–**
As of 12/31/2019	**196,713**	**1,249,013**	**379,616**	**259,755**	**377,293**

Derivative financial instruments (assets)/liabilities					Equity	
Interest swap liabilities	Currency translation	Revaluations from defined pension benefits (IAS 19)	Capital reserves	Retained earnings	Non-controlling shares	Total
5,575	**(89,198)**	**(48,154)**	**13,884**	**39,924**	**105,208**	**2,134,535**
–	–	–	–	(5,768)	(13)	239,657
5,575	**(89,198)**	**(48,154)**	**13,884**	**34,156**	**105,196**	**2,374,191**
–	**–**	**–**	**–**	**–**	**–**	–
–	–	–	–	–	–	40,851
–	–	–	–	–	–	(90,244)
–	–	–	–	–	–	(53,450)
–	–	–	–	–	–	(33,233)
–	–	–	–	(282,100)	–	(282,100)
–	–	–	–	–	(33,452)	(55,069)
–	–	–	–	–	–	(2,649)
–	–	–	–	–	–	–
–	–	–	–	–	–	(10,000)
–	**–**	**–**	**–**	**–**	**–**	(19,273)
–	**–**	**–**	**–**	**(282,100)**	**(33,452)**	**(505,167)**
–	**–**	**–**	**–**	**–**	**–**	**(9,409)**
–	**–**	**–**	**–**	**–**	**–**	**38,198**
–	**–**	**–**	**–**	**–**	**–**	–
–	–	–	–	–	–	74,574
–	–	–	–	–	–	–
–	–	–	–	–	–	35,085
–	–	–	–	–	–	155,798
(553)	–	–	–	–	–	(553)
(553)	**–**	**–**	**–**	**–**	**–**	**269,930**
–	**18,493**	**(25,939)**	**–**	**282,100**	**45,377**	**320,031**
5,023	**(70,705)**	**(74,093)**	**13,884**	**34,156**	**117,121**	**2,487,775**

3.60 RECONCILIATION OF MOVEMENTS OF LIABILITIES TO CASH FLOWS ARISING FROM FINANCING ACTIVITIES IN 2018

					Liabilities
in € thousand	Bank loans	Bonds and debt instruments	Liabilities from options for minority interests	Other financial liabilities	Leasing liabilities
As of 1/1/2018	**230,567**	**497,390**	**379,616**	**–**	**35,977**
Change in cash flows from financing activities	**–**	**–**	**–**	**–**	**–**
Proceeds from borrowings	13,412	744,388	–	–	–
Disbursements from the repayment of borrowings	(8,663)	–	–	–	–
Disbursements for lease liabilities	–	–	–	–	(5,332)
Interest paid	(14,478)	(2,500)	–	–	(1,639)
Dividends paid to parent company shareholders	–	–	–	–	–
Dividends paid to minority shareholders	–	–	–	–	–
Net payments from factoring	2,818	–	–	–	–
Deposits from shareholder contributions	–	–	–	–	–
Cash flow from financing activities	**(6,911)**	**741,888**	**–**	**–**	**(6,971)**
Changes arising from obtaining or losing control of subsidiaries or other businesses	**–**	**–**	**–**	**–**	**(242)**
Effects in foreign exchange rates	**(8,315)**	**–**	**–**	**–**	**478**
Other changes related to liabilities	**–**	**–**	**–**	**–**	**–**
Other non-cash expenses and income	–	–	–	–	–
Interest income	–	–	–	–	–
Interest expenses	14,478	8,243	–	–	1,639
New leases	–	–	–	–	2,396
Changes in fair value	–	–	–	–	–
Total other changes, related to liabilities	**14,478**	**8,243**	**–**	**–**	**4,036**
Total other changes, related to equity	**–**	**–**	**–**	**–**	**–**
As of 12/31/2018	**229,819**	**1,247,521**	**379,616**	**–**	**33,277**

Derivative financial instruments (assets)/liabilities					Equity	
Interest swap liabilities	Currency translation	Revaluations from defined pension benefits (IAS 19)	Capital reserves	Retained earnings	Non-controlling shares	Total
6,233	**(97,864)**	**(54,469)**	**1,310**	**106,956**	**147,951**	**1,253,667**
–	–	–	–	–	–	–
–	–	–	–	–	–	757,800
–	–	–	–	–	–	(8,663)
–	–	–	–	–	–	(5,332)
–	–	–	–	–	–	(18,617)
–	–	–	–	(850,200)	–	(850,200)
–	–	–	–	–	(48,214)	(48,214)
–	–	–	–	–	–	2,818
–	–	–	14,850	–	–	14,850
–	**11,000**	**444**	**14,850**	**(935,799)**	**(104,674)**	**(286,173)**
–	–	–	–	–	–	**(242)**
–	–	–	–	–	–	**(7,837)**
–	–	–	–	–	–	–
–	–	–	–	–	–	–
(657)	–	–	–	–	–	(657)
–	–	–	–	–	–	24,360
–	–	–	–	–	–	2,396
–	–	–	–	–	–	–
(657)	**–**	**–**	**–**	**–**	**–**	**26,099**
–	**(2,335)**	**5,870**	**(2,276)**	**868,767**	**61,931**	**931,956**
5,575	**(89,198)**	**(48,154)**	**13,884**	**39,924**	**105,208**	**1,917,471**

3.61 INFORMATION IN ACCORDANCE WITH IFRS 9

					12/31/2019
in € thousand				Book value	
Category	**FVTPL**	**FVOCI**	**Other**	**At amortized costs**	**Total**
Financial assets	**19,239**	**33,360**	**2,408**	**3,100,766**	**3,155,773**
Derivative financial instruments to which hedge accounting is applied	–	–	2,408	–	2,408
Derivative financial instruments to which hedge accounting is not applied	13,683	–	–	–	13,683
Equity instruments	5,556	21,943	–	–	27,499
Trade accounts receivable*	–	11,417	–	1,137,582	1,148,999
Purchase price receivables from disposal of land*	–	–	–	31,111	31,111
Other financial liabilities*	–	–	–	51,335	51,335
Cash and cash equivalents*	–	–	–	1,880,738	1,880,738
Financial liabilities	**(20,280)**	**–**	**(383,390)**	**(3,097,533)**	**(3,501,204)**
Derivative financial instruments to which hedge accounting is applied	–		(6,097)	–	(6,097)
Derivative financial instruments to which hedge accounting is not applied	(20,280)	–	–	–	(20,280)
Bank loans	–	–	–	(196,713)	(196,713)
Liabilities from options for minority interests	–	–	–	(379,616)	(379,616)
Bonds and debt instruments	–	–	–	(1,249,013)	(1,249,013)
Lease liabilities	–	–	(377,293)	–	(377,293)
Purchase price liabilities*	–	–	–	(44,990)	(44,990)
Other financial liabilities*	–	–	–	(259,755)	(259,755)
Trade accounts payable*	–	–	–	(967,447)	(967,447)

					12/31/2018
in € thousand				Book value	
Category	**FVTPL**	**FVOCI**	**Other**	**At amortized costs**	**Total**
Financial assets	**17,670**	**45,698**	**–**	**3,029,295**	**3,092,663**
Derivative financial instruments to which hedge accounting is applied	–	–	–	–	–
Derivative financial instruments to which hedge accounting is not applied	8,102	–	–	–	8,102
Equity instruments	9,568	30,245	–	–	39,813
Trade accounts receivable*	–	15,453		1,221,929	1,237,382
Purchase price receivables from disposal of land*	–	–	–	28,335	28,335
Other financial liabilities*	–	–	–	22,998	22,998
Cash and cash equivalents*	–	–	–	1,756,033	1,756,033
Financial liabilities	**(27,157)**	**–**	**–**	**(3,141,241)**	**(3,168,398)**
Derivative financial instruments to which hedge accounting is applied	–	–	–	–	–
Derivative financial instruments to which hedge accounting is not applied	(27,157)	–	–	–	(27,157)
Bank loans	–	–	–	(229,819)	(229,819)
Liabilities from options for minority interests	–	–	–	(379,616)	(379,616)
Bonds and debt instruments	–	–	–	(1,247,521)	(1,247,521)
Lease liabilities	–	–	–	(33,277)	(33,277)
Purchase price liabilities*	–			(38,000)	(38,000)
Other financial liabilities*	–	–	–	(217,063)	(217,063)
Trade accounts payable*	–	–	–	(995,945)	(995,945)

* without information on fair value, based on the fact that net book value approximately equals fair value

	Fair value			
	Level 1	Level 2	Level 3	Total
	24,546	**16,091**	**2,953**	**43,590**
	–	2,408	–	2,408
	–	13,683	–	13,683
	24,546	–	2,953	27,499
	–	–	–	–
	–	–	–	–
	–	–	–	–
	–	–	–	–
	(1,286,568)	**(602,792)**	–	**(1,889,360)**
	–	(6,097)	–	(6,097)
	–	(20,280)	–	(20,280)
	–	(196,799)	–	(196,799)
	–	(379,616)	–	(379,616)
	(1,286,568)	–	–	(1,286,568)
	–	–	–	–
	–	–	–	–
	–	–	–	–
	–	–	–	–

	Fair value			
	Level 1	Level 2	Level 3	Total
	33,872	**8,102**	**5,941**	**47,915**
	–	–	–	–
	–	8,102	–	8,102
	33,872	–	5,941	39,813
	–	–	–	–
	–	–	–	–
	–	–	–	–
	–	–	–	–
	(1,258,418)	**(297,367)**	**(379,616)**	**(1,935,401)**
	–	–	–	–
	–	(27,157)	–	(27,157)
	–	(230,546)	–	(230,546)
	–	–	(379,616)	(379,616)
	(1,258,418)	–	–	(1,258,418)
	–	(39,664)	–	(39,664)
	–	–	–	–
	–	–	–	–
	–	–	–	–

F.13. Financial instruments

F.13.1. Financial instruments

The **Table → 3.61** presents the non-netted book values and the fair values of the financial assets and liabilities as well as the categorization of the individual items. For the classification (hierarchy levels) of the fair value pursuant to IFRS 13, please refer to the Chapter on the accounting and measurement methods.

The market value of financial derivatives is the price at which a party would take over the rights and/or obligations from another party. The market values are calculated based on the market information available at the reporting date using recognized measurement methods:

Forward exchange contracts and interest rates hedging contracts are valued on the basis of reference rates, taking forward premiums and discounts into account. Net present value calculations are performed using yield curves.

Commodity contracts are valued on the basis of quoted prices on active stock exchanges.

Options are measured using recognized option pricing models (incl. Black-Scholes). The bank valuation as at the reporting date is used for structured products. The valuation reflects the Bank's assessment of the value of the financial instrument concerned under prevailing market conditions and is derived either from the mid-market price or, if expressed as bid and ask prices, from the indicative price at which the Bank would have terminated and bought back or repurchased and sold the financial instrument at the close of business or at another time agreed with Knorr-Bremse at the relevant financial center on the valuation date indicated above.

In addition, default risks are taken into account when measuring financial derivatives at fair value ("credit value adjustments"). The calculation basis for the probabilities of default is the credit default spreads per counterparty and for the Company.

The Group measures long-term receivables/loans based on parameters such as interest rates, certain country-specific risk factors, creditworthiness of the individual customers and the risk characteristics of the financed project.

The fair values of the Group's interest-bearing loans are calculated using the **discounted cash flow method [p. 202]**. This is based on a discount rate, which reflects the issuer's borrowing rate at the end of the reporting period. In line with Knorr-Bremse's rating, the Company's own default risk was classified as low over the entire period.

The financial liability from a put option on minority interests gives minority shareholders the option of tendering their shares to Knorr-Bremse if contractually defined conditions are met. These are carried at amortized cost in accordance with IFRS 9.

The contract specifies that the purchase price is determined using a formula; however, following the start of the arbitration proceedings, the price will no longer change. Since, as a result, fair value no longer depends on observable inputs, the fair value of the liabilities from options on minority interests has been reclassified from level 3 to level 2 of the fair value hierarchy. The expected maturity of the liability depends on the arbitration proceedings and is classified as current. Accordingly, it is assumed that the carrying amount, which is equivalent to the nominal amount, is an appropriate estimate of fair value.

Equity instruments include non-consolidated companies. Knorr-Bremse Gou Tong (Guangzhou) Railway Transpor-ta-tion Equipment Co., Ltd., Guangzhou, China, has been in-cluded in the annual financial statements for the first time as a non-consolidated company. The company does not yet have any material business activities. There are no significant effects on the net asset, financial position and results of operations of the Group. The other equity instruments valuated at fair value level 3 are considered both individually and in total as insignificant to the net asset, financial position and results of operations of the Group, thus no further information is provided for them as well.

OFFSETTING Table → 3.62

The table "Offsetting financial assets and financial liabilities" shows the extent to which financial assets and financial liabilities were offset in the balance sheet as well as the possible effects from the offsetting of instruments, which are subject to a legally enforceable global netting agreement or a similar agreement.

Derivative trading is subject to a global netting agreement. However, the German framework agreement and the ISDA agreements do not meet the criteria for an offsetting obligation in the Group balance sheet. The right to offset is only enforceable in the event of future events (e.g. the insolvency of one of the contracting parties).

FACTORING

The Group participates in receivables sales programs, in which trade accounts receivable are sold to a financial services provider. Through these measures, the Group pursues the goal to improve the liquidity situation, especially in relation to customers with extended payment terms. At Knorr-Bremse, a distinction is made between factoring with a disposal on the balance sheet and without a disposal on the balance sheet.

In the case of factoring with derecognition, essentially all opportunities and risks associated with ownership of the financial asset are transferred to the financial service providers. The intention is to hold the non-transferred receivables in a portfolio until final payment and to collect the contractual cash flows. The business model for these receivables is therefore classified as hold and sell and recognized at fair value with no effect on income.

3.62 GLOBAL OFFSETTING ASSETS

in € thousand	12/31/2019	12/31/2018
Financial assets		
Gross values in the balance sheet	16,091	8,102
Potential netting capability	11,573	3,556
Net value	4,518	4,546
Financial liabilities		
Gross values in the balance sheet	(26,377)	(27,157)
Potential netting capability	(11,573)	(3,556)
Net value	(14,804)	(23,601)

In the case of factoring without derecognition from the balance sheet, this is also transferred to the financial service providers. The Knorr-Bremse Group bears the credit risk until the receivable has been settled, so that not all opportunities and risks are essentially transferred. These receivables are not derecognized and the corresponding portfolios are reported in the "Hold" category and are carried at "amortized costs". Since factoring is carried out without derecognition from the balance sheet until the customer settles its liabilities with the financial services provider by agreed payment dates, the credit risk remains with Knorr-Bremse (see Chapter H.1.4.). In the 2019 fiscal year, receivables of € 198,983 thousand were transferred and subsequently derecognized, and receivables of € 23,356 thousand were transferred without being derecognized from the balance sheet. As of December 31, 2019, the factoring program included receivables of € 1,551 thousand for which the credit risk was retained.

Due to the short term, the fair value of the receivables sold roughly corresponds to the book value of the receivables prior to the transfer.

The notes on the financial result (Chapter E.8) provide information on the net gains and net losses from financial instruments by measurement categories.

F.13.2. Impairments Table → 3.63, 3.64

The Table → 3.63 shows the impairment losses recognized in accordance with IFRS 9 due to credit risks for debt instruments that are measured at amortized cost and at fair value with no effect on income.

The customers were divided into various categories. The calculated probabilities of default of the respective customer groups estimate the creditworthiness and the ability to meet commitments from receivables within the next 12 months.

For the 1st group, the adjustment takes place according to the public rating (S&P/Moody's or the implied rating according to the Thomson Reuters valuation model) and the associated probability of default on the respective cut-off dates.

For the 2nd group, the probability of default is determined by a credit agency.

For the 3rd group, an average probability of default is determined on the basis of a comparison group with similar risk parameters.

3.63 FINANCIAL INSTRUMENTS IN IMPAIRMENT SCOPE

in € thousand	Impairment 12/31/2018	Net change	Derecognition	Impairment 12/31/2019
2019 fiscal year				
Cash and cash equivalents	98	(78)	–	20
Trade accounts receivable (AC) and contract assets	2,337	4,960	(5,159)	2,138

3.64 BREAKDOWN OF TRADE ACCOUNTS RECEIVABLE AND CONTRACT ASSETS BY SEGMENT

in € thousand	Rail Vehicle Systems	Commercial Vehicle Systems	Other	Total
12/31/2018 Trade accounts receivable and contract assets	845,380	490,959	326	1,336,665
Contract assets	99,284	-	-	99,284
Trade accounts receivable	746,096	490,959	326	1,237,381
12/31/2019 Trade accounts receivable and contract assets	756,853	481,281	750	1,238,884
Contract assets	89,885	-	-	89,885
Trade account receivable	666,968	481,281	750	1,148,999

F.13.3. Equity instruments

The Company holds various investments in third companies as well as non-consolidated investments in affiliated/associated companies. These equity participations are essentially reported at fair value.

