Fact Book

Knorr-Bremse AG
Agenda

- Introduction
- Key Company Highlights
- Rail Vehicle Systems (RVS)
- Commercial Vehicle Systems (CVS)
- R&D Focus
- Financials
- Sustainability
- Capital Markets Summary
- Appendix
The Knorr-Bremse leadership team

**Dr. Jan Mrosik**
CEO
- 2021-present: Knorr-Bremse | CEO
- 2016-2019: Siemens AG | CEO Digital Factory Division
- 2014-2016: Siemens AG | CEO Energy Management Division
- 2011-2014: Siemens AG | CEO Smart Grid Division
- PhD in Engineering

Professional Experience: 24 years
Start at Knorr-Bremse: 01/21

**Frank Markus Weber**
CFO
- 2020-present: Knorr-Bremse | CFO
- 2016-2020: Daimler AG | Head of Corporate Development
- 2019-2020: Mercedes-Benz AG | Head of Transformation
- 2013-2016: Daimler Trucks Asia | CFO
- 2011-2013 Mitsubishi Fuso Trucks & Bus Corporation | CFO
- Diploma in Bus. Administration

Professional Experience: 24 years
Years with Knorr-Bremse: 1

**Dr. Peter Laier**
Member of the Board (CVS)
- 2016-present: Knorr-Bremse | Head of CVS
- 2014-2015: Benteler International | COO
- 2013-2014: Osram Licht | CTO
- 2000-2012: Continental | Executive Vice President
- PhD and Diploma in Mechanical Engineering

Professional Experience: 24 years
Years with Knorr-Bremse: 5

**Dr. Claudia Mayfeld**
Member of the Board (Integrity & Legal)
- 2021-present: Knorr-Bremse | Head of Integrity & Legal
- 2013-2019: RWE Pensionsfond | Member of the Executive Board
- 2016-2020: Innogy SE | Senior Vice President Group Legal & Compliance, General Counsel
- 2013-2016: RWE AG | Senior Vice President Group Legal & Compliance, General Counsel
- PhD in Accounting Principles

Professional Experience: 28 years
Start at Knorr-Bremse: 05/21
Years with Knorr-Bremse: 3

**Dr. Jürgen Wilder**
Member of the Board (RVS)
- 2018-present: Knorr-Bremse | Head of RVS
- 2015-2017: DB Cargo AG | CEO
- 2013-2015: Siemens AG | CEO Mainline Transportation Global Business Unit
- 2011-2013: Siemens AG | Head of Strategy Infrastructure and Cities Sector
- PhD in Physics

Professional Experience: 20 years
Years with Knorr-Bremse: 5

Notes: RVS - Rail Vehicle Systems; CVS - Commercial Vehicle Systems
Knorr-Bremse – One of Germany’s most successful industrial companies

2020 Key financials

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>€ 6.2bn (&gt;9% CAGR(^1) since 1989)</td>
<td></td>
</tr>
<tr>
<td>EBITDA</td>
<td>€ 1.1bn (margin 18.0%)</td>
<td></td>
</tr>
<tr>
<td>EBIT</td>
<td>€ 0.8bn (margin 13.2%)</td>
<td></td>
</tr>
<tr>
<td>R&amp;D</td>
<td>€ 396m (~6.4% of sales)</td>
<td></td>
</tr>
<tr>
<td>Aftermarket</td>
<td>~37% of sales</td>
<td></td>
</tr>
</tbody>
</table>

**BALANCED PORTFOLIO\(^2\)…**

- **RVS** 54%
- **CVS** 46%

**Earnings**

- **RVS**
  - Sales: € 3.4bn, Margin: 67% (23% Margin)
  - EBITDA: € 0.5bn, Margin: 14% (14% Margin)
- **CVS**
  - Sales: € 2.8bn, Margin: 67% (23% Margin)

**… AND DIVERSIFIED GLOBAL FOOTPRINT WITH HIGH LOCAL CONTENT**

- **Asia/Australia** 33%
- **Americas** 22%
- **Europe/Africa** 45%

Notes:

1. CAGR 1989–2019 based on German GAAP (HGB); 2020 prepared in accordance with German GAAP (HGB), 1989 – first year when consolidated accounts are available
2. Excluding consolidation/other
3. Including human resources leased staff