Since 2016, the Company holds an investment in Haldex AB, which is of a long-term strategic nature. The Company exercises a voting right for this investment and assigns it to the "at fair value through OCI" category. For this investment, changes to the fair value are reported in the reserve for adjustments in OCI. No OCI release or OCI recycling will occur for these adjustments in future. In 2019 no shares in Haldex AB were sold. In 2019, a loss of € 8,302 thousand (2018: € 9,596 thousand) was realized via and recognized in the OCI with no effect on the profit.

Knorr-Bremse received dividends amounting to € 408 thousand (2018: € 240 thousand) from the aforementioned instrument in the reporting period.

Table → 3.65 shows the changes in equity.

3.65 CHANGES IN EQUITY

	Fair value	
in € thousand	12/31/2019	12/31/2018
Investments at FVOCI		
HALDEX SE	21,944	30,245

	Income/expense	
in € thousand	12/31/2019	12/31/2018
Adjustment*		
HALDEX SE	(8,302)	(9,596)

* Reported in the OCI with no effect on income.

F.13.4. Derivatives in hedge accounting

The Table → 3.66 presents the notional amounts, the non-netted book values, average hedging rate and calculation parameters for determining the ineffectiveness of hedging instruments concluded to hedge the risks of changes in value in the context of cash flow hedges.

Given that hedge accounting has only been used by Knorr-Bremse since 2019, the volumes hedged will gradually increase. In addition, there is an intention to include additional currencies in hedge accounting in future.

MEASUREMENT OF INEFFECTIVENESS

The Group uses the hypothetical derivative method to assess whether the designated derivative in each hedging relationship will prospectively be or has retrospectively been effective in relation to offsetting changes in cash flows of the hedged item. The prospective effectiveness is measured using critical terms match, whereby the critical parameters of the hedged item and hedge transaction, such as currency, term and amount, match. Changes to the date of the hedged transactions and various effects of the counterparties' credit risk in the fair value of the hedged items and hedge transactions are possible causes of ineffectiveness.

For the hedging relationships in existence as of 12/31/2019, no material ineffectiveness has arisen.

3.66 HEDGING INSTRUMENTS IN HEDGE ACCOUNTING

	Notional amounts in € thousand		Book values in € thousand	
Risk category – exchange rate risk	Notional amount of forward exchange contracts < 1 year	Notional amount of forward exchange contracts > 1 year	Receivables	Liabilities
Forward exchange contracts – revenues	175,197	77,089	2,408	1,914
Forward exchange contracts – purchases	148,699	96,282	–	4,184

3.67 RECLASSIFICATION OF THE CASH FLOW HEDGE RESERVES

in € thousand	Hedge reserve	Reserve for costs of hedging
As of January 1, 2019	–	–
Cash flow hedge		
Changes in fair value:		
Forward exchange contracts – revenues	1,415	(2,206)
Forward exchange contracts – purchases	419	5,278
Amount reclassified to profit or loss:		
Forward exchange contracts – revenues	(192)	245
Forward exchange contracts – purchases	(343)	(380)
Amount reclassified to cost of inventories:		
Forward exchange contracts – revenues	–	–
Forward exchange contracts – purchases	(345)	(470)
As of December 31, 2019		
Forward exchange contracts – revenues	1,222	(1,961)
Forward exchange contracts – purchases	(270)	4,428

RECLASSIFICATION

The hedging takes place in the revenues and purchase of intermediate products risk categories depending on the hedged item. The Table → 3.67 shows the status of hedge reserves and reserves for costs of hedging in 2019 and presents reclassifications of hedge reserves and reserves for costs of hedging broken down by risk category.

F.14. Income taxes Table → 3.68

The current income tax receivables of € 73,900 thousand relate to receivables from the current years 2018 and 2019; the decrease is due in particular to the tax assessment of the German tax group that took place in 2017. Non-current income tax liabilities represent tax risks from current and future tax audits. Current income tax liabilities relate to the current 2018 (to the extent not yet assessed) and 2019 tax calculation.

3.68 INCOME TAXES

in € thousand	12/31/2019	12/31/2018
Income tax receivables	73,900	93,650
thereof current	73,900	93,650
Income tax liabilities	86,543	130,476
thereof non-current	51,908	92,599
thereof current	34,635	37,877

	Average hedging rate	Hedge transaction balance sheet item	Change in value of hedged item	Change in value for the calculation of the ineffectiveness of the hedging relationship	Hedge ineffectiveness that has been recognized in the income statement
	EUR/CZK: 26.5 EUR/HUF: 330.72	Other financial assets and liabilities including derivatives	871	(874)	There is no material ineffectiveness
	EUR/USD: 1.16		(542)	542	

G. NOTES TO THE CASH FLOW STATEMENT

The Group's statements of cash flows show the origin and use of cash flows and the net increase/decrease in cash and cash equivalents, and are prepared in compliance with IAS 7 (Statement of Cash Flows).

A distinction is made between cash flows from operating activities and from investing and financing activities. The cash flows from operating activities are derived indirectly based on the annual net profit. By contrast, the cash flows from investing and financing activities are determined based on payments.

Interest expenses, grants and subsidies received, other investment result, as well as tax payments are reported in operating activities.

G.1. Cash flow from operating activities

The cash flow from operating activities is calculated by adjusting the result for the period before taxes (including the earnings share of minority interests) for non-cash items, especially depreciation, amortization, and impairment losses and changes of impairment losses on intangible assets and property, plant and equipment, allowances on inventories, contract assets and trade accounts receivable, gains and losses on the sale of assets and on the sale of consolidated companies, and interest results, and supplementing it with other changes in current assets, liabilities not related to investing and financing activities, as well as provisions. After taking account of the interest expenses and tax payments as well as the grants and subsidies received and other investment result, this results in a cash inflow from operating activities.

In 2019, the cash inflow from operating activities increased by € 260,265 thousand compared with the previous year, to € 985,791 thousand. Based on a slight increase in the result for the period by € 2,583 thousand to € 632,018 thousand, we recorded a € 60,210 thousand rise in depreciation, amortization, and impairment losses. In addition, trade accounts receivable decreased by € 88,382 thousand year-on-year. Inventory stock also decreased in the reporting year, falling by € 21,314 thousand to € 815,011 thousand.

Changes in trade accounts payable and other liabilities that are not attributable to investing or financing activities decreased by € 38,965 thousand in the year under review. Trade accounts payable decreased by € 28,498 thousand to € 967,447 thousand in the reporting period compared with the previous year. Other liabilities also decreased by € 1,374 thousand to € 136,671 thousand.

In addition to minor gains, the loss on sales of consolidated companies and other business units, which amounted to € 81,885 thousand, includes primarily the loss of € 82,069 thousand on the sale of the Powertech companies.

The gain of € 44,032 thousand on the sale of non-current assets includes mainly a gain of € 45,067 thousand on the sale of the land and buildings in connection with the sale and leaseback transaction. Furthermore here are minor losses on the disposal of assets included.

To enhance transparency, non-cash changes in provisions are presented as a separate line item, which includes the effects of reversing, adding to, and compounding provisions as well as the effect of remeasuring the net debt from defined benefit plans totaling € 186,819 thousand. Accordingly, an amount of € 239,481 thousand was reclassified from the changes in provisions line item and an amount of € -52,634 thousand was reclassified from the non-cash expenses and income line item in the previous year. This did not affect the reported level of cash flow from operating activities.

Other non-cash expenses and income, which changed from € -21,494 thousand in the previous year to € 56,185 thousand in the year under review, include primarily unrealized gains and losses.

The net working capital decreased in the reporting year by € 52,826 thousand from € 861,923 thousand to € 809,097 thousand.

G.2. Cash flow from investing activities

The cash outflow from investing activities results from the cash outflow for investments in intangible assets, property, plant and equipment, financial assets and for the acquisition of consolidated companies and the cash inflow from the sale of intangible assets, property, plant and equipment and financial assets.

Interest received and cash outflows from investments in plan assets for pensions are also reported in investing activities.

In the event of changes to the group of consolidated companies by selling or buying companies, the purchase price paid (not including acquired debt) minus or plus the received or outgoing cash and cash equivalents is reported as cash flow from investing activities.

In the 2019 fiscal year, the cash outflow from investing activities decreased by € 49,803 thousand. Whereas investments in intangible assets increased by € 4,227 thousand to € 97,885 thousand, investments in property, plant, and equipment decreased by € 9,771 thousand to € 220,262 thousand. Furthermore, there was a cash inflow from financial investments in the amount of € 485 thousand from dividends received in the reporting year.

The sale and leaseback transaction involving the sale of land and buildings at the Munich site is reflected in cash flow from investing activities, where it is part of the proceeds from the sale of property, plant, and equipment items. The cash inflows of € 191,850 thousand (2018: € 29,059 thousand) included in that amount mainly comprise the selling price of € 187,259 thousand received as part of this transaction in the year under review. In addition, the sale and leaseback transaction also has an effect on the cash flow from financing activities, where it is included in the disbursements from the repayment of borrowings and disbursements from restitution to silent partners items; more details can be found in Chapter G.3.

The cash outflow of € 29,070 thousand (2018: € 13,679 thousand) from the sale of consolidated companies and other business units contains not only the purchase price of € 4,757 thousand received as a result of the sale of shares but also the cash and cash equivalents of the Powertech disposal group (€ 33,827 thousand), which were disposed of as part of the sale.

3.69 POWERTECH

in € thousand	
Property, plant, and equipment and intangible assets	17,652
Inventories	24,887
Trade accounts receivable and other assets	42,431
Total assets	**84,969**
Provisions for pensions	5,865
Other provisions	21,018
Financial liabilities	9,409
Trade accounts payable and other liabilities	18,182
Total liabilities	**54,474**

In addition to cash and cash equivalents, the Powertech companies sold included the assets and liabilities shown in Table → 3.69 as of the time of disposal.

In addition, cash outflows for the acquisition of consolidated companies increased from € 3,200 thousand to € 194,367 thousand. The cash outflow relates mainly to cash outflows for the acquisition of Hitachi Automotive Systems Ltd., Japan, and of Hitachi Systems Asia, Ltd., Thailand, in an amount of € 172,985 thousand, for the acquisition of the Snyder Equipment Company in an amount of € 16,428 thousand, and for the acquisition of Sentient IP AB (incl. Sentient Heavy Vehicles AB), Gothenburg, Sweden, in an amount of € 4,809 thousand.

The investments focused on investments in capacity expansions, automation, as well as replacement and expansion projects for production equipment and improving its efficiency in the Rail Vehicle Systems division. In addition to worldwide investments in supplier tools, the primary investments in the Commercial Vehicle Systems area were in the expansion of production capacities at the North American sites in Huntington and Bowling Green. Furthermore, investments were made in other IT-projects in the Group.

G.3. Cash flow from financing activities

The cash flow from financing activities is calculated by netting the shareholder dividends paid, proceeds and disbursements from bonds issued, proceeds from equity contributions, bank debt and loans raised, and their repayment and interest payments. Other effects included here are disbursements for the repayment of leasing liabilities and disbursements from restitution to silent partners, for the settlement of derivatives, and cash outflows to non-controlling interests. In addition, proceeds from factoring arrangements with right of recourse and disbursements for resulting liabilities are presented in the cash inflow from financing activities. The cash inflows from proceeds due to the settlement of the receivables underlying the factoring are shown in cash flows from operating activities.

In the 2019 fiscal year, there was a cash outflow from financing activities in the amount of € 505,167 thousand, which represents a € 218,994 thousand higher cash outflow compared to the previous year.

On June 14, 2018, a fixed-interest euro-denominated bond of € 750,000 thousand was issued, which led to a cash inflow of € 744,388 thousand. No comparable proceeds were received in the reporting year.

Disbursements from the repayment of borrowings rose from to € 8,663 thousand in the previous year to € 90,244 thousand in 2019. This figure includes the repayment of a loan of € 42,477 thousand, which was financed by the proceeds of the sale and leaseback transaction at the Munich site. In this context, a disbursement of € 10,000 thousand was also made to a silent partner in the year under review in exchange for returning its investment.

In addition, there were disbursements of € 19,273 thousand for the settlement of derivatives.

In addition, the net cash outflows from recourse factoring in the reporting year were € 2,649 thousand, whereas there was a net cash inflow of € 2,818 thousand in the previous year.

The cash outflow from financing activities in 2019 results largely from dividends of € 282,100 thousand (2018: € 850,200 thousand) paid to shareholders of the parent company and dividends of € 55,069 thousand (2018: € 48,214 thousand) paid to non-controlling interests. Dividends paid to non-controlling interests include the dividend of € 21,617 thousand paid to the minority shareholder Bosch which is recognized in the financial result for the first time in 2019. To enhance transparency, the dividend to Bosch of € 21,089 thousand, which was reported under dividends paid to shareholders of the parent company in the previous year, was likewise reported in the dividends paid to non-controlling interests line item. This did not affect the reported level of cash flow from financing activities.

Following the initial application of IFRS 16, repayment of lease liabilities of € 53,450 thousand and interest paid of € 6,845 thousand are included in the cash flow from financing activities. These cash flows also include amounts from finance leases that were previously accounted for in accordance with IAS 17; they had led to a cash outflow of € 5,332 thousand in the previous year. Compared to the previous year, the cash flow from operating activities was relieved. In future, this item will also be used to report disbursements for lease liabilities resulting from the sale and leaseback transaction at the Munich site.

G.4. Composition of cash and cash equivalents Table → 3.70

In the reporting year, the development of the individual cash flows, after adjustment for effects caused by exchange rates of € 8,558 thousand and effects resulting from changes to the consolidated entities of € 596 thousand, in the Group resulted in an increase in cash funds by € 134,771 thousand to € 1,853,466 thousand.

The cash funds reported in the statement of cash flows include the cash and cash equivalents reported under F.7. as well as short-term marketable securities and bank debt from overdraft facilities with maturities of up to three months, which must be paid upon request at any time.

3.70 FINANCIAL FUNDS AT END OF PERIOD

in € thousand	12/31/2019	12/31/2018
Cash and cash equivalents	1,880,738	1,756,033
Short-term securities available for sale	2	51
Short-term liabilities to banks (less than 3 months)	(27,274)	(37,389)
	1,853,466	**1,718,695**

H. OTHER INFORMATION

H.1. Managing of financial risks

As a result of its global operating activities, the Group is exposed to various financial risks, especially market risks, credit risks, and liquidity risks. The Group-wide risk management is focused on the unpredictable nature of developments on the financial markets and aims to minimize the potential negative effects on the Group's financial situation. The objective of the company policy is to limit risks through systematic financial management. To do so, the Group specifically uses financial derivatives to hedge against market risks.

The central Group Finance Department is responsible for risk management in accordance with the guidelines adopted by the management board. It identifies, assesses, and hedges financial risks in close cooperation with the Group's operating units. The management board provides guidelines for risk management as well as fixed principles for certain risk areas.

H.1.1. Currency risks

Currency risks arise from future transactions involving both the purchase of intermediate products and the sale of end products. Receivables and liabilities recognized in the balance sheet as well as highly probable expected cash flows in foreign currencies are examined. Risk positions also arise in a minor role from financing in foreign currencies.

The objective of the Group's hedging transactions is to reduce the risks from exchange rate fluctuations. For this purpose currency exposure is centralized and the aggregated position is hedged with external banks using forward exchange transactions and options. The terms are based on the terms of the underlying transactions, whereby the planning and hedging horizon generally extends over three years. Currency futures and option transactions are exclusively placed to hedge existing and future foreign currency receivables and payables from the purchase and sale of goods, as well as to eliminate the currency risk for financing transactions. The operating exposures for the next 12 months are shown. Stable exposure is assumed for subsequent years. Table → 3.71

Hedge accounting has been used in the Knorr-Bremse Group since 01/01/2019 in order to reflect the hedging of fluctuating cash flows that result from changes in exchange rates and are connected with highly probable expected transactions. The prerequisite for hedge accounting is that the economic relationship between the hedging instrument and the hedged item is documented and its effectiveness is proven. At the inception of the designated hedging relationships, the Group documents the risk management objectives and strategies for undertaking the hedge.

For the 2019 consolidated financial statements we are using the value at risk as primary risk measure to determine the risk potential for currency risks based on management reporting. It indicates the maximum loss that is not likely to be exceeded within a certain time period (12 months) with a certain probability (95%). Both the recognized and planned exposures and hedging transactions are included in the analysis. The value at risk calculated for the core currencies of USD, HUF and CZK is € 8,593 thousand (€ 17,785 thousand in the previous year).

Exposures to other currencies exist, which however do not have a material effect on earnings.

H.1.2. Interest rate risks

Interest rate risks arise as a result of market-related fluctuations in the interest rates. They affect the level of the Group's interest expenses. These arise in the Knorr-Bremse Group from variable-interest financial obligations. Interest rate risks are aggregated at headquarters and hedges are made at individual case level, taking into account the hedging period and nominal volume of the risk position.

With one exception, the existing leases do not have interest rate risks. The exception is the variable components of obligations under a leasing contract. To hedge these, the Group has two interest rate swaps with a nominal volume of € 30,451 thousand in its portfolio, to which hedge accounting is not applied.

3.71 CURRENCY EXPOSURE

			12/31/2019
in € thousand	USD	HUF	CZK
Operating exposure	224,808	(195,385)	(123,873)
Derivates	(159,041)	113,457	65,134

The interest rate risk position, which includes variable-interest credit balances and liabilities, is shown below on the respective reporting date: Table → 3.72

The Table → 3.73 shows the sensitivity of Group earnings relating on interest rate changes (100 basis points upwards and 25 basis points downwards) based on the impact on variable-interest loans and balances as well as on the present value of interest rate derivatives.

H.1.3. Commodity price risks

Commodity price risks arise from the fact that raw materials (especially metals) required in the production process can only be procured at higher costs due to fluctuating market prices, without a full price adjustment in sales transactions. The planned purchases of raw materials or components with raw material contents as well as the corresponding sales contracts are taken into account for the analysis of the commodity price risk. The risk position determined in this way, the exposure, is continuously monitored and hedged on a case-by-case basis using commodity swaps. Hedge accounting is not applied here.

The volume of the underlying transactions is calculated from the highly probable need for commodities over a rolling 2-year planning period. The Table → 3.74 lists the quantities of commodity exposures on the purchasing side for hedging them. The remaining open position can essentially be passed on the sales side.

The Table → 3.75 shows the sensitivity of group earnings to commodity prices (10% increase/decrease in market price):

3.72 INTEREST RATE EXPOSURE

in € thousand	12/31/2019	12/31/2018
Fixed-interest financial debt	1,363,384	1,413,066
Variable-interest financial liabilities	82,428	66,753
Interest rate derivatives	30,451	31,203

3.73 EFFECT OF THE INTEREST SENSITIVITY

	12/31/2019		12/31/2018	
in € thousand	+100 bp	–25 bp	+100 bp	–25 bp
Variable-interest financial debt	(824)	206	(668)	167
Interest rate derivatives	1,282	(321)	1,596	(399)
Total	**458**	**(115)**	**928**	**(232)**

3.74 COMMODITY EXPOSURE

in metric tons	12/31/2019	12/31/2018
Aluminum	6,305	6,441

3.75 EFFECT OF THE INTEREST SENSITIVITY

	12/31/2019		12/31/2018	
in € thousand	+10%	–10%	+10%	–10%
Aluminium	(741)	741	(1,051)	1,051
	(741)	**741**	**(1,051)**	**1,051**

H.1.4. Credit risks

Credit risks arise from investments with banks, operating trade receivables from customers as well as contract assets. On the credit institutions' side, the risk relates to counterparty default. On the customer side the risk relates to late, partial, or lacking payments of receivables without compensation and non-payment.

The book value of the financial assets reported in the consolidated financial statements represents the maximum default risk. Regular monitoring is carried out on the credit institute side and on customer side. Decisions regarding financial transactions are made on the basis of this monitoring. Contracts for financial derivatives and financial transactions are only concluded with financial institutions with high credit ratings in order to keep the counterparty default risk as low as possible.

In principle commercial transactions are exposed to the risk of a possible loss of value due to the defaulting of business partners, such as banks, suppliers, and customers.

SCREENING PROCESS FOR BANKS

The monitoring of core banks, including their rating and CDS development, as well as the diversification of the Group's business activities and investments, takes place on a quarterly basis. Compliance with the regulations in the guideline on the management of banking relationships is also reviewed at the same time. This specifies that no more than 40% of total deposits may be held by an individual bank and that business relationships may essentially only be maintained with banks with an investment grade rating. Financial investments are fine-tuned and adjusted as required on this basis. As a result, the assumption of low credit risk is supported by the investment guidelines only for investment-grade rated banks through regular controls.

IMPAIRMENT OF DEPOSITS

All Company deposits are held in business accounts of a small number of selected banks, most of which belong to the group of core and principal commercial banks used by the Group. A public issuer rating is provided by established rating agencies for all core and principal commercial banks. For the Impairment of these cash holdings, the probability of default is calculated according to the rating scale. The rating indicators and probabilities of occurrence are updated annually. Table → 3.76

The shift in the value of the creditworthiness structure for investments is largely based on the change in the core and principal commercial bank structure (addition of further principal commercial banks to the rating portfolio for regular checks).

SCREENING PROCESS FOR CUSTOMERS AND SUPPLIERS

When establishing new business relationships, public sources, such as credit agencies, are used to obtain an economic business evaluation and credit opinion in advance. During the business relationship, a regular monitoring process occurs via automated, system-based analyses of customer and supplier portfolios. This takes into account the probabilities of occurrence and sales volumes. While suppliers are monitored as a group, major customers are reviewed on an individual basis. There was no significant concentration of default risk with respect to individual counterparties.

IMPAIRMENT OF RECEIVABLES

The credit rating structure of the Company's receivables portfolio is illustrated in Table → 3.77.

As at the reporting date, there were no material agreements that limit the maximum default risk. No significant collateral was received in the period under review. The shift in the value of the creditworthiness structure is based on the one hand on the change in the key customer structure itself and on the other hand on a change in the number of key customers.

According to the sales analysis of the customer structure, the 30 largest customers per division together account for the majority of total sales. This group therefore also accounts for the largest amount of total receivables. The assessment and

3.76 RATINGS

in € thousand	12/31/2019	12/31/2018
AAA to A-	1,164,113	681,572
A- to BBB-	665,629	641,212
Not allocated, but within the investment grade range	50,996	433,249
	1,880,738	**1,756,033**

3.77 CREDIT STRUCTURE FOR TRADE ACCOUNTS RECEIVABLE AND CONTRACT ASSETS

in € thousand		12/31/2019	12/31/2018
Top customers	AAA to A-	413,172	437,877
Top customers	A- to BBB-	289,149	244,901
Top customers	Below BBB-	159,146	245,106
Other receivables without a rating allocation on an individual basis		377,417	408,781
		1,238,884	**1,336,665**

calculation of the probabilities of default for the receivables of this group of customers takes place on a detailed individual basis via the public issuer rating, if available from rating agencies or credit agencies.

Due to the Group-wide country structure of the major customers, the country risk is also taken into account by their individual assessment via the issuer rating or credit agencies. The data on the rating and probability of default, as well as the identification of the 30 largest customers per division is updated annually. For unrated customers, the probability of default is assessed on the basis of the benchmark spread determined for all remaining customers.

The probabilities of default calculated reflect the creditworthiness of the respective company. In the case of impairment, due dates of receivables play a subordinate role because the underlying average terms of the receivables in the Group are largely in the short-term range.

There was no material concentration of a default risk with regard to a business partner or a clearly distinguishable group of business partners. As at the reporting date, there were no material agreements that limit the maximum default risk.

LIQUIDITY RISKS

Liquidity risks exist in that funds required to satisfy payment obligations cannot be procured on time.

Within the Knorr-Bremse Group, liquidity risks arise from payment obligations arising from operating transactions or financing obligations. The management of liquidity within the Group is intended to ensure that sufficient cash and cash equivalents are always available to meet payment obligations at maturity under both normal and tense conditions without incurring unacceptable losses or damaging the reputation of the Group. Liquidity requirements from business activities over the next three months are determined on a rolling weekly basis and differentiated by currency in short-term liquidity planning. This planning takes into account the more precise expected cash flows.

As part of the medium-term planning, which takes place once a year and has a planning horizon of three years, the liquidity requirement is determined on the basis of the forecasted cash flows. This process allows appropriate actions to be taken at an early stage in case of changes to the financing requirements.

The Group has sufficient cash and cash equivalents available to meet its payment obligations. In addition, there are credit, overdraft and guarantee lines totaling € 1,857,800 thousand (of which € 1,190,400 thousand is usable as cash drawdowns); € 150,000 thousand of this amount relates to medium-term credit facilities (term until 2024). On December 8, 2016, the Company issued a € 500,000 thousand corporate bond maturing in 2021, then on June 14, 2018 it issued a € 750,000 thousand bond maturing in 2025.

The following **Table → 3.78** shows the remaining contractual maturities of the financial liabilities as at December 31, 2019, including the estimated interest payments. This relates to undiscounted gross amounts, including estimated interest payments.

H.2. Events after the reporting date

ACQUISITION OF R.H. SHEPPARD CO., INC., HANOVER, USA

As of January 30, 2020, Knorr-Bremse signed a purchase agreement with Wabco Holdings Inc., USA, for the acquisition of 100% of the shares of R.H. Sheppard Co., Inc. The completion of Knorr-Bremse's acquisition of Sheppard is subject to the usual closing conditions and regulatory approvals and depends on the completion of ZF's acquisition of Wabco. Closing is expected in the first half of 2020. The purchase price is $ 149,500 thousand. Sheppard is one of the leading steering systems companies in the North American market. Following the acquisition of the commercial vehicle steering business of Hitachi Automotive Systems in Japan, the acquisition of Sheppard is another step towards becoming a global provider of integrated steering and brake systems for commercial vehicles for Knorr-Bremse.

CORONAVIRUS OUTBREAK

Since January 2020, the coronavirus has continued to spread around the world (coronavirus pandemic). The Ifo Institute's Business Climate Index for March, which was published on March 25, 2020, fell to 86.1 points, compared to 96.0 points in February. This is the sharpest decline ever recorded since German reunification, and the lowest value since July 2009. According to the Ifo, it must be assumed that there will be a deep recession for at least two quarters. In addition to the liquidity of € 1.8 billion in existence at the end of 2019, Knorr-Bremse utilized lines of credit of € 750 million. The Group thus enlarged its operational room for maneuver. The Knorr-Bremse Group expects revenue to fall significantly and the EBITDA and EBIT margins to decline significantly, although it is too early to determine this to the full extent. Due to the speed of developments and the resulting high degree of uncertainty, we are unable to provide a reliable estimate of the financial impact.

3.78 MATURITIES

in € thousand	Book value	Contractually agreed cash flows	Up to 1 year	1 to 5 years	More than 5 years
					2019 fiscal year
Derivative financial instruments	(26,377)	(727,144)	(585,946)	(141,198)	–
Bank loans	(196,713)	(198,236)	(158,984)	(34,836)	(4,416)
Liabilities from options for minority interests	(379,616)	(379,616)	(379,616)	–	–
Bonds and debt instruments	(1,249,013)	(1,306,479)	(11,794)	(536,248)	(758,437)
Purchase price liabilities	(44,990)	(44,990)	(20,590)	(24,400)	–
Lease liabilities	(377,293)	(452,679)	(69,593)	(176,185)	(206,901)
Other financial liabilities	(259,755)	(262,564)	(258,761)	(3,180)	(623)
Trade accounts payable	(967,447)	(967,447)	(967,447)	–	–
	(3,501,204)	**(4,339,155)**	**(2,452,732)**	**(916,046)**	**(970,377)**
					2018 fiscal year
Derivative financial instruments	(27,157)	(689,591)	(456,437)	(233,154)	–
Bank loans	(229,819)	(240,031)	(49,970)	(157,612)	(32,450)
Liabilities from options for minority interests	(379,616)	(379,616)	(379,616)	–	–
Bonds and debt instruments	(1,247,521)	(1,321,349)	(15,727)	(538,748)	(766,874)
Lease liabilities	(38,000)	(38,000)	–	(38,000)	–
Other financial liabilities	(33,277)	(41,949)	(6,494)	(18,235)	(17,220)
Purchase price liabilities	(217,063)	(217,063)	(200,146)	(10,742)	(6,175)
Trade accounts payable	(995,945)	(995,945)	(995,945)	–	–
	(3,168,398)	**(3,923,544)**	**(2,104,335)**	**(996,491)**	**(822,718)**

H.3. Number of employees Table → 3.79

In the fiscal year 2019, the average number of employees increased by 439, from 28,983 to 29,422. The number of employees, excluding leased personnel, rose by 2.7% or 708 employees, from 25,907 to 26,615. The increase is attributable in particular to a rise in the number of employees in two companies in the Asia region and in one company in each of the Europe and North America regions.

Company acquisitions were another factor contributing to the rise in the number of employees; this was offset by a reduction caused by disposals of consolidated companies.

H.4. Auditor fees Table → 3.80

The total fee of € 10,008 thousand included € 1,690 thousand for fees for services from 2018 for which no provision was recognized in the previous year. The audit fee of KPMG AG WPG primarily relates to audits of the annual and consolidated financial statements of Knorr-Bremse AG as well as various audits of its subsidiaries' annual financial statements, including statutory engagement extensions. In addition, two project-related IT audits were conducted as part of the audits, and services relating to the enforcement proceedings were provided.

3.79 AVERAGE NUMBER OF EMPLOYEES

Number	2019	2018
Wage earners	15,569	15,513
thereof leased personnel	2,556	2,726
Salaried employees	13,661	13,270
thereof leased personnel	251	350
Trainees	192	199
	29,422	**28,983**

3.80 AUDITOR FEES

in € thousand	2019	2018
Audit services	7,072	5,513
Other attestation services	217	1,507
Tax advisory services	4	–
Other services	2,715	5,790
	10,008	**12,810**

Other assurance services relate to legally prescribed or contractually agreed audits such as the EMIR audit pursuant to section 20 of the WpHG, audits related to the use of public funding, audit services in connection with non-financial reporting under ISAE 3000, and other contractually agreed assurance services.

The tax advisory services related exclusively to advice on value added tax matters at a subsidiary.

Other services relate to additional audit procedures in conjunction with quarterly reporting, advisory and training services with regard to existing independence regulations, corporate governance matters, gap analysis in the areas of reporting and of other internal processes outside the finance organization.

H.5. Relationships with related parties

Related parties within the meaning of IAS 24 are natural persons or companies that can be influenced by Knorr-Bremse AG that can exert an influence on Knorr-Bremse AG or that are under the influence of another related party of Knorr-Bremse AG. Transactions with related parties were conducted at arm's length.

H.5.1. Parent company and ultimate parent entity

The Group is directly controlled by KB Holding GmbH, Grünwald, Germany (hereinafter "KB Holding"), which holds 70.35% of the shares of the Group.

The shares in KB Holding are held by TIB Vermögens- und Beteiligungsholding GmbH, Grünwald, Germany (hereinafter "TIB"), of which Stella Vermögensverwaltungs GmbH, Grünwald, Germany (hereinafter "Stella") in turn holds a majority interest. Stella is the ultimate parent Company.

The ultimate controlling party of the Group is Mr. Heinz Hermann Thiele.

H.5.2. Related parties

All related parties that can be controlled by the Group or over which the Group can exercise significant influence are listed in the Notes under H.12. List of shareholdings.

Balances and transactions between Knorr-Bremse AG and its subsidiaries included in the consolidated financial statements that are related parties have been eliminated in the course of consolidation and are not explained in this note.

In addition to the companies included in the consolidated financial statements, in the course of its normal business activities the Group also has relationships with other non-consolidated companies and associates and joint ventures that are considered to be related parties within the meaning of IAS 24.

H.5.3. Remuneration of key management personnel

Management in key positions consists of the management board and the Supervisory Board. The remuneration of members of management in key positions includes: Table → 3.81

The remuneration of the members of the management board includes salaries, benefits in kind and contributions in defined benefit and defined contribution plans for post-employment benefits. The post-employment benefits are related to past service costs for pension provisions (€ 300 thousand, previous year: € 1,187 thousand) and expenses for defined contribution plans for board members active in the fiscal year (€ 300 thousand, previous year: € 400 thousand). The employment termination benefits concern the resignations of Mr. Deller (€ 7,085 thousand) and Mr. Heuwing (€ 3,564 thousand).

The other long-term benefits due include expenses from the management board LTI **(LTI [p. 203])**. Since fiscal year 2018 the LTI has been granted in form of performance-related remuneration on the basis of a performance cash plan and is allocated in annual tranches. The term of the tranche is three

3.81 REMUNERATION OF MANAGEMENT

in € thousand	2019	2018
Compensation of the executive board		
Short-term compensation	6,517	9,550
Post-employment benefits	600	1,587
Termination benefits	10,649	–
Other long-term benefits	1,189	800
	18,955	**11,937**
Compensation for the Members of the supervisory board		
Short-term compensation	1,450	1,042
	1,450	**1,042**
Total	**20,405**	**12,979**

years (the "performance period"). This begins on January 1 of the respective grant year and ends on December 31 of the second year after the grant year. The LTI is paid in June of the fiscal year following the respective performance period. The payout is based on the Economic Value Added (EVA) generated by the KB Group in the second year following the grant year compared to the EVA® of the fiscal year preceding the grant year. The claim to LTI generally only exists if the individual is still appointed or if the appointment was ended for certain, established reasons. For further details, please refer to the information on LTI in the compensation report.

TOTAL REMUNERATION OF THE SUPERVISORY BOARD AND THE MANAGEMENT BOARD IN ACCORDANCE WITH SECTION 314 (1) NO. 6 IN CONNECTION WITH SECTION 315E (1) HGB

The total remuneration of the members of the Supervisory Board in 2019 amounted to € 1,450 thousand (2018: € 1,042 thousand). The total remuneration of the management board in 2019 was € 6,817 thousand according to DRS 17 (2018: € 10,037 thousand).