Source: Knorr-Bremse information
Over 30 years of consistent strong growth

1985
Management buyout by Mr. Thiele

1985-1990
Successful strategy: Globalisation, focus on RVS and CVS, growth in connected systems

1991
Dawn of the ICE era with high-speed braking systems

1995-1996
Rise of ADB technology

1999
Joint Venture with Bosch in Electronics

2000
Bendix integrates Westinghouse Air Brake company

2002
100% acquisition of Bendix in the US

2006
4 Joint Ventures in Rail formed in China

2015/18
Joint Venture with DongFeng Motor goes into operation & expansion 2018

2015/16
7 acquisitions

2016
New state-of-the-art innovation and testing centre in Munich

2017/18
Acquisition of Vossloh Kiepe, Federal Mogul Ind. Property Rights and Hitachi Automotive Systems

2010-2018
€1bn+ capex invested to future-proof manufacturing and production facilities

2019
Strategic investment in RailVision & RailNova as well as acquisition of Snyder & Sentient,

2019
Acquisition of RH. Sheppard Co., Inc. in the U.S

2020

>9% sales CAGR 1989-2020

1985 - 1990

1991

1995-1996

1999

2000

2002

2006

2015/18

2015/16

2016

2017/18

2010-2018

2019

2020

Notes: 1986-2016 based on financial statements prepared in accordance with German GAAP (HGB) and 2017-2019 based on financial statements prepared in accordance with IFRS. 1) 1989 – first year when consolidated accounts are available
Global Footprint w/ ~29k headcount: international value added structure at KB

Group: 29k  |  Rail: 16k  |  Truck: 12k  |  Others: 1k

**Americas**
- Elyria, USA ~700 employees
- Watertown, USA ~500 employees
- Acuña, MEX ~1,700 employees

**Europe**
- Liberec, CZE ~800 employees
- Berlin, DE ~1,000 employees
- Brno, CZE ~900 employees
- Budapest, HUN (F&E*) ~1,800 employees
- München, DE (F&E*) ~2,100 employees
- Aldersbach, DE ~1,000 employees
- Mödling, AUT ~600 employees
- Kecskemét, HUN ~950 employees

**Asia**
- Pune, IND ~1,000 employees
- Shiyian, CHN ~700 employees
- Qingdao, CHN ~600 employees
- Wuxi, CHN ~500 employees
- Suzhou, CHN ~1,600 employees

15 largest sites in terms of workforce size  
*Research and development sites; As of 31.12.2019  
1) incl.Africa
Corporate values

Entrepreneurship
- Knorr-Bremse regards challenges as opportunities for generating long-term, profitable growth

Passion
- We are passionate about what we do

Reliability
- Safety is the basis for everything we do – and we do not compromise on this

Responsibility
- As a globally operating company Knorr-Bremse incorporates a workforce with a wide range of cultures and strengths

Technological Excellence
- Knorr-Bremse stands for technological expertise and competence in all company divisions

Passion
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Business model of Knorr-Bremse at a glance

GLOBAL #1

- Market leader in brake systems rail (~50%)
- Market leader in brake systems truck (~42%)
- Leading supplier of other safety-critical rail and commercial vehicle systems protected by high entry barriers

MARKET OUTPERFORMANCE

Consistent outperformance of attractive end-markets driven by
- Megatrends and
- Increasing content per vehicle and aftermarket

RESILIENCE

Resilient business model, supported by
- Broad geographical and customer diversification
- High aftermarket exposure
- Strong localization

SUPERIOR FINANCIAL PROFILE

- Strong growth, profitability and cash generation with high earnings visibility
- Strong balance sheet & financing structure

INDUSTRY INNOVATOR

- Driving innovation in mobility and transportation technologies for 115 years
- Quality excellence and edge in connected systems
Global #1 – Leading supplier of safety-critical rail and commercial vehicle systems

RVS offering (2020: 54% of sales, 67% of EBITDA)