3.82 SALE OF GOODS AND SERVICES

in € thousand	2019	2018
Sale of goods and services		
Associated companies	91,092	86,469
Ultimate parent entity (various services)	942	990
Other related companies and persons	14,559	8,491
	106,593	**95,950**

3.83 PURCHASE OF GOODS AND SERVICES

in € thousand	2019	2018
Purchase of goods and services		
Associated companies	16,045	10,744
Members of the Management in key positions	223	470
Ultimate parent entity (consulting services)	3,540	3,012
Ultimate parent entity (rents)	2,430	2,427
Other related companies and persons (rents)	782	960
Other related companies and persons (goods and services)	372	1,000
	23,392	**18,613**

Past members of the management board and their surviving dependents were awarded total compensation of € 8,861 thousand in the fiscal year (2018: € 2,742 thousand). Total compensation in 2019 includes employment termination benefits of € 7,085 thousand arising from the termination of Mr. Deller's employment. Pension provisions amounted to € 68,046 thousand (2018: € 52,555 thousand).

H.5.4. Purchase of goods and services Table → 3.82

The sale of goods and services to related parties comprises legal transactions within and outside the scope of normal delivery and service relationships. Services to the ultimate parent entity in the amount of € 793 thousand (2018: € 757 thousand) related to reimbursed expenses.

H.5.5. Purchase of goods and services Table → 3.83

The purchase of goods and services comprised legal transactions within the framework of and outside normal delivery and service relationships.

Goods and services (including rents) were purchased from related parties at arm's length conditions.

Consulting services obtained from the supreme controlling party related in particular to advising the management board on current matters and supporting and maintaining important customer relationships.

Consulting services were provided and compensated under the existing consulting agreement with Knorr-Bremse AG, last amended on August 31, 2018, as well as a consulting agreement concluded as of April 1, 2018 with the Knorr Brake Holding Corporation, USA.

H.5.6. Miscellaneous business transactions Table → 3.84

As part of a sale and leaseback transaction, Knorr-Bremse sold a parcel of land with existing buildings and buildings under construction at the Munich site under a civil law contract to OPES Business Park Am Oberwiesenfeld GmbH; parts of the property have already been transferred and immediately leased back under a long-term arrangement. The transaction is treated as a single composite transaction. The purchase price of € 253,152 thousand is based on an assessment by an independent expert. As a result, the Company received net proceeds of € 134,299 thousand, net of the repayment of tied loans, as early as 2019. A further € 65,893 thousand is expected to be due in 2021 or 2022, following completion and transfer of the buildings under construction, with immediate leaseback to OPES Business Park Am Oberwiesenfeld GmbH. These leases have a term through December 31, 2034 from the date of transfer. In total, the lease terms range from 10 to 15 years. The Company generated earnings before interest, tax, depreciation and amortization of € 45,068 thousand and income before taxes totaling € 39,954 thousand from this transaction. The annual net rent exclusive of heating charges is € 8,940 thousand; following the transfer of the buildings currently under construction it will total € 14,958 thousand for all buildings. The background to the sale and leaseback transaction is the financing of the Knorr-Bremse Group's expansion plans.

3.84 MISCELLANEOUS BUSINESS TRANSACTIONS

in € thousand	2019	2018
Disposal of land and other assets to		
Related parties	255,164	13,193
Ultimate parent entity	–	457
	255,164	**13,650**
Purchase of land and other assets from		
Related parties	607	–
	607	**–**
Payments into capital reserves (takeover of IPO costs) by		
Parent Company (KB Holding)	–	14,850
	–	**14,850**
Disbursement to a silent partner		
Ultimate parent entity		
Disbursement of a silent partner's contribution	10,000	–
Disbursement of a silent partner's settlement balance	516	–
	10,516	**–**
Donations to		
Related parties (Knorr-Bremse Global Care e. V.)	2,207	1,793
	2,207	**1,793**
Dividends to		
Parent Company (KB Holding)	198,026	807,690
Minority shareholders (Ursus)	–	42,510
Ultimate parent entity	1,214	1,214
	199,240	**851,414**
Further business transactions		
Associated companies		
Capital contributions at Alltruck GmbH & Co. KG	433	–
Related parties		
Purchase of shares (preferred shares) KB US Holding	–	130,615
Sale of the northern part of the Munich site to OPES Business Park (remediation obligation and obligation to reverse constructional changes)	4,148	–
	4,581	**130,615**

H.5.7. Balances with related parties and management

Table → 3.85

For details of other assets resulting from the sale and leaseback transaction at the Munich site, please refer to Chapter F.5. Costs of € 46,253 thousand are still expected to be incurred for real estate not yet completed.

Receivables from related parties result from trade receivables and from the sale of land. This includes € 1,854 thousand (2018: € 3,275 thousand) of other assets (prepaid expenses) for consulting services that are yet to be performed.

The receivables are unsecured and will be settled in cash. No guarantees have been given or obtained. No impairment losses were recognized for unrecoverable or doubtful receivables from related parties in the current fiscal year or previous fiscal years.

The liabilities to associated companies result from deliveries and services. The liabilities to related parties largely concern liabilities from leases pursuant to IFRS 16.

3.85 BALANCES WITH RELATED PARTIES, PERSONS AND MANAGEMENT

in € thousand	12/31/2019	12/31/2018
Right-of-use assets pursuant to IFRS 16		
Related parties	51,357	–
Ultimate parent entity	23,217	–
	74,574	**–**
Other assets from the sale and leaseback transaction at the Munich site		
Related parties	**35,601**	**–**
Receivables to		
Associated companies	35,049	29,341
Related parties	22,404	22,196
Ultimate parent entity	1,872	3,327
Members of the Management in key positions	23	23
	59,348	**54,887**
Liabilities to		
Associated companies	3,038	1,140
Related parties	126,132	25,164
Ultimate parent entity	24,826	–
Members of the Management in key positions	223	383
	154,219	**26,687**

H.6. Executive bodies

H.6.1. Management board of Knorr-Bremse AG

Bernd Eulitz, Chairman of the Executive Board
(since November 1, 2019)
- Responsible in particular for HR, Corporate Development, Communication and Digitalization

Klaus Deller, Chairman of the Executive Board
(until April 30, 2019)
- Responsible in particular for HR, Corporate Development and Communication
- Chairman of the Supervisory Board of Knorr-Bremse Systeme für Schienenfahrzeuge GmbH, Munich (until April 30, 2019)

Ralph Heuwing
(until April 30, 2020)
- Responsible in particular for Finance, Controlling, Legal, Investor Relations, Internal Audit, IT, Compliance and Security.
- Managing Director of Knorr Brake Holding Corporation, Watertown
- Member of the Supervisory Board of Management Capital Holding, Munich
- Member of the Supervisory Board of Ringmetall AG, Munich

Dr. Peter Laier
- Responsible for the Commercial Vehicle Systems Division, Munich
- Chairman of the Supervisory Board of Knorr-Bremse Systeme für Nutzfahrzeuge GmbH, Munich

Dr. Jürgen Wilder
- Responsible for the Rail Vehicle Systems Division, Munich
- Chairman of the Board of Management of Knorr-Bremse Systeme für Schienenfahrzeuge GmbH, Munich (until October 31, 2019)
- Member of the Supervisory Board of Knorr-Bremse Systeme für Schienenfahrzeuge GmbH, Munich (since November 1, 2019) and Chairman of the Supervisory Board of Knorr-Bremse Systeme für Schienenfahrzeuge GmbH, Munich (since December 10, 2019)

H.6.2. Supervisory board of Knorr-Bremse AG

Heinz Hermann Thiele, Munich
- Honorary chairman
- Entrepreneur

Prof. Dr. Klaus Mangold, Stuttgart
- Chairman of the Supervisory Board
- Independent contractor
- Chairman of Mangold Consulting GmbH, Stuttgart
- Member of the Administrative Board of Baiterek National Managing Holding JSC, Nur-Sultan, Kazakhstan
- Chairman of the Advisory Board of Lürssen Maritime Beteiligungen GmbH & Co. KG, Bremen
- Chairman of the Advisory Board of Cortec GmbH, Freiburg

Franz-Josef Birkeneder*, Aldersbach
- 1st Deputy Chairman of the Supervisory Board
- Plant manager Knorr-Bremse Systeme für Nutzfahrzeuge GmbH, Aldersbach location

Kathrin Dahnke, Bielefeld
- Additional Deputy to the Chair of the Supervisory Board
- Management Consultant
- Member of the management board of Wilh. Werhahn KG (until December 31, 2019)
- Member of the Supervisory Board of Fraport AG, Frankfurt am Main
- Member of the Supervisory Board of B. Braun Melsungen AG, Melsungen

Michael Jell*, Munich
- Full time Chair of the Knorr-Bremse Systeme für Schienenfahrzeuge GmbH, Munich, Knorr-Bremse AG, Munich, KB Media GmbH, Munich, Knorr-Bremse Services GmbH, Munich

Dr. Wolfram Mörsdorf, Essen
- Retired member of the Management Board of ThyssenKrupp AG, Essen
- Chairman of the Supervisory Board of FRITZ Winter Eisengießerei GmbH & Co. KG, Stadtallendorf
- Member of the Supervisory Board of PWK Automotive GmbH, Krefeld
- Chairman of the Supervisory Board of Gienanth GmbH, Eisenberg
- Chairman of the Supervisory Board of Silbitz Group GmbH, Silbitz
- Chairman of the Supervisory Board of SISTEMA Finance GmbH, Berlin

Werner Ratzisberger*, Aldersbach
- Project Engineer for mechanical processing/surfaces,
- Knorr-Bremse Systeme für Nutzfahrzeuge GmbH, Aldersbach location

* Employee representatives

Sebastian Roloff*, Munich
(until March 31, 2019)
- Attorney at IG Metall, Munich office

Annemarie Sedlmair*, Munich
(since April 1, 2019)
- Head of the Legal department at IG Metall, Munich office
- Member of the Supervisory Board of Bosch Sicherheitssysteme GmbH, Grasbrunn

Erich Starkl*, Passau
- 2nd Authorized Representative of IG Metall trade union, Passau office
- Deputy Chairman of IG Metall, Frankfurt am Main

Julia Thiele-Schürhoff, Munich
- Chairman of the management board of Knorr-Bremse Global Care e.V., Munich

Wolfgang Tölsner, Uetersen
- Management Consultant
- Member of the Supervisory Board of Knorr-Bremse Systeme für Schienenfahrzeuge GmbH, Munich
- Chairman of the Administrative Board of Selectron AG, Lyss/Switzerland
- Chairman of the Supervisory Board of Bombardier Transportation Deutschland GmbH, Berlin
- Member of the Administrative Board of 4PL Central Station AG, Basel/Switzerland

Georg Weiberg, Stuttgart
- Retired Head of Development at Daimler Trucks, Stuttgart
- Member of the Supervisory Board of Mahle Behr GmbH & Co. KG, Stuttgart
- Member of the Supervisory Board of MAG GmbH, Lengende
- Member of the Advisory Board of VOSS Automotive GmbH, Wipperfürth
- Member of the Supervisory Board of FRITZ Winter Eisengießerei GmbH & Co. KG, Stadtallendorf

Günter Wiese*, Berlin
- Full time Works Council of Knorr-Bremse Systeme für Schienenfahrzeuge GmbH, Berlin plant
- Member of the Supervisory Board of Knorr-Bremse Systeme für Schienenfahrzeuge GmbH, Munich

H.7. Other financial obligations

Table → 3.86

The Company's other financial obligations are primarily comprised of low-value and short-term leases. The item also includes leases that have already been entered into but have not yet commenced, or that contain variable lease payments. As a result of the initial application of IFRS 16, lease liabilities declined from € 242,337 thousand to € 136,069 thousand. Further information on leases is provided in Chapter H.11.

For details of other assets resulting from the sale and leaseback transaction at the Munich site, please refer to Chapter F.5. Costs of € 46,523 thousand are still expected to be in-

3.86 OTHER FINANCIAL OBLIGATIONS

in € thousand	Up to 1 year	1 to 5 years	Over 5 years	Total
12/31/2019				
Rent and lease obligations	11,615	46,059	78,395	136,069
Investment projects	69,616	10,857	–	80,474
Major repairs/maintenance work	5,897	954	166	7,017
Other obligations	47,353	13,445	4,743	65,541
	134,481	**71,315**	**83,304**	**289,100**
12/31/2018				
Rent and lease obligations	42,221	123,159	76,957	242,337
Investment projects	19,379	11,618	–	30,998
Major repairs/maintenance work	3,133	495	–	3,628
Other obligations	25,062	4,473	–	29,535
	89,796	**139,744**	**76,957**	**306,498**

* Employee representatives

3.87 CONTINGENT LIABILITIES

in € thousand	2019	2018
Guarantees	19,728	18,353
Warranties	976	356
	20,704	**18,709**

curred for real estate not yet completed. In addition, the other liabilities item includes loan commitments and bank guarantees.

H.8. Contingent liabilities Table → 3.87

Contingent liabilities lead to possible obligations, which cannot be influenced due to the occurrence of potential future events. The amount of these obligations can also not be adequately calculated.

The Company's contingent liabilities involve guarantees and warranties. Guarantees are issued for outstanding bank bonds, performance warranties for banks, as well as rent guarantees for commercial/factory buildings. In particular, the amount of the rent guarantee is significant at € 1,200 thousand (2018: € 1,900 thousand). The associated probability of occurrence was considered to be low in 2019 due to the ongoing stable business development of the borrower.

There are guarantees in Hungary for customer contracts for products.

H.9. Legal risks

BOSCH ARBITRATION PROCEDURE

In a letter dated June 21, 2018, Robert Bosch GmbH declared it was exercising its put option related to its minority share in Knorr-Bremse Systeme für Nutzfahrzeuge GmbH and initiated arbitration proceedings with the arbitration notice of September 17, 2018 with the goal of enforcement of this put option. At the start of April 2019, Robert Bosch GmbH extended its lawsuit and made a claim for damages due to refusal to consent to full distribution of Knorr-Bremse Systeme für Nutzfahrzeuge GmbH's accumulated profit. In our opinion, Bosch will not be able to enforce this claim. At the end of August 2019, Knorr-Bremse AG brought a counterclaim, with which it is seeking to determine the extent of any prohibition of competition.

At the start of March 2020, the hearing in the arbitration procedure took place. A decision by the court of arbitration is expected in the fourth quarter of 2020.

CLASS ACTION LAWSUITS FOLLOWING DOJ PROCEEDINGS

On April 3, 2018, the U.S. Department of Justice, Antitrust Division (DOJ) announced that it reached an agreement with Knorr-Bremse AG and Westinghouse Air Brake Technologies Corporation ("Wabtec") on allegations of a non-legal agreement not to poach employees.

Following the agreement reached with the DOJ, employees filed lawsuits against Knorr-Bremse AG, Wabtec and its subsidiaries. The aim of the class action lawsuits was to compensate employees for reduced payment on the basis of the alleged agreement between the above parties not to poach employees.

On October 16, 2019, Knorr-Bremse AG reached a settlement agreement in which it agreed to pay plaintiffs $ 12 million to settle the class action. The payment was made to an escrow account at the court in the last week of March 2020. This settlement agreement is still subject to judicial confirmation, as is customary in the USA. This is expected in the course of the third quarter of 2020.

ADMINISTRATIVE ACTION IN BRAZIL

On September 27, 2016, the Brazilian antitrust authorities initiated administrative proceedings against the Group company Knorr-Bremse Sistemas for Veículos Comerciais Brasil Ltda., Itupeva/Brazil ("KBB") and several of its competitors in Brazil. The allegations against KBB are limited to an allegedly unlawful exchange of information and do not involve antitrust behavior. As the investigations are still at an early stage, no reliable statement can be made at this time about the probability of success or the possible consequences of an adverse outcome of the administrative proceedings.

PROCEEDINGS IN ITALY

The Italian law enforcement authorities sent notification in their letter of March 19, 2019 that the preliminary proceedings against Microelettrica Scientifica S.p.A., Buccinasco/Italy ("Microelettrica"), prior members of the administrative board of Microelettrica and a member of the management of three

Russian group companies in conjunction with commission payments to an agent due to deliveries to a Russian customer is concluded, and that a lawsuit will be filed against Microelettrica due to an alleged violation of internal regulations to avoid corrupt activities by the aforementioned individuals.

Since the court proceedings have not yet been opened, and since Knorr-Bremse is of the opinion, that Microelettrica took suitable preventative measures against corruption and therefore fulfilled Italian law, no provision was formed as of December 31, 2019.

H.10. Government grants

Government grants include grants for structural support and business development as well as funding for research and development projects.

Grants for assets in the 2019 fiscal year amounted to € 3,236 thousand (2018: € 1,850 thousand).

Performance-related grants in 2019 amounted to € 4,645 thousand (2018: € 5,310 thousand) and were recognized in income. The year-on-year decline was due primarily to grants from the research, development, and innovation fund to Hungarian subsidiaries received in 2018. Performance-related grants are essentially reported in other operating income.

H.11. Leases

H.11.1. Accounting for leases from January 1, 2019

The Group has entered into leases for land, buildings, a variety of technical equipment, machinery, vehicles and operating and office equipment that it uses in its operations. Leases for land and buildings generally have terms between 1 and 78 years and leases for technical equipment and machinery generally have terms between 1 and 15 years. In the case of vehicles and operating and office equipment, the term is generally between 1 and 9 years. The Group's commitments from its leases are collateralized by the lessor's ownership of the leased assets. Several leases, largely for land and buildings, include extension and termination options.

The Group has also concluded leases for machinery that have a term of twelve months or less and for office equipment of low value. The Group applies the practical expedients that apply to short-term leases and leases of low value assets to these leases.

The following table presents book values of the right-of-use assets recognized: Table → 3.88

The following table shows the book values of the leasing liabilities (which are included in financial liabilities) and the changes during the reporting period: Table → 3.89

The maturity analysis of the leasing liabilities is disclosed in note H.1.5.

The following amounts were recognized in profit or loss in the reporting period: Table → 3.90

The Group had cash outflows for leases of € 60,295 thousand in 2019. The future cash outflows for leases that have not yet commenced are disclosed in note H.7. In this category, € 50,480 thousand is attributable to low-value and short-term leases, € 19,005 thousand to leases that have been entered into but have not yet commenced, and € 1,313 thousand to leases with variable payments.

3.88 RIGHT-OF-USE ASSETS

in € thousand	12/31/2019
Assets	
Non-current assets	
Right-of-use assets – land and buildings	307,195
Right-of-use assets – technical equipment and machinery	2,025
Right-of-use assets – other	19,180
Total	**328,400**

3.89 LEASE LIABILITIES

in € thousand	12/31/2019
Liabilities	
Long-term provisions and liabilities	
Lease liabilities	320,151
Short-term provisions and liabilities	
Lease liabilities	57,142
Total	**377,293**

3.90 AMOUNTS AFFECTING PROFIT OR LOSS

in € thousand	2019
Operating expenses	**18,405**
Expenses from short-term leases	9,601
Expenses from leases of low value assets	3,434
Expenses from variable lease payments	847
Other expenses from leases (e.g. incidental expenses)	4,524
Depreciation and amortization	**49,809**
Depreciation of right-of-use assets – land and buildings	39,090
Depreciation of right-of-use assets – technical equipment and machinery	9,985
Depreciation of right-of-use assets – other	734
Impairments of right-of-use assets	–
Financial result	**7,459**
Interest expenses on leasing liabilities	7,470
Income from the currency translation of leasing liabilities	(11)
Expenses from the currency translation of leasing liabilities	–

SALE AND LEASEBACK

In December 2019, Knorr-Bremse entered into a sale and leaseback transaction with OPES Business Park Am Oberwiesenfeld GmbH. Please refer to Chapter H.5 for more details.

Arising from the sale and leaseback transaction at the Munich site, right-of-use assets of € 49,944 thousand and lease liabilities of € 88,063 thousand were recognized in the balance sheet in accordance with IFRS 16 as of the end of the fiscal year.

JUDGMENTS

When applying the Group's accounting policies, the management made the following judgments that influence the amounts in the consolidated financial statements:

Determination of the term of leases with extension and termination options – the Group as lessee

The Group determines the lease terms based on the noncancelable period of the lease and taking into account periods covered by an option to extend the lease if the Group is reasonably certain to exercise that option or periods covered by an option to terminate the lease if the Group is reasonably certain not to exercise that option. The Group has completed several leases that include extension and termination options. The Group makes judgments when assessing whether it is reasonably certain to exercise or not to exercise the lease's extension or termination option. This means it takes into account all relevant factors that represent an economic incentive for it to exercise the extension or the termination option. After the release date, the Group reassesses the lease term upon the occurrence of a significant event or a change in circumstances that is within its control and affects whether it is reasonably certain to exercise an option or not to exercise an option (e.g. conducting significant leasehold improvements or significant customization of the underlying asset).

Leases – estimate of the incremental borrowing rate

The Group cannot readily determine the interest rate implicit in the lease. It therefore uses its incremental borrowing rates to measure leasing liabilities. The incremental borrowing rate is the rate of interest that the Group would have to pay to borrow over a similar term, and with a similar security, the funds necessary to obtain an asset of a similar value to the right-of-use asset in a similar economic environment. The incremental borrowing rate thus reflects the interest that the Group "would have to pay". If no observable interest rates are available (e.g. at subsidiaries that do not enter into financing operations) or if the interest rate has to be adjusted in order to reproduce the terms of the lease (e.g. if the lease was not entered into in the subsidiary's functional currency), the incremental borrowing rate must be estimated. The Group estimates the incremental borrowing rate using observable inputs (e.g. market interest rates), if these are available, and must make certain company-specific estimates (e.g. standalone credit assessment of the subsidiary).

H.11.2. Accounting for leases until December 31, 2018

The Company was a lessee in both finance leases and operating leases.

FINANCE LEASES Table → 3.91

The net book value of assets as a result of finance leases as at December 31, 2018 is provided below. The Company essentially concluded finance leases for land and commercial/production buildings with a term of 10 to 20 years. A significant portion of these land and buildings is owned by Knorr-Bremse GmbH/Austria, Knorr-Bremse Systemes Ferroviaires France S.A./France, Knorr-Bremse Commercial Vehicle Japan Ltd, Knorr-Bremse Systeme für Nutzfahrzeuge GmbH/Germany and Knorr-Bremse Rail Systems Ltd/United Kingdom.

The Table → 3.92 shows the reconciliation of the total future minimum lease payments at their present value on the reporting date.

The total future minimum lease payments primarily result from the obligations from finance leases for land and commercial/production buildings of Knorr-Bremse GmbH/Austria, Knorr-Bremse Systemes Ferroviaires France S.A./France, Knorr-Bremse Commercial Vehicle Systems Japan Ltd., Knorr-Bremse Systeme für Nutzfahrzeuge GmbH and Knorr-Bremse Rail Systems/United Kingdom. As at the cut-off date of December 31, 2018, the minimum lease payments for land and buildings amounted to € 22,489 thousand. There are no atypical termination or extension options.

An existing sale and leaseback relationship, in place since 2009, is classified as a finance lease in the 2018 fiscal year and is shown in the table.

3.91 FINANCE LEASES

in € thousand	12/31/2018
Land and buildings	22,489
Technical equipment and machinery	924
Other assets	4,623
Assets	**28,036**
	2018
Depreciation and amortization	3,930
Interest expenses	1,639
Expenses	**5,569**
Contingent rents reported as expense	289

3.92 FINANCE LEASES – RECONCILIATION OF THE SUM OF FUTURE MINIMUM LEASE PAYMENTS AT THE PRESENT VALUE

	Up to 1 year	1 to 5 years	Over 5 years	Total
in € thousand				12/31/2018
Minimum lease payments as at the reporting date	6,494	18,235	17,220	41,949
./. included interest	1,387	4,014	3,270	8,672
Present value of the minimum lease payment	5,107	14,221	13,950	33,277
Future minimum lease payments, whose receipt is expected based on non-terminable subleases	–	–	–	–

OPERATING LEASES Table → 3.93, 3.94

As at December 31 2018, the following future minimum lease payments were outstanding within the scope of non-terminable leases.

The Group leases a number of production buildings and plants within the scope of long-term operating leases. Another material part of the minimum lease payments arises from operating leases for forklift trucks and Company cars, which generally have a term of 3 to 5 years. No atypical termination or extension options exist.

3.93 OPERATING LEASES

in € thousand	Up to 1 year	Between 1 and 5 years	More than 5 years	Total
12/31/2018				
Outstanding minimum lease payments	42,221	123,159	76,957	242,337

3.94 INCOME AND EXPENSES

	2018	
in € thousand	**Income**	**Expenses**
Minimum lease payments	262	47,463
Contingent rents	-	17
Subletting payments	-	105
	262	**47,585**

H.12. List of shareholdings

The Table → 3.95 shows the list of shareholdings in accordance with Section 313 (2) HGB:

3.95 LIST OF SHAREHOLDINGS

1. Consolidated affiliated companies	Share of capital in %	Currency and unit	Equity	Income	Total assets
Albatros GmbH, Munich/Germany	100	in € thousand	17	(1)	17
Aldona Seals Ltd., Peterlee/United Kingdom	100	in € thousand	1,811	281	2,041
Alpha Process Controls (International) Ltd., Peterlee/United Kingdom	100	in € thousand	(83)	(529)	294
Anchor Brake Shoe Company LLC, West Chicago, Illinois/USA	100	in € thousand	13,790	1,948	17,548
APS electronic AG, Niederbuchsiten/Switzerland	100	in € thousand	(78)	(213)	9,477
BCVS Canadian Holdings LLC, Anjou, Québec/Canada[2)]	100	in € thousand	0	0	0
BCVS Mexican Holdings LLC, Cd Acuna, Coah/Mexico[2)]	100	in € thousand	0	0	0
Bendix Commercial Vehicle Systems LLC, Elyria, Ohio/USA	100	in € thousand	369,008	153,537	547,107
Bendix CVS Canada Inc., Anjou, Québec/Canada[2)]	100	in € thousand	0	0	0
Bendix CVS de Mexico SA de CV, Cd Acuna, Coah/Mexico[2)]	100	in € thousand	0	0	0
Bendix Servicios de Mexico S.A. de C.V., Tapodaca Nuevo Leon/Mexico[2)]	100	in € thousand	0	0	0
Bendix Spicer Foundation Brake Canada, Inc., Kingston, Ontario/Canada[3)]	100	in € thousand	0	0	0
Bendix Spicer Foundation Brake LLC, Elyria, Ohio/USA	80	in € thousand	113,488	51,367	204,988
BSFB Holdings, Inc., Elyria, Ohio/USA[3)]	100	in € thousand	0	0	0
Comet Fans S.r.l., Solaro, Milan/Italy	100	in € thousand	3,303	1,577	10,006
Distribuidora Bendix CVS (de) Mexico SA de CV, Cd Acuña, Coah/Mexico[2)]	100	in € thousand	0	0	0
Dr. techn. Josef Zelisko, Fabrik für Elektrotechnik und Maschinenbau Ges.m.b.H., Mödling/Austria[1)]	100	in € thousand	6,941	423	29,329
Dyno-Inno Test Center for Brake Equipment (Suzhou) Ltd., Suzhou/China	100	in € thousand	342	122	1,134
Freios Bre Coahuila, S.A. de C.V., Cd. Acuña, Coah/Mexico	100	in € thousand	6,649	(2)	6,649
G.T. Group Ltd., Peterlee/United Kingdom	100	in € thousand	13,173	(1,959)	15,535
GT Emissions Systems Ltd., Peterlee/United Kingdom	100	in € thousand	30,281	3,639	40,708
GT Project Engineering Ltd., Consett/United Kingdom	100	in € thousand	(600)	(1,030)	1,157
Guangdong Knorr-Bremse Guo Tong Railway Vehicle Systems Equipment Co., Ltd., Jiangmen, Guangdong/China[7)]	49	in € thousand	14,469	3,060	58,730
Hasse & Wrede CVS Dalian, China Ltd., Dalian/China	70	in € thousand	18,072	9,172	37,555
Hasse & Wrede GmbH, Berlin/Germany[1)]	100	in € thousand	9,120	(178)	32,351
Heine Resistors GmbH, Dresden/Germany	100	in € thousand	6,470	3,841	10,174
Icer Rail S.L., Pamplona/Spain	100	in € thousand	14,163	7,031	42,442
IFE-CR a.s., Brünn/Czech Republic	100	in € thousand	17,019	4,040	62,120
IFE North America LLC, Westminster, Maryland/USA	100	in € thousand	4,221	(1,448)	8,705
IFE-VICTALL Railway Vehicle Door Systems (Qingdao) Co., Ltd., Qingdao/China	59	in € thousand	24,006	2,426	73,472
Kalmar Tågkompetens AB, Kalmar/Sweden	100	in € thousand	614	152	991
KB Gamma Beteiligungs GmbH, Munich/Germany	100	in € thousand	21	0	21
KB Lambda Beteiligungs GmbH, Munich/Germany	100	in € thousand	26	0	26
KB Media GmbH Marketing und Werbung, Munich/Germany[1)]	100	in € thousand	5	46	1,894
KB Omikron Beteiligungs GmbH, Munich/Germany	100	in € thousand	23	0	23
KB Sigma Beteiligungs GmbH, Munich/Germany	100	in € thousand	26	0	26
K&D PROGETTO S.r.l., Bolzano/Italy[7)]	20	in € thousand	83	3	8,123
Kiepe Electric Ges. m. b. H., Vienna/Austria	100	in € thousand	9,085	(1,988)	24,733
Kiepe Electric GmbH, Düsseldorf/Germany[1)]	100	in € thousand	44,563	(5,843)	178,402
Kiepe Electric LLC., Alpharetta/USA	100	in € thousand	6,793	4,247	13,428
Knorr Brake Company LLC., Westminster, Maryland/USA	100	in € thousand	51,552	12,178	101,680

1. Consolidated affiliated companies	Share of capital in %	Currency and unit	Equity	Income	Total assets
Knorr Brake Corporation Canada Holdings Ltd., Montreal, Québec/Canada	100	in € thousand	777	1,066	5,344
Knorr Brake Holding Corporation, Watertown, New York/USA	100	in € thousand	(103,251)	423,556	400,250
Knorr Brake Ltd., Kingston, Ontario/Canada	100	in € thousand	4,973	136	5,179
Knorr Brake Realty, LLC, Westminster, Maryland/USA	100	in € thousand	2,975	(157)	15,072
Knorr Brake Truck Systems Company, Watertown, New York/USA	100	in € thousand	76,367	367,986	170,846
Knorr-Amabhiliki (Pty.) Ltd., Kempton Park/South Africa[9), 10)]	100	in € thousand	6	17	6
Knorr-Bremse 1520 OOO, Burashevskoe/Russia	100	in € thousand	27,987	3,661	32,218
Knorr-Bremse/Nankou Air Supply Unit (Beijing) Co., Ltd., Nankou/China	55	in € thousand	11,333	3,226	27,874
Knorr-Bremse Asia Pacific (Holding) Limited, Hong Kong/China	100	in € thousand	177,749	225,182	999,777
Knorr-Bremse Australia Pty. Ltd., Granville/Australia	100	in € thousand	22,490	2,814	108,123
Knorr-Bremse Benelux B.V.B.A., Heist-op-den-Berg/Belgium	100	in € thousand	163	(1,071)	4,160
Knorr-Bremse Beteiligungsgesellschaft mbH, Munich/Germany[1)]	100	in € thousand	26	0	757
Knorr-Bremse Braking Systems for Commercial Vehicles (Dalian) Co. Ltd., Dalian/China	100	in € thousand	43,203	17,462	110,257
Knorr-Bremse Brasil (Holding) Administração e Participação Ltda., Itupeva/Brazil	100	in € thousand	31,143	4,014	36,690
Knorr-Bremse CARS LD Vehicle Brake Disc Manufacturing (Beijing) Co., Ltd., Daxing/China	50	in € thousand	57,452	41,056	134,587
Knorr-Bremse Commercial Vehicle Systems Japan Ltd., Tokyo/Japan	80	in € thousand	43,910	11,066	146,705
Knorr-Bremse Commercial Vehicle Systems (Shanghai) Co., Ltd., Shanghai/China	100	in € thousand	10,282	148	27,438
Knorr-Bremse Commercial Vehicle Systems (Thailand) Ltd., Bangkok/Thailand[5)]	100	in € thousand	4,196	351	17,196
Knorr-Bremse DETC Commercial Vehicle Braking Technology Co., Ltd., Shiyan/China	51	in € thousand	24,230	3,392	68,670
Knorr-Bremse España, S.A, Getafe/Spain	100	in € thousand	47,445	16,949	126,900
Knorr-Bremse Fékrendszerek Kft., Kecskemét/Hungary	100	in € thousand	54,755	12,767	104,011
Knorr-Bremse Ges.m.b.H., Mödling/Austria	100	in € thousand	72,081	52,964	193,830
Knorr-Bremse Ibérica S.L., San Fernando de Henares/Spain	100	in € thousand	5,543	811	11,322
Knorr-Bremse India Pvt. Ltd., Faridabad/India	100	in € thousand	150,194	53,730	207,604
Knorr-Bremse Investment GmbH, Munich/Germany[1)]	100	in € thousand	1,141	0	1,541
Knorr-Bremse KAMA Systems for Commercial Vehicles OOO, Naberezhnye Chelny/Russia	50	in € thousand	17,206	1,819	21,809
Knorr-Bremse Nordic Rail Services AB, Lund/Sweden	100	in € thousand	6,215	3,536	22,197
Knorr-Bremse Pensionsgesellschaft mbH, Munich/Germany	100	in € thousand	24	0	24
Knorr-Bremse Polska SfN Sp. z o.o., Warsaw/Poland	100	in € thousand	1,093	320	1,233
Knorr-Bremse Rail Systems CIS Holding OOO, Moscow/Russia	100	in € thousand	30,237	490	30,737
Knorr-Bremse Rail Systems Italia S.r.l., Campi Bisenzio/Italy	100	in € thousand	63,257	37,313	100,412
Knorr-Bremse Rail Systems Japan Ltd., Tokyo/Japan	94	in € thousand	19,143	3,152	43,991
Knorr-Bremse Rail Systems Korea Ltd., Seoul/South Korea	100	in € thousand	5,457	1,572	10,953
Knorr-Bremse Rail Systems OOO, Moscow/Russia	100	in € thousand	20,553	10,969	31,973
Knorr-Bremse Rail Systems Schweiz AG, Niederhasli/Switzerland	100	in € thousand	10,566	1,334	15,107
Knorr-Bremse Rail Systems (UK) Ltd., Melksham, Wiltshire/United Kingdom	100	in € thousand	41,237	17,186	94,906
Knorr-Bremse Railway Technologies (Shanghai) Co., Ltd., Shanghai/China	100	in € thousand	(8,267)	(1,538)	4,030
Knorr-Bremse Raylı Sistemler Sanayi ve Ticaret Limited Şirketi, Ankara/Turkey	100	in € thousand	1,588	535	2,819
Knorr-Bremse S.A. Holding Company (UK) Ltd., Melksham/Great Britain	100	in € thousand	6,278	0	6,278
Knorr-Bremse S.A. (Pty.) Ltd., Kempton Park/South Africa	75	in € thousand	9,866	(4,179)	26,368
Knorr-Bremse S.R.L., Bucharest/Romania	100	in € thousand	399	134	673
Knorr-Bremse Services Europe s.r.o., Stráž nad Nisou/Czech Republic	100	in € thousand	169	(222)	4,103
Knorr-Bremse Services GmbH, Munich/Germany[1)]	100	in € thousand	12,616	346	104,746
Knorr-Bremse Sistemas para Veículos Comerciais Brasil Ltda., Itupeva/Brazil	100	in € thousand	24,908	4,830	37,018
Knorr-Bremse Sistemas para Veículos Ferroviários Ltda., Itupeva/Brazil	100	in € thousand	13,577	3,993	18,974
Knorr-Bremse Sistemi per Autoveicoli Commerciali S.p.A., Arcore/Italy	100	in € thousand	6,260	98	18,008
Knorr-Bremse Steering Systems Japan Ltd., Saitama/Japan[5)]	100	in € thousand	106,951	(7,684)	136,755
Knorr-Bremse Steering Systems GmbH, Wülfrath/Germany	100	in € thousand	(9,405)	(36,932)	37,630
Knorr-Bremse System för Tunga Fordon AB, Malmö/Sweden	100	in € thousand	1,190	653	2,394
Knorr-Bremse Systeme für Nutzfahrzeuge GmbH, Munich/Germany	80	in € thousand	275,933	12,744	661,556
Knorr-Bremse Systeme für Nutzfahrzeuge Pensionsgesellschaft mbH, Munich/Germany	100	in € thousand	24	0	24
Knorr-Bremse Systeme für Schienenfahrzeuge GmbH, Munich/Germany[1)]	100	in € thousand	108,370	(14,702)	1,024,201