<table>
<thead>
<tr>
<th>Brake systems</th>
<th>Entrance systems</th>
<th>HVAC(^1)</th>
<th>Train Control Management Systems</th>
<th>LRV(^2) traction systems</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power electrics</strong></td>
<td><strong>Auxiliary power supply</strong></td>
<td><strong>Signaling systems</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modernisation and support</td>
<td>Modernisation and support</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CVS offering (2020: 46% of sales, 33% of EBITDA)

<table>
<thead>
<tr>
<th>Fuel efficiency</th>
<th>Brake systems, steering &amp; vehicle dynamics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine components</td>
<td>Brake control</td>
</tr>
<tr>
<td>Transmission</td>
<td>Automated driving</td>
</tr>
<tr>
<td></td>
<td>Steering systems</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Energy supply &amp; distribution</th>
<th>Connectivity</th>
<th>Electrification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aftermarket services including Alltrucks network(^3)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Our customers

Example car builders

Example operators

Notes: 2020 financials based on IFRS excluding consolidation/other; 1) HVAC – Heating, ventilation and air conditioning; 2) LRV – Light rail vehicle; 3) Joint Venture between Bosch, Knorr-Bremse and ZF providing a range of workshop services relating to the repair and maintenance of commercial vehicles across all brands; 4) OEM – Original Equipment Manufacturer

Fact Book 10
Global #1 – … protected by high barriers to entry

### Barriers to entry for RVS and CVS markets

#### Regulation / homologation
- Low volumes, high number of variants with high level of customisation
- High initial capital requirements, highly protected IP landscape and economies of scale
- Highest quality and safety requirements
- Long life-cycle with resulting customer loyalty, long gestation period for aftermarket
- Same industry leaders since creation of the industry over 100 years ago

#### Market specifics

<table>
<thead>
<tr>
<th>RVS</th>
<th>CVS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Only supplier world-wide</strong> certified for all global and local standards and norms (GOST, UIC, AAR, ARA)</td>
<td><strong>Homologation time typically 4-8 years</strong> for recent Knorr-Bremse products</td>
</tr>
<tr>
<td><strong>Vast array of product variants to homologate</strong> (e.g. &gt;100k active brake articles by Knorr-Bremse)</td>
<td><strong>One of only two suppliers</strong> able to offer harmonised products globally</td>
</tr>
<tr>
<td></td>
<td><strong>Continuously increasing</strong> safety and emission standards requirements</td>
</tr>
</tbody>
</table>

Fact Book 11
Market outperformance – Knorr-Bremse is well positioned to deliver continued growth above rail industry levels

Strong track record of industry outperformance

CAGR (2010-2019) RVS sales\(^1\) (HGB) and market

![Chart showing 5.1% growth rate vs. 2.6% market growth]

Growth drivers

**Asia Growth**
- China rail market, esp. AM
- Mass urban transport
- Expansion and upgrade of Indian rail rolling stock
- CRRC international expansion

**Outsourcing**
- Outsourcing from rail OEM’s (trend towards de-verticalisation)

**Digitisation**
- Increasing demand for connected systems and other digital solutions

**Aftermarket**
- Global rail services and aftermarket for rolling stock

- Certification capability for all global core markets
- Partner of many OEMs, operators and large installed base
- Leading control and monitoring technology
- Innovation leader of rail systems

Notes: 1) Based on German GAAP (HGB); 2) Unife: average market growth 2015-2017 and 2021-2023
Market outperformance – Strong growth in content per vehicle driven by continued market outperformance

Knorr-Bremse with strong track record of industry outperformance

CAGR (2010-2019) CVS sales\(^1\) (HGB) and market

- **5.3%**
- **1.3%**

Key future growth drivers

**Megatrends and conversion of regulatory standards**
- Global megatrends provide attractive growth opportunities
- E-mobility, autonomous driving, new emission regulations, etc.
- Disc brakes replacing drum brakes

**Content increase**
- Traffic Safety
- Fuel efficiency

**Market share gains**
- Product upgrading
- Regional expansion strategy

- Market leader in a consolidated industry with only 2 global players
- A strong technology innovator shaping the industry
- Multiple trends driving growth independent of underlying market dynamics
- Ideally positioned to win in market defining trend towards ADAS/HAD\(^4\)