1. Consolidated affiliated companies	Share of capital in %	Currency and unit	Equity	Income	Total assets
Knorr-Bremse Systeme für Schienenfahrzeuge Ibero Holding GmbH, Munich/Germany[1)]	100	in € thousand	47,307	0	59,385
Knorr-Bremse Systemes Ferroviaires S.A., Tinqueux/France	100	in € thousand	11,344	2,999	33,900
Knorr-Bremse Systèmes pour Véhicules Utilitaires France S.A.S., Lisieux/France	100	in € thousand	65,773	18,307	106,378
Knorr-Bremse Systems for Commercial Vehicles India Pvt. Ltd., Pune/India	100	in € thousand	14,446	2,742	47,352
Knorr-Bremse Systems for Commercial Vehicles (Chongqing) Ltd., Chongqing/China	66	in € thousand	17,477	3,048	61,931
Knorr-Bremse Systems for Commercial Vehicles OOO, Moscow/Russia	100	in € thousand	6,931	956	12,805
Knorr-Bremse Systems for Commercial Vehicles Ltd., Bristol/United Kingdom	100	in € thousand	41,710	5,382	57,181
Knorr-Bremse Systems for Rail Vehicles Enterprise Management (Beijing) Co., Ltd., Beiing/China	100	in € thousand	(1,453)	(1,956)	1,925
Knorr-Bremse Systems for Rail Vehicles Kazakhstan LLP, Astana/Republic of Kazakhstan	100	in € thousand	146	14	196
Knorr-Bremse Systems for Rail Vehicles (Suzhou) Co., Ltd., Suzhou/China	100	in € thousand	202,126	170,821	480,124
Knorr-Bremse Systemy Kolejowe Polska Sp. z o.o., Krakow/Poland	100	in € thousand	12,800	2,050	20,881
Knorr-Bremse Systémy pro užitková vozidla ČR s.r.o., Stráž nad Nisou/Czech Republic	100	in € thousand	37,639	5,411	92,210
Knorr-Bremse Technology Center India Private Limited, Pune/India	100	in € thousand	5,541	1,122	8,258
Knorr-Bremse Ticari Arac Fren Sistemieri Limited Sirketi, Istanbul/Turkey	100	in € thousand	1,027	413	1,462
Knorr-Bremse US Beteiligungs GmbH, Munich/Germany[1)]	100	in € thousand	50	0	51
Knorr-Bremse US Investment GmbH, Munich/Germany[1)]	100	in € thousand	25	0	25
Knorr-Bremse Vasúti Jármű Rendszerek Hungária Kft., Budapest/Hungary	100	in € thousand	93,014	27,326	178,615
Knorr-Bremse Verwaltungsgesellschaft mbH, Munich/Germany	100	in € thousand	26	0	26
Merak Jinxin Air Conditioning Systems (Wuxi) Co., Ltd., Wuxi/China	51	in € thousand	13,956	3,511	59,352
Merak Knorr Climatización S.A., Buenos Aires/Argentina	100	in € thousand	(283)	(381)	223
Merak North America LLC, Westminster, Maryland/USA	100	in € thousand	(7,297)	(2,377)	16,021
Microelettrica do Brasil Indústria, Comércio e Importação de Produtos Eletromecânicos Ltda., Barueri, São Paulo/Brazil	100	in € thousand	(331)	31	1,062
Microelettrica Heine (Suzhou) Co., Ltd., Suzhou/China	100	in € thousand	7,381	1,936	11,862
Microelettrica Power (Pty.) Ltd., Johannesburg/South Africa	74	in € thousand	1,900	669	8,523
Microelettrica Scientifica (Pty.) Ltd., Johannesburg/South Africa	100	in € thousand	1,970	(237)	3,873
Microelettrica Scientifica S.p.A., Buccinasco/Italy	100	in € thousand	20,731	17,750	77,984
Microelettrica-USA LLC, Randolph, New Jersey/USA	100	in € thousand	3,881	678	10,395
M.S. Resistances (Microelettrica Scientifica) S.A.S., Saint Chamond/France	51	in € thousand	3,129	225	5,062
New York Air Brake LLC, Watertown, New York/USA	100	in € thousand	99,699	48,464	167,590
Sanctor Grundstücks-Vermietunggesellschaft mbH & Co. Objekt Mahrzahn KG, Düsseldorf/Germany (unres. liab. shareholder is Knorr-Bremse AG, Munich/Germany, the majority of the voting rights are held by SABIS Grundstücks-Vermietungsgesellschaft mbH, Düsseldorf/Germany)	99	in € thousand	(3,666)	(157)	26,432
Selectron Systems AG, Lyss/Switzerland	100	in € thousand	22,898	4,739	58,961
Selectron Systems Pvt. Ltd., Gurgaon/India[4)]	100	in € thousand	0	0	0
Selectron Systems (Beijing) Co., Ltd., Beijing/China[4)]	100	in € thousand	0	0	0
Semiconductor Solutions (Pty.) Ltd., Pretoria/South Africa	100	in € thousand	927	108	1,741
Sentient Heavy Vehicles AB, Goteborg/Sweden[5)]	100	in € thousand	2,773	(175)	2,850
Skach Ges.m.b.H., Mödling/Austria[1)]	100	in € thousand	70	8	725
STE Schwingungs-Technik GmbH, Klieken/Germany	100	in € thousand	(1,939)	73	22
Technologies Lanka Inc., La Pocatière, Québec/Canada	100	in € thousand	12,238	2,448	16,537
tedrive Yönlendirme Sistemleri Sanayi ve Tic.Ltd.Şti, Istanbul/Turkey	100	in € thousand	5,121	2,844	5,202
Unicupler GmbH, Niederurnen/Switzerland	100	in € thousand	2,688	(108)	3,056
Zelisko Elektrik Sanayi ve Ticaret Limited Şirketi, Istanbul/Turkey	100	in € thousand	1,141	30	1,835

2. Proportionately consolidated companies	Share of capital in %	Currency and unit	Equity	Income	Total assets
Sentient IP AB, Göteborg/Sweden[5), 12)]	50	in € thousand	8,862	(415)	8,944

3. Associated companies valued using the equity method	Share of capital in %	Currency and unit	Equity	Income	Total assets
Alltrucks GmbH & Co. KG, Munich/Germany[6), 8), 10)]	33.3	in € thousand	1,455	(2,060)	2,627
Alltrucks Verwaltungs GmbH, Munich/Germany[6), 8), 10)]	33.3	in € thousand	35	2	39
Knorr-Bremse DETC Commercial Vehicle Braking Systems (Shiyan) Co., Ltd., Shiyan/China[10)]	49	in € thousand	3,344	610	40,494
Railnova SA, Brussels/Belgium[6)]	32	in € thousand	4,562	295	5,669
Rail Vision Ltd., Raanana/Israel[6)]	21	in € thousand	8,621	(8,943)	10,742

4. Non-consolidated affiliated companies	Share of capital in %	Currency and unit	Equity	Income	Total assets
Di-Pro LLC., Fresno, California/USA	100	in € thousand	0	0	0
EKA DOOEL, Skopje/Macedonia[10)]	100	in € thousand	563	32	755
Foro Verwaltungs GmbH & Co. KG, Munich/Germany[8), 10)]	100	in € thousand	6	0	6
Heiterblick Projektgesellschaft mbH, Leipzig/Germany[8), 10)]	49	in € thousand	25	1	27,175
Kiepe Electric Corporation, Vancouver/Canada[8), 10)]	100	in € thousand	1,445	530	1,849
Kiepe Electric d.o.o., Niš/Serbia[10)]	100	in € thousand	(52)	(148)	170
Kiepe Electric S.r.l., Cernusco sul Navigilio/Italy[8), 10)]	100	in € thousand	291	12	1,066
Knorr-Bremse Guo Tong (Guangzhou) Railway Transportation Equipment Co., Ltd., Guangzhou/China[11)]	100	in € thousand	0	0	0
Knorr-Bremse Investment UK Ltd., Chippenham/United Kingdom[8), 10)]	100	in € thousand	25,858	11	25,858
Metco Technical Consulting AG, Zug/Switzerland[10)]	100	in € thousand	220	48	930
RBL-Technologie Ltd., Naberezhnye Chelny/Russia[9), 10)]	100	in € thousand	73	79	206
SCI pour l'Industrie, Pau/France[9), 10)]	100	in € thousand	93	0	93
Sichuan Knorr-Bremse Guo Tong Railway Transportation Equipment Co., Ltd., Chengdu/China[10)]	100	in € thousand	(1)	(1)	6

5. Associated companies and other investments not valued according to the equity method	Share of capital in %	Currency and unit	Equity	Income	Total assets
Haldex AB, Landskrona/Sweden	10.2	in € thousand	147,122	472	422,412
IFB Institut für Bahntechnik GmbH, Berlin/Germany[8) 10)]	6.7	in € thousand	2,102	188	3,737
MORCAR Grundstücksgesellschaft mbH & Co. oHG, Munich/Germany (unres. liab. shareholder is Knorr-Bremse Beteiligungsgesellschaft mbH, Munich/Germany)[10)]	5	in € thousand	763	5,908	18,231
Shenzhen SF-Trailernet Technology Co., Ltd., Shenzhen/China[10)]	16.7	in € thousand	443	(527)	800
Westinghouse Platform Screen Doors (Guangzhou) Ltd., Guangzhou/China[10)]	15	in € thousand	(6,107)	(1,767)	19,908

1) Profit and loss transfer agreement
2) The companies are included in a Group division of Bendix Commercial Vehicle Systems LLC.
3) The companies are included in a Group division of Bendix Spicer Foundation LLC.
4) The companies are included in a Group division of Selectron Systems AG, Lyss/Switzerland.
5) The companies were consolidated for the first time in 2019. The statements of income were taken into consideration proportionally for the current year.
6) The Company was consolidated at equity
7) Control based on enforceability of management decisions and control of operations
8) Values refer to the 2018 fiscal year
9) Values refer to the 2017 fiscal year
10) Values determined in accordance with national GAAP
11) No annual financial statements available yet
12) Company does not have material influence on the consolidated financial statements

Unless otherwise stated, the above amounts to equity, income and total assets are calculated in accordance with IFRS.

I. SEGMENT INFORMATION

I.1. Basics of segmentation

Table → 3.96, 3.97, 3.98

The Group has two reportable segments, which are the Group's divisions, as described below. The divisions offer different products and services and are managed separately as they require different technology and marketing strategies.

The following summary describes the reportable segments of the Group.

In the Rail Vehicle Systems (RVS) segment, the Company plays a key role in the development, production, sales and service of modern braking systems and related subsystems for rail-vehicles. In addition, the product fields of platform screen doors,

3.96 INFORMATION ON REPORTABLE SEGMENTS

in € thousand	Reportable segments: Rail Vehicle Systems	Reportable segments: Commercial Vehicle Systems	Reportable segments: Total	Reconciliation to IFRS: Rail Vehicle Systems	Reconciliation to IFRS: Commercial Vehicle Systems	Other segments and consolidation	Group
							12/31/2019
External revenues	3,704,620	3,294,964	6,999,584	(49,135)	(14,722)	803	6,936,530
Inter segment revenues	19,824	17,935	37,759	(19,232)	(17,939)	(588)	–
Segment revenues	**3,724,444**	**3,312,899**	**7,037,343**	**(68,367)**	**(32,661)**	**215**	**6,936,530**
EBITDA*)**)	756,310	456,452	1,212,762	58,606	47,253	10,067	1,328,687
Depreciation and amortization	(92,813)	(114,685)	(207,498)	(25,419)	(15,209)	(17,654)	(265,780)
EBIT*)	663,497	341,767	1,005,264	33,187	32,044	(7,587)	1,062,908
Interest income	10,026	2,619	12,645	4,274	3,696	6,983	27,598
Interest expense	(14,828)	(5,448)	(20,276)	(11,509)	(5,536)	(13,737)	(51,059)
Other financial result	(70,659)	(773)	(71,432)	(24,356)	(17,987)	(18,556)	(132,330)
thereof: Share of profit or loss from companies accounted for using the equity method	(2,377)	(773)	(3,150)	246	0	416	(2,489)
EBT	**588,036**	**338,165**	**926,201**	**1,596**	**12,216**	**(32,896)**	**907,116**
Net Working Capital	**546,614**	**265,336**	**811,950**	**(5,750)**	**10,090**	**(7,193)**	**809,097**
							12/31/2018
External revenues	3,529,385	3,171,013	6,700,398	(69,474)	(11,597)	(3,527)	6,615,800
Inter segment revenues	16,993	12,379	29,372	(15,049)	(11,681)	(2,641)	–
Segment revenues	**3,546,378**	**3,183,392**	**6,729,770**	**(84,523)**	**(23,279)**	**(6,168)**	**6,615,800**
EBITDA*)	642,360	488,212	1,130,573	50,715	28,200	(31,445)	1,178,042
Depreciation and amortization	(113,754)	(87,018)	(200,772)	5,887	5,031	(15,716)	(205,570)
EBIT*)	528,606	401,194	929,801	56,601	33,231	(47,161)	972,472
Interest income	11,445	1,699	13,144	1,972	3,465	1,546	20,128
Interest expense	(14,176)	(5,504)	(19,680)	(9,973)	(11,222)	(13,504)	(54,379)
Other financial result	(2)	–	(2)	(29,628)	(3,922)	(29,163)	(62,715)
thereof: Share of profit or loss from companies accounted for using the equity method	1	(943)	(942)	–	914	(3,564)	(3,591)
EBT	**525,873**	**397,389**	**923,262**	**18,973**	**21,552**	**(88,281)**	**875,506**
Net Working Capital	**563,988**	**255,182**	**819,170**	**53,062**	**6,385**	**(16,694)**	**861,923**

*) Not explicitly presented in management reporting to CODM

**) Income from the sale and leaseback transaction at the Munich site is – according to HGB – reported as a single composite transaction in EBITDA, although it also includes impairment losses on non-current assets.

boarding systems, power supply systems, driver assistance systems, air conditioning systems, control technology, friction material, simulators and control components are served.

The Commercial Vehicle Systems (CVS) segment is also characterized by the development, production, sales and service of modern braking systems. In addition to the complete braking system including driver assistance systems, the product range of the Commercial Vehicle Systems also includes steering systems, torsional vibration dampers, powertrain-related solutions and transmission controls for improving efficiency and saving fuel.

Other business areas mainly include leasing, holding and logistics activities as well as media and IT services.

For each segment, the Group's management board reviews internal management reports on a monthly basis.

Transfer prices between the segments are determined on an arm's length basis.

I.2. Information on reportable segments

Information regarding the results of each reportable segment is given below. The profit (loss) of a segment before tax is used to measure profitability, as the management board believes that this is the most relevant information for assessing the results of the individual segments in relation to other industry companies.

Reporting to the management board as of December 31, 2019 was based on HGB figures. Revenues within the segment are presented on a preconsolidated basis. Internal reporting does not contain any segment-specific information on assets and liabilities, except Net Working Capital which is defined as

3.97 RECONCILIATION OF REVENUES

	2019	2018
Revenues of reportable segments (German GAAP)	7,037,343	6,729,770
Revenues of other segments (German GAAP)	182,668	171,890
Intersegment consolidation and other effects	(188,225)	(153,460)
Adjustment over-time-recognition	(43,888)	(68,101)
Adjustment based on disclosure differences due to implementation of BilRuG	(51,368)	(64,299)
Consolidated revenue	**6,936,530**	**6,615,800**

3.98 RECONCILIATION OF EARNINGS BEFORE TAX

	2019	2018
Earnings before tax of reportable segments (German GAAP)	926,201	923,262
Earnings before tax of other segments (German GAAP)	1,087,866	563,406
Inter-segment consolidation and other effects	(1,125,261)	(630,443)
Adjustment due to amortizations not recognized on goodwill	24,811	47,246
Adjustment over-time-recognition	(16,326)	(7,893)
Adjustment due to capitalization and amortization of development projects	55,536	36,593
Adjustment due to valuation differences in pension liabilities	17,634	22,072
Adjustment inventory valuation	(161)	(648)
Adjustment provisions	(6,427)	(32,358)
Impairment of disposal groups	–	(19,410)
Disposal from consolidated group	(16,384)	–
Hedging (unrealized profits / losses)	20,097	(32,797)
Dividend to minority shareholder Bosch	(21,617)	–
Sale-and-lease-back Munich site north sector	(21,715)	–
Additional depreciation and amortization due to purchase price allocations	(12,427)	(15,312)
Adjustment based on IFRS 16	(6,984)	757
Adjustments based on Equity instruments recognized directly in equity	8,302	23,591
Other adjustments based on differences between German GAAP and IFRS	(6,029)	(2,560)
Earnings from continued operations, consolidated and before taxes	**907,116**	**875,506**

the sum of inventories, trade account receivables and contract assets, less trade accounts payable and contract assets.

I.3. Geographical information

The following table shows the Group's sales revenues and non-current assets, broken down by country of domicile of the group Company. Table → 3.99, 3.100

Non-current assets consist of property, plant and equipment, goodwill and other intangible assets.

Neither division is significantly dependent on external third parties. Neither in the year under review nor in the previous years did the Company generate more than 10% of its sales with one customer.

Please refer to Chapter F.2. for details on goodwill.

3.99 REVENUES BY REGION

	2019	2018
Europe/Africa	**3,198,028**	**3,261,412**
thereof Germany	1,613,396	1,655,737
North America	**1,642,454**	**1,469,277**
thereof USA	1,628,160	1,451,700
South America	**104,718**	**102,675**
Asia-Pacific	**1,991,330**	**1,782,435**
thereof China	1,209,429	1,085,081
	6,936,530	**6,615,800**

3.100 NON-CURRENT ASSETS BY REGION

	2019	2018
Europe/Africa	**1,164,712**	**1,034,070**
thereof Germany	665,451	655,176
North America	**358,519**	**257,893**
thereof USA	350,149	249,820
South America	**34,582**	**33,932**
Asia-Pacific	**372,444**	**178,557**
thereof China	126,972	84,525
	1,930,256	**1,504,452**
Goodwill	**381,137**	**305,892**
thereof Rail Vehicle Systems (Global)	189,343	184,538
thereof Commercial Vehicle Systems (Global)	191,793	121,354
	2,311,392	**1,810,344**

J. GROUP ASSOCIATION AND DISCLOSURE

Knorr-Bremse AG is included in the consolidated financial statements of Stella Vermögensverwaltungs-GmbH, Grünwald/Germany as of December 31, 2019 (largest range). The consolidated financial statements are prepared according to the regulations of the International Financial Reporting Standards (IFRS) as applicable in the EU and are published in the electronic Federal Gazette.

The consolidated financial statements are published in the Federal Gazette and the commercial register of the District court of Munich/Germany. The subsidiaries Hasse & Wrede GmbH, Berlin/Germany, Kiepe Electric GmbH, Düsseldorf/Germany, Knorr-Bremse Services GmbH, Munich/Germany, Knorr-Bremse Systeme für Schienenfahrzeuge GmbH, Munich/Germany and KB Media GmbH Marketing und Werbung, Munich/Germany, are freed according to Section 264 (3) HGB from the obligation to prepare explanatory notes, a management report and from the auditing obligation and obligation to disclosure under Section 325 HGB.

K. COMPLIANCE DECLARATION TO THE GERMAN CORPORATE GOVERNANCE CODE

The German Corporate Governance Codex includes regulations and recommendations for responsible management and controlling of publicly traded companies. The management board and Supervisory Board of publicly traded joint stock companies are obligated under Section 161 AktG to declare once annually that the regulations of the German Corporate Governance Codex governmental commission have been fulfilled and will be fulfilled, or which recommendations have not been or are not applied. In the latter case, justifications must be provided for why the respective recommendation was not and will not be fulfilled.

The declaration of the management board and Supervisory Board of Knorr-Bremse AG to the German Corporate Governance Codex in accordance with Section 161 AktG is available on our website (https://ir.knorr-bremse.com/websites/knorrbremse_ir/German/7000/corporate-governance.html).

Munich, March 31, 2020

Knorr-Bremse AG

Management Board

BERND EULITZ RALPH HEUWING DR. PETER LAIER DR. JÜRGEN WILDER

Responsibility Statement

To the best of our knowledge, and in accordance with the applicable reporting principles, the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and profit or loss of the Group, and the Group management report includes a fair view of the development and performance of the business and the position of the Group, together with a description of the material opportunities and risks associated with the expected development of the Group.

Munich, March 31, 2020

Knorr-Bremse AG

Management Board

BERND EULITZ RALPH HEUWING DR. PETER LAIER DR. JÜRGEN WILDER

Based on the results of our audit, we have issued the following unqualified audit opinion:

Independent Auditor's Report

To Knorr-Bremse Aktiengesellschaft, Munich

REPORT ON THE AUDIT OF THE CONSOLIDATED FINANCIAL STATEMENTS AND OF THE GROUP MANAGEMENT REPORT

Opinions

We have audited the consolidated financial statements of Knorr-Bremse Aktiengesellschaft, Munich, and its subsidiaries (the Group), which comprise the consolidated balance sheet as at 31 December 2019, the consolidated statement of income, the consolidated statement of comprehensive income, the consolidated statement of changes in equity and the consolidated statement of cash flows for the fiscal ncial year from 1 January to 31 December 2019, and notes to the consolidated financial statements, including a summary of significant accounting policies. In addition, we have audited the combined group management report (hereinafter: 'group management report') of Knorr-Bremse Aktiengesellschaft for the fiscal year from 1 January to 31 December 2019. In accordance with German legal requirements, we have not audited the content of those components of the group management report specified in the "Other Information" section of our auditor's report.

The group management report contains cross-references that are not required by law and which are marked as unaudited. In accordance with German legal requirements, we have not audited the cross-references and the information to which the cross-references refer.

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

- the accompanying consolidated financial statements comply, in all material respects, with the IFRSs as adopted by the EU, and the additional requirements of German commercial law pursuant to Section 315e (1) HGB [Handelsgesetzbuch: German Commercial Code] and, in compliance with these requirements, give a true and fair view of the assets, liabilities, and financial position of the Group as at 31 December 2019, and of its financial performance for the fiscal year from 1 January to 31 December 2019, and

- the accompanying group management report as a whole provides an appropriate view 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 appropriately presents the opportunities and risks of future development. Our opinion on the group management report does not cover the content of those components of the group management report specified in the "Other Information" section of the auditor's report. The group management report contains cross-references that are not required by law and which are marked as unaudited. Our audit opinion does not extend to the cross-references and the information to which the cross-references refer.

Pursuant to Section 322 (3) sentence 1 HGB, we declare that our audit has not led to any reservations relating to the legal compliance of the consolidated financial statements and of the group management report.

Basis for the Opinions

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

Key Audit Matters in the Audit of the Consolidated Financial Statements

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

Revenue recognition in project business in accordance with IFRS 15

Please refer to the disclosures in the notes to the consolidated financial statements, Sections "B. Accounting standards" and "D. Notes to the accounting and measurement methods (subsection D.1. Revenue)" for more information on the accounting policies applied.

Further explanatory notes can be found in Section "E.1. Revenue" in the notes to the consolidated financial statements.

The Financial Statement Risk

The Group's revenue amounted to EUR 6,937 million in fiscal year 2019. Of this, EUR 3,656 million are reported under the Rail Vehicles segment.

A significant part of revenue from the Rail Vehicles segment in the amount of EUR 1,218 million is recognised over time according to IFRS 15 and relates to the project business in the OE area of the segment. In this business, agreements on the design, production and supply of braking systems with a precisely defined functionality for a specific number of trains or locomotives are considered as an inseparable performance obligation. This is because the development services cannot be separated from other services, meaning that they form a unit. Comparable structures are found in projects with door systems and air conditioning systems.

As these orders from the project business involve customer-specific orders, an asset arises from the Group's performance that does not result in an alternative use for the Group. The Group has an enforceable right to payment for services already rendered, including an appropriate margin. Pursuant to IFRS 15, revenue is thus recognised over time based on stage of completion. The stage of completion is determined based on the costs incurred as at the reporting date as a proportion of the expected total costs of the respective project.

The calculation of total costs and the cut-off of costs incurred require judgement. There is the risk for the financial statements that the stage of completion is incorrectly assessed and thus the revenue and earnings arising from this performance are allocated to the wrong fiscal year.

Our Audit Approach

In order to assess whether revenue is recognised on an accrual basis, we assessed the design and setup of internal controls relating to revenue recognition, the calculation of costs already incurred and the expected total costs, and, in particular, relating to the determination of the stage of completion.

Due to the complexity of IFRS 15, a focus for our audit was defined as the evaluation of management's interpretation of the criteria for the recognition of revenue over time. To this end, we assessed the instructions of the group-wide accounting policy. Using a risk-based selection of contracts, we assessed the proper implementation of the accounting policy. We verified the methodology for calculating costs already incurred in respect of the types of costs included. We examined the process for properly recognising costs incurred on an accrual basis.

We examined the process for calculating the expected total costs in respect of the costs included and the indication-based updating of the planning of expected total costs based on a risk-oriented selection of projects. In this regard, we discussed the estimate of total costs for selected projects with the respective project managers. We compared the planned total revenue with the relevant contract documentation.

Further, we computationally verified the stage of completion determined according to the ratio of costs actually incurred to the expected total costs.

Our Observations

The approach taken by the Knorr-Bremse Group for revenue recognition cut-off in terms of properly estimating the stage of completion in the Rail Vehicles segment for revenue recognised over time according to IFRS 15 leads to appropriate results. The assumptions underlying revenue recognition are reasonable.

Presentation of the sale and lease-back transaction with a related party
Please refer to the disclosures in the notes to the consolidated financial statements, Sections "B. Accounting standards" and "D. Notes to the accounting and measurement methods (subsection D.11. Leases)" for more information on the accounting policies applied.

Further comments can be found in the notes to the consolidated financial statements under "F.3. Property, plant and equipment", "F.4. Trade accounts receivable and other assets", "G.1. Cash flow from operating activities", "G.2. Cash flow from investing activities", "H.5. Relationships with related parties", "H.7. Other financial obligations" and "H.11. Leases".

The Financial Statement Risk

In December 2019 the Group sold land and existing buildings as well as buildings under construction to OPES Business Park Am Oberwiesenfeld GmbH, Grünwald (hereinafter "OPES Business Park"), as part of a sale and lease-back transaction and immediately leased back the land and the existing buildings. Once completed and transferred to OPES Business Park, the buildings under construction will also be immediately leased back. The deal constitutes a single legal transaction and the purchase price amounted to EUR 253.2 million. The term of the leases is between ten and fifteen years.

OPES Business Park is a related party from the Group's perspective. The deal thus constitutes a transaction with related parties. For such transactions, a distinction must be made between arm's length conditions and those at the terms of shareholders so as to present a transaction between shareholders if necessary. This distinction requires judgement.

The transaction resulted in right-of-use assets of EUR 49.9 million, lease liabilities of EUR 88.1 million and a positive effect on operating earnings of EUR 45.1 million as at 31 December 2019 for the Group.

Measurement and presentation of the transaction depend on a series of assumptions requiring judgement. Moreover, accounting according to the rules of IFRS 16 is complex.

There is a risk for the consolidated financial statements that the transaction results in improper operating earnings and that the disclosures according to IAS 24 for this transaction are not appropriate.

Our Audit Approach

To assess the appropriateness of the contractual agreements and the accounting presentation concerning the transaction, we mapped the Company's organisational structure. We assessed the design and the setup of internal controls regarding the approval and presentation of the transaction according to the IFRS rules. We inspected the approvals of the Executive Board and of the Supervisory Board.

We assessed whether the transaction was a sale and lease-back transaction by evaluating the criteria for a sale according to IFRS 15. We then examined how the transaction was presented according to the rules of IFRS 16.

Furthermore, we focused on assessing the appropriateness of the purchase price and the lease payments. The Company had engaged an independent expert to evaluate the market conformity of the legal transaction. With the involvement of our real estate specialists, we assessed the competence, professional skills and impartiality of the independent expert. To review the independent expert's purchase price confirmation, we also assessed the key assumptions for measurement and the computational plausibility of the measurements with our specialists.

We then assessed whether the disclosures in the notes according to IAS 24 concerning this transaction were appropriate.

Our Observations

The assumptions underlying the accounting and the measurement approach are appropriate.

The disclosures in the notes on the transaction according to IAS 24 are appropriate.

Other Information

Management and/or the Supervisory Board are/is responsible for the other information. The other information comprises the following components of the group management report, whose content was not audited:

- the corporate governance statement referred to in the group management report,
- the Group's separate non-financial report, which is referred to in the group management report, and
- information extraneous to management reports and marked as unaudited.

The other information also includes the remaining parts of the annual report.

The other information does not include the consolidated financial statements, the group management report information audited for content and our auditor's report thereon.

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

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

- is materially inconsistent with the consolidated financial statements, with the group management report information audited for content or our knowledge obtained in the audit, or
- otherwise appears to be materially misstated.

If, based on the work we have performed on the other information that we obtained prior to the date of this auditor’s report, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Responsibilities of Management and the Supervisory Board for the Consolidated Financial Statements and the Group Management Report

Management is responsible for the preparation of the consolidated financial statements that comply, in all material respects, with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Section 315e (1) HGB and that the consolidated financial statements, in compliance with these requirements, give a true and fair view of the assets, liabilities, financial position, and financial performance of the Group. In addition, management is responsible for such internal control as they have determined necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group’s ability to continue as a going concern. They also have the responsibility for disclosing, as applicable, matters related to going concern. In addition, they are responsible for financial reporting based on the going concern basis of accounting unless there is an intention to liquidate the Group or to cease operations, or there is no realistic alternative but to do so.

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

The Supervisory Board is responsible for overseeing the Group’s financial reporting process for the preparation of the consolidated financial statements and of the group management report.

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

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

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Section 317 HGB and the EU Audit Regulation and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW) will always detect a material misstatement. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements and this group management report.

We exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements and of the group management report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinions. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal controls.
- Obtain an understanding of internal control relevant to the audit of the consolidated financial statements and of arrangements and measures (systems) relevant to the audit of the group management report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of these systems.
- Evaluate the appropriateness of accounting policies used by management and the reasonableness of estimates made by management and related disclosures.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in the consolidated financial statements and in the group management report or, if such disclosures are inadequate, to modify our respective opinions. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to be able to continue as a going concern.

- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements present the underlying transactions and events in a manner that the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Group in compliance with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Section 315e (1) HGB.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express opinions on the consolidated financial statements and on the group management report. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our opinions.
- Evaluate the consistency of the group management report with the consolidated financial statements, its conformity with [German] law, and the view of the Group's position it provides.
- Perform audit procedures on the prospective information presented by management in the group management report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by management as a basis for the prospective information, and evaluate the proper derivation of the prospective information from these assumptions. We do not express a separate opinion on the prospective information and on the assumptions used as a basis. There is a substantial unavoidable risk that future events will differ materially from the prospective information.

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

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

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

Other Legal and Regulatory Requirements

Further Information pursuant to Article 10 of the EU Audit Regulation

We were elected as group auditor at the annual general meeting on 18 June 2019. We were engaged by the Audit Committee on 27 January 2020. We have been the auditor of Knorr-Bremse Aktiengesellschaft, as a publicly traded company, without interruption since fiscal year 2018.

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

In fiscal year 2019, we provided tax advisory services, which were approved by the Audit Committee. This concerned VAT advisory services for an indirect subsidiary that did not have a direct or material effect on the audited financial statements.

German Public Auditor Responsible for the Engagement

The German Public Auditor responsible for the engagement is Johannes Hanshen.