Notes:
1) Based on German GAAP (HGB); 2) CAGR 2010-2019 Global Truck and Bus market excluding aftermarket and Trailer; Source: LMC Automotive Global Commercial Vehicle World Truck Query Q3 2019; 3) Addressable Truck, Bus and Trailer OE market for "Brake Systems & Vehicle Dynamics (incl. Automated Driving)", "Energy Supply & Distribution" and "Fuel Efficiency"; 4) Advanced Driver Assistance Systems/Highly Automated Driving; Source: Knorr-Bremse information; LMC Automotive for truck production rate.
Resilience – Strong business model

Strong resilience of growth and profitability

Different economic cycles
- ~50/50 split RVS and CVS (by sales)
- Different market drivers
  - short vs. long cycle
  - private vs. public investment
- High sales visibility in RVS

High aftermarket share
- ~37% total sales\(^1\)
  - 45% of RVS sales\(^1\)
  - 27% of CVS sales\(^1\)
- Large installed base

Diversified customer base
- Partner to all major local and global players

Global footprint and local content
- High level of local content in manufacturing, purchasing and R&D
- Presence in 30+ countries with 100+ sites
- ~80% of employees outside Germany
- ~15% of employees in China, catering to local market

Notes: 1) Based on IFRS in 2020
Resilience – Attractive aftermarket business with comprehensive service offering drives profitability and contains high future potential

Aftermarket is the growth and resilience backbone

<table>
<thead>
<tr>
<th>Key features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annuity-like</td>
</tr>
<tr>
<td>■ Regulated maintenance intervals</td>
</tr>
<tr>
<td>■ Leverages high installed base</td>
</tr>
<tr>
<td>■ 20-30 years long relationships</td>
</tr>
<tr>
<td>Close to the customer</td>
</tr>
<tr>
<td>■ RVS</td>
</tr>
<tr>
<td>▪ 36 service centres$^{2)}$</td>
</tr>
<tr>
<td>▪ 20 service locations at customers’ premises</td>
</tr>
<tr>
<td>■ CVS</td>
</tr>
<tr>
<td>▪ &gt;1,600 certified service partners</td>
</tr>
<tr>
<td>▪ &gt;700 Alltrucks workshops</td>
</tr>
<tr>
<td>Strong customer retention (homologation)</td>
</tr>
<tr>
<td>■ High switching costs</td>
</tr>
<tr>
<td>■ Focus on safety and quality</td>
</tr>
<tr>
<td>■ IP protection</td>
</tr>
<tr>
<td>Innovative business model</td>
</tr>
<tr>
<td>■ New connectivity-based business models</td>
</tr>
<tr>
<td>■ Preventive</td>
</tr>
<tr>
<td>■ Predictive</td>
</tr>
</tbody>
</table>

Aftermarket sales 2020 (€bn)

<table>
<thead>
<tr>
<th>Spares</th>
<th>Interchangeable parts</th>
<th>Modernisation</th>
<th>Wear parts &amp; service kits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5</td>
<td>0.8$^{1)}$</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Share of aftermarket 2020 (%)

<table>
<thead>
<tr>
<th>OE</th>
<th>AM</th>
</tr>
</thead>
<tbody>
<tr>
<td>37%</td>
<td>63%</td>
</tr>
</tbody>
</table>

Notes: 1) Total CVS aftermarket sales and independent aftermarket sales EMEA (excl. South Africa & Skach) as proxy for the global split; 2) Does not include service locations at customers’ premises;
Synergistic business – Technology and scale benefits between Rail and Commercial Vehicles

Interdependence of RVS and CVS
- Same core technologies
- Shared components and materials
- Co-located R&D centers
- Shared overhead functions

Future technology development
- Shared research centres
- ADAS\(^1\) / HAD\(^2\) technology transfer
- Condition monitoring, condition-based and predictive maintenance
- Electrification and connectivity
- Electromechanical brake systems

Differences of RVS and CVS
- Serial business (CVS) vs. project business (RVS)
- Different customer group

RVS

CVS

Electric compressors
Friction materials
Air disc brakes (ADB)

Driver assistance
Trailer control valve
Electronic air supply

Notes: 1) ADAS – Advanced driver assistance system; 2) HAD – Highly automated driving
Strong R&D secures our Technology leadership

~12,000
single patents granted and applied

Industry trends
addressing industry trends with superior technological solutions

Commerical Vehicle Systems
Traffic Safety
Emission Reduction + E-Mobility

Rail Vehicle Systems
Transport Capacity
Availability

~3,800
R&D employees

1) FTE at YE20

1) Targeted long-term R&D ratio
5 – 6 %
of revenue
Clear vision for future value creation

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

---

1) Base year FY17
We confirm our successful strategy

Targets until 2022\(^1\): organic revenue growth of 4.5-5.5% p.a. and EBITDA margin expansion by +150bps

\(^1\) Base year FY17
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<table>
<thead>
<tr>
<th></th>
<th>Market leadership</th>
<th>Global market leader → scale advantage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Technology leadership</td>
<td>Strong technology innovator shaping industry standards, return on R&amp;D spend outperforming peers</td>
</tr>
<tr>
<td>3</td>
<td>High barriers to entry</td>
<td>Safety-critical products with significant homologation barriers, RVS only supplier certified for all standards and norms globally</td>
</tr>
<tr>
<td>4</td>
<td>Strong growth profile</td>
<td>Attractive transportation and mobility end-markets, <strong>long track record of outperforming underlying markets</strong> – through both OE, AM business and abroad product portfolio</td>
</tr>
<tr>
<td>5</td>
<td>Resilience</td>
<td>Steadily growing business through customer/region/product mix, <strong>strong aftermarket</strong></td>
</tr>
<tr>
<td>6</td>
<td>Profitability</td>
<td><strong>Outstanding profit margins</strong> and track record of margin expansion and disciplined cost management</td>
</tr>
</tbody>
</table>
RVS – the leading safety critical systems supplier for rail with a track record of market outperformance

<table>
<thead>
<tr>
<th>Highlights</th>
<th>2020 key financials</th>
<th>2020 sales split</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rail brake systems supplier globally</td>
<td>€ 3.3bn sales</td>
<td>by region (€ 3.3bn)</td>
</tr>
<tr>
<td>Rail entrance systems supplier globally</td>
<td>5.1% CAGR 2010-2020</td>
<td>Europe 50%</td>
</tr>
<tr>
<td>HVAC systems supplier globally</td>
<td>€ 764m EBITDA (22.9% margin)</td>
<td>Asia /Australia 39%</td>
</tr>
<tr>
<td>Global brakes market share</td>
<td>€ 637m EBIT (19.1% margin)</td>
<td>Americas 11%</td>
</tr>
<tr>
<td>Present in 50-55% of global installed base</td>
<td>45% aftermarket share</td>
<td>by channel</td>
</tr>
<tr>
<td>c.16k employees</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: BilRUG sales allocated proportionally between OE and aftermarket; 1) RVS market share estimates for OE and aftersales without labour; 2) All active rail vehicles without freight cars with a minimum of one Knorr-Bremse system related to brakes, entrance systems and HVAC installed; 3) Total reported RVS sales growth including OE and aftermarket based on German GAAP (HGB) 2010-2016; from 2016 IFRS 4) BilRUG sales allocated proportionally between OE and aftermarket.
Deep dive into RVS braking technologies of Knorr-Bremse

Key elements of a braking system in RVS

- Brake resistor
- Vehicle control unit
- HVAC
- Switch
- HMI
- Entrance system
- Wheel slide protection valves
- Motion controller
- iCOM assist
- Track brake control
- Windscreen wiper
- Brake caliper
- Brake disc
- Intelligent air control
- Auxiliary power supply
- Brake control & wheel slide protection
- Magnetic track brake
- Sanding system
Underlying global rail market with steady and robust growth

Development of markets - Market volume Brakes, Doors, HVAC, incl. labour [€ bn, CAGR in %]¹

World

<table>
<thead>
<tr>
<th>Year</th>
<th>AM</th>
<th>OEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>'19</td>
<td>8.9</td>
<td>3.4</td>
</tr>
<tr>
<td>'20</td>
<td>8.2</td>
<td>3.3</td>
</tr>
<tr>
<td>'26</td>
<td>10.2</td>
<td>4.2</td>
</tr>
</tbody>
</table>