Munich, April 21, 2020

KPMG AG
Wirtschaftsprüfungsgesellschaft

[signature] Andrejewski
Wirtschaftsprüfer
[German Public Auditor]

[signature] Hanshen
Wirtschaftsprüfer
[German Public Auditor]

Glossary

Technology and Products

A

ABS (Anti-lock braking system)
When a motor vehicle is braking, ABS prevents the wheels from locking up (ceasing to rotate) by reducing the braking pressure, thus improving steering control and directional stability.

ADAS (Advanced driver assistance systems)
Electronic auxiliary systems in vehicles that assist the driver by enhancing road safety in particular, but also by helping to improve driving comfort and economy. Assistance systems include, for example: anti-lock braking systems (ABS), traction control systems (TCS), electronic stability programs (ESP).

AEBS (Automatic emergency braking system)
A predictive driver assistance system for motor vehicles that warns the driver in case of danger, facilitates emergency braking, and/or brakes the vehicle automatically to avoid colliding with an obstacle or to reduce the speed of the collision.

AHPS (Advanced Hybrid Power Steering)
Smart hydraulic steering is an electronically actuated steering system intended for commercial vehicles. Especially developed to meet the requirements of automated driving, AHPS enhances safety and comfort by means of a torque overlay function, and is capable of interfacing with modern driver assistance systems.

ASR (see TCS)

C

CVS (Commercial Vehicle Systems)
Abbreviation for Knorr-Bremse's Commercial Vehicle Systems division.

E

Eco-design
Eco-design takes account of the sustainability of a product over its entire life cycle, starting with the selection of suitable raw materials and other components. Eco-design uses resource-saving production methods and aims for energy-efficient utilization (including optimized maintenance cycles), including options for remanufacturing and eco-friendly disposal.

eCUBATOR
Newly established development unit. eCUBATOR started work in 2020, focusing on the strategic evaluation and early-stage development of Knorr-Bremse's e-mobility portfolio through the application of agile development methods.

ESP (Electronic stability program)
ESP describes an electronically controlled driver assistance system for motor vehicles that counteracts potential skidding by systematically braking individual wheels.

G

GSBC (Global Scalable Brake Control system)
This integrated brake control system is easier to install in a vehicle with multiple interacting smart systems, thus reducing the development and assembly work required by the vehicle manufacturer.

H

HAD (Highly automated driving)
HAD represents an intermediate stage between assisted driving – where driver assistance systems help the driver to drive – and autonomous driving, where the vehicle drives itself without the driver's intervention.

I

iCom
This digital platform for operators offers driver assistance systems, condition-based maintenance, methods for measuring and calculating energy consumption, optimized service processes, and recommendations for drivers. It brings greater transparency to real-time vehicle operation, and is capable of identifying potential problems at an early stage. Consequently, iCOM increases vehicle availability (uptime) and reduces operating costs.

In-Motion Charging (IMC)
Battery-powered buses equipped with Kiepe In-Motion Charging are recharged while they are traveling on sections of routes equipped with overhead contact lines, described as "Charging Roads". This ensures uninterrupted 24-hour operation – enhancing efficiency, conserving resources and improving availability.

K

KPS (Knorr-Bremse Production System)
The Knorr-Bremse Production System is the Company's proven platform for delivering Group-wide efficiency, organization, quality, and continuous improvement, always aiming for perfect workflow organization and execution.

O

OEM (Original equipment manufacturer)
In the commercial vehicle industry, the term "OEM" refers to a component or systems manufacturer (supplier company) that supplies products used to manufacture vehicles.

P

Predictive maintenance
In the predictive maintenance of rail vehicles, the status of key components and control units is continuously monitored and updated online. This makes it possible to identify vital maintenance requirements at an early stage and schedule necessary repairs accordingly. This in turn allows workshop services to be better organized, enhances vehicle availability, and reduces operating costs.

ProFleet Connect
This modular telematics system for commercial vehicles optimizes fleet management, thereby enhancing efficiency, reducing costs and improving driver training courses.

R

Redundant systems
Safety systems are designed as multichannel systems so that if one component fails, other channels ensure that its function is performed regardless of the point of failure. If a braking system or component fails, for example, the redundant system or systems should still bring the vehicle safely to a standstill.

Remanufacturing
Also referred to as overhaul(ing). Industrial reprocessing of used or end-of-life products.

Reproducible braking distance (RBD)
Our reproducible braking distance (RBD) solutions aim to bring trains to a reliable, pinpoint-precise standstill even under adverse conditions through the use of pioneering brake technologies. RBD makes it possible to reduce train sequencing times and increase train frequency, thereby optimizing the utilization of existing rail infrastructure.

RVS (Rail Vehicle Systems)
Abbreviation for Knorr-Bremse's Rail Vehicle Systems division.

T

TCMS (Train Control & Management System)
TCMS is a central, modular vehicle control unit that integrates and communicates with the hardware and software in various train subsystems. The TCMS uses a dedicated control and monitoring architecture to centralize all information on the operating status of "smart" train components. Status data collected from smart subsystems is measured, processed and converted into command signals.

TCS (Traction control system; see also ASR)
Traction control prevents a vehicle's wheels from spinning when tackling difficult surfaces such as ice, snow or loose chippings or gravel, so that the vehicle does not skid sideways.

Truck Motion Controller
This central ECU controls individual actuators in the vehicle, and is an important prerequisite for automated driving.

Finance

A

Aftermarket revenues
Aftermarket sales include all sales revenues from products and services (e.g. spare parts, overhauls) that are not related to a new original equipment (OE) product.

B

Book-to-bill ratio
The book-to-bill ratio describes the ratio of incoming orders to revenues.

C

Capital employed
Sum total of property, plant and equipment, intangible assets and net working capital.

Capital expenditure (CapEx) – investments
Capital expenditure is defined as additions to property, plant and equipment and intangible assets (before acquisitions and IFRS 16), excluding goodwill and adjusted for the additions to fixed assets accrued in the fiscal year in the context of possible sale-and-lease-back transactions.

Cash conversion ratio
The cash conversion ratio is defined as free cash flow divided by net income for the year.

Cash flow
The cash flow represents the change in liquid funds over the reporting period, hence provides useful information on a company's profitability and financial strength.

Cash pooling system
Intra-Group liquidity management system. The aim is to pool all cash and cash equivalents in Knorr-Bremse AG and the respective holding companies in Asia and North America.

Compliance
Compliance is an integral part of corporate governance. It describes the adherence to laws, guidelines and voluntary codes within the Company.

Cost of materials ratio
The cost of materials ratio is calculated as the cost of materials relative to sales revenues.

D

Days' sales outstanding
Days' sales outstanding refers to the average number of days that elapse between the invoicing date and the settlement date (receipt of payment).

Discounted cash flow method
A measurement (valuation) method whereby future cash flows are discounted to their present value at the time of sale.

E

EBIT
EBIT (earnings before interest and taxes), also known as the operating result, is defined as income (loss) before interest, other financial result and income taxes. Thus EBIT does not include interest income and expenses or other financial result and taxes on income.

EBIT margin (see also Operating EBIT margin)
Ratio of earnings before interest, other financial result and income taxes to sales revenues.

EBITDA
EBITDA (earnings before interest, taxes, depreciation and amortization) is defined as the operating result (EBIT) before depreciation, amortization and impairments.

EBITDA margin (see also Operating EBITDA margin)
Ratio of operating result (EBIT) before depreciation, amortization and impairment to sales revenues.

Economic Value Added (EVA®)
Economic Value Added is determined by deducting capital expenditure (defined as operating assets multiplied by weighted average capital costs of 8%) from the Knorr-Bremse Group's net operating profit after taxes (NOPAT).

Equity ratio
The equity ratio is calculated as the ratio of equity to total capital.

F

Factoring
Method of financing sales whereby Knorr-Bremse sells its trade receivables to a financing institution.

Financial covenants
Financial covenants are contractually binding assurances given by the borrower to the lender concerning certain key indicators such as equity, debt, earnings or liquidity. Adherence to these indicators is monitored at regular intervals.

Free cash flow
Free cash flow is calculated by deducting payments for investments in property, plant and equipment and intangible assets from the cash flow from operating activities, and by adding proceeds from the sale of property, plant and equipment and intangible assets to the cash flow from operating activities.

Free float
The proportion of shares in a stock corporation that is not in fixed ownership. According to Deutsche Börse AG's definition, blocks of shares of less than five percent belong to the free float.

Full-time equivalent (FTE)
The number of employees is reported in FTE. FTE represents the workload associated with a job and indicates whether the job is full-time or part-time. Only two values are possible: 0.5 FTE (less than 60% of available working hours) or 1.0 FTE (more than 60% of available working hours).

G

GCGC
The German Corporate Governance Code (GCGC) is a list of requirements imposed on German companies by the Government Commission on the German Corporate Governance Code

Gearing (debt-equity ratio)
Indicates the ratio of net financial debt to equity.

German Accounting Directive Implementation Act (BilRUG)
BilRUG defines a more systematic approach to accounting, especially in terms of items reported in the Notes to the financial statements ("think small first"). Furthermore, statutory criteria required under the German Commercial Code (HGB) are adjusted in line with the national legislator's decision to apply maximum limits to implementation of these criteria.

H

Hedge accounting
Hedge accounting refers to the accounting treatment of a hedging relationship between two or more financial derivatives. In accordance with general IFRS accounting rules, a derivative is measured at fair value. If, on the other hand, a derivative (or components of a derivative) is included in hedge accounting as a cash flow hedging instrument, the effective changes are recognized in other comprehensive income (OCI) and transferred to the hedging reserve on a cumulative basis. Within the Group, non-designated portions of hedging instruments – the forward components – are treated as hedging costs. They are transferred to the cost-hedging reserve without affecting income.

I

IFRS
The International Financial Reporting Standards (IFRS) are international accounting standards for companies issued by the International Accounting Standards Board (IASB). They are intended to regulate the preparation of annual and consolidated financial statements so that the latter are internationally comparable. The Company's consolidated financial statements were prepared in accordance with IFRS as adopted by the European Union (EU).

Incentive / Long-term incentive / Short-term incentive
Short-term and long-term incentives are performance-related remuneration components. The STI amount to be paid out depends on the attainment of certain financial targets set by the Supervisory Board for the relevant fiscal year. The LTI is awarded on the basis of a performance cash plan and allocated in annual tranches. Each tranche has a three-year term. The final payment is based on the EVA® achieved by the Knorr-Bremse Group in the second year following the respective grant year, compared with the EVA® achieved in the fiscal year preceding the grant year.

Incoming orders
Incoming orders are defined as all orders for a specific period. These purchase orders are reported as incoming orders when legally binding documents exist that commit the Company to deliver a certain quantity of goods or services within a certain timeframe at a certain price.

Inventory turnover rate
The inventory turnover rate indicates how often inventories are turned over and is determined by dividing annualized sales revenues by inventory stock.

M

Materials cost ratio (see Cost of materials ratio)

N

Net cash balance/Net debt
This is the result of offsetting (netting) cash and cash equivalents against bank loans, bonds, notes and leasing liabilities.

Net operating profit after taxes (NOPAT)
NOPAT is defined as EBIT less taxes on income.

Net working capital (NWC) (see also Working capital)
Net working capital is defined as the balance of inventories, trade receivables, contract assets, trade payables and contract liabilities. Net working capital in days' sales is calculated by dividing net working capital by annualized revenues, multiplied by a factor of 360.

O

Operating EBIT margin (see also EBIT margin)
To determine operating EBIT margins, the effects of restructuring measures and one-off effects associated with transactions are adjusted against reported revenue and earnings figures.

Operating EBITDA margin (see also EBITDA margin)
To determine operating EBITDA margins, the effects of restructuring measures and one-off effects associated with transactions are adjusted against reported revenue and earnings figures.

Order backlog reach
The order backlog (work in progress) is calculated in months by dividing the order book by annualized revenues multiplied by a factor of 12.

Order book
The order book is defined as all incoming orders that have not yet been delivered, rejected or cancelled.

Over-time accounting
Method of accounting for long-term construction contracts in terms of revenue recognition. This is carried out over the contractual period based on the respective project's completion status as at the balance-sheet date (IFRS 15).

P

Put option
A put option is a contract that gives the buyer the right, but not the obligation, to sell an asset at a specified price and exercise date.

R

Rating
Assessment of a debtor's creditworthiness. Ratings are issued by rating agencies or banks. They assess a company's ability to meet its future interest and debt repayment obligations on schedule.

Research and development costs
Research and development costs include all costs over a financial period (including capitalized costs) that can be allocated to research into and development of new products, further development of existing products, and pure research.

Return on capital employed (ROCE)
Return on capital employed (ROCE) is defined as annualized EBIT divided by operating assets (sum total of intangible assets, net working capital and property, plant and equipment).

S

Supplier Early Payment Program (SEPP)
To help our suppliers with finance, we offer a supply chain finance program to our major suppliers. These agreements exclusively cover the application of longer payment terms. They do not have any accounting or civil-law effects that would result in the reclassification of trade payables as other classes of liability in the balance sheet.

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IMPRINT

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PRINTED BY

Printery: Eberl Print, Immenstadt, Germany
Paper: Munken Kristall

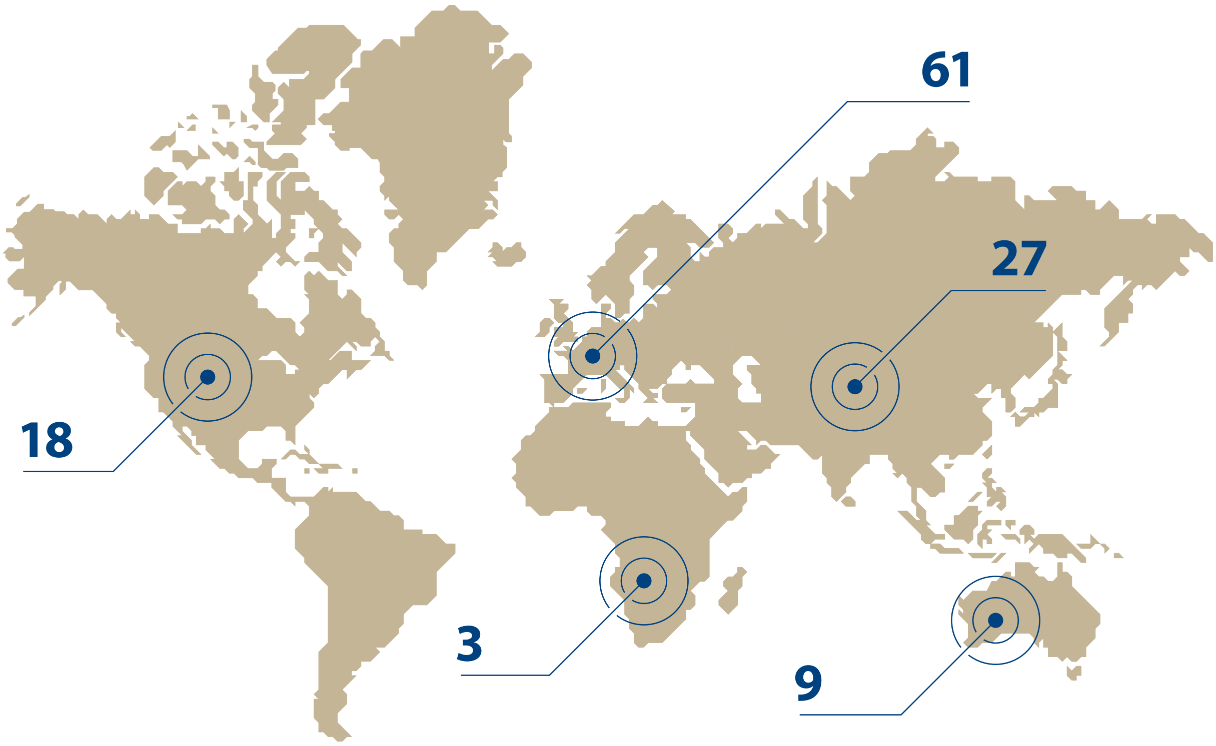
The Annual Report of Knorr-Bremse Group was published on April 23, 2020 in German and English. The German version is legally binding. The report as well as the magazine are also available online: www.Knorr-Bremse.com.

FSC www.fsc.org RECYCLED Paper made from recycled material FSC® C002727

carbon neutral natureOffice.com | DE-141-2X7JD53 print production

KNORR-BREMSE WORLDWIDE

LOCATIONS BY REGION



GLOBAL PRESENCE. LOCAL EXPERTISE.

Wherever you are, we are too. Knorr-Bremse is represented on every continent. In more than 30 countries at over 100 locations – including 70 production sites – our employees are on hand to support their customers. Because for many decades now, localization has been a core module in Knorr-Bremse's strategy. Highly qualified experts in engineering, marketing and business manage our local operations in the various markets with extensive autonomy. At the same time, Knorr-Bremse's worldwide presence is designed to ensure that, as a global partner to vehicle manufacturers and operators, we comply with all local regulations and standards in the rail and commercial vehicle sectors. This generates a substantial advantage for Knorr-Bremse and its business partners in the shape of the necessary proximity to both markets and customers.

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