Europe / Africa

<table>
<thead>
<tr>
<th>Year</th>
<th>AM</th>
<th>OEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>'19</td>
<td>1.5</td>
<td>3.4</td>
</tr>
<tr>
<td>'20</td>
<td>1.3</td>
<td>3.3</td>
</tr>
<tr>
<td>'26</td>
<td>1.8</td>
<td>4.2</td>
</tr>
</tbody>
</table>

North & South America

<table>
<thead>
<tr>
<th>Year</th>
<th>AM</th>
<th>OEM</th>
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</thead>
<tbody>
<tr>
<td>'19</td>
<td>3.9</td>
<td>1.5</td>
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</tr>
<tr>
<td>'26</td>
<td>4.2</td>
<td>1.8</td>
</tr>
</tbody>
</table>

Asia Pacific

<table>
<thead>
<tr>
<th>Year</th>
<th>AM</th>
<th>OEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>'19</td>
<td>3.9</td>
<td>1.5</td>
</tr>
<tr>
<td>'20</td>
<td>3.6</td>
<td>1.3</td>
</tr>
<tr>
<td>'26</td>
<td>4.2</td>
<td>1.8</td>
</tr>
</tbody>
</table>

¹Based on internal analyses for the relevant segments
The enormous brake distances in Rail require outstanding braking performance

Different braking distances at 80km/h

<table>
<thead>
<tr>
<th>Vehicle</th>
<th>Weight (kg)</th>
<th>Brake Distance (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car</td>
<td>1,500</td>
<td>31</td>
</tr>
<tr>
<td>Truck with trailer</td>
<td>40,000</td>
<td>40</td>
</tr>
<tr>
<td>LRV</td>
<td>60,000</td>
<td>85</td>
</tr>
<tr>
<td>MU regional &amp; commuter</td>
<td>240,000</td>
<td>220</td>
</tr>
<tr>
<td>Loco hauled freight train</td>
<td>4,000,000</td>
<td>600</td>
</tr>
</tbody>
</table>

Changing weather and environmental conditions significantly impact brake distances.

Different braking distances at 330km/h

<table>
<thead>
<tr>
<th>Vehicle</th>
<th>Weight (kg)</th>
<th>Brake Distance (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-speed train at 330km/h</td>
<td></td>
<td>330</td>
</tr>
</tbody>
</table>

Fact Book
Global Tier-1 partner of choice for OEMs and rail operators in all regions

**Top 10 customers 2020 (% of sales)**

<table>
<thead>
<tr>
<th>Customer</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRRC</td>
<td>~17%</td>
</tr>
<tr>
<td>BOMBARDIER</td>
<td>~6%</td>
</tr>
<tr>
<td>ALSTOM</td>
<td>~5%</td>
</tr>
<tr>
<td>STADLER</td>
<td>~4%</td>
</tr>
<tr>
<td>SIEMENS</td>
<td>~4%</td>
</tr>
<tr>
<td>TRANSMASHOLDING</td>
<td>~3%</td>
</tr>
<tr>
<td>DB</td>
<td>~3%</td>
</tr>
<tr>
<td>HITACHI</td>
<td>~2%</td>
</tr>
</tbody>
</table>

Top 10 = 54% of total RVS sales 2020

**Other major Knorr-Bremse customers**

- **Europe / Africa**
  - European railways
  - European rail operators
  - Asian railways
  - European OEMs

- **Americas**
  - North American railways
  - North American rail operators

- **Asia / Australia**
  - Asian railways
  - Australian rail operators
  - Asian OEMs
  - Australian OEMs

**Notes:** 2020 sales and customer data based on 31.12.2020; Share of top 10 customers as % RVS sales 2020 may not add up due to rounding.
RVS is the global #1 across key product categories

Global market share 2020\(^1\) (% of sales)

<table>
<thead>
<tr>
<th>Product Category</th>
<th>Market Share</th>
<th>Sales</th>
<th>Competitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brakes (~68% of RVS sales)</td>
<td>~50%</td>
<td>~4.5bn</td>
<td>KNORR-BREMSE</td>
</tr>
<tr>
<td>Entrance systems (~9% of RVS sales)</td>
<td>~25%</td>
<td>~1.1bn</td>
<td>KNORR-BREMSE</td>
</tr>
<tr>
<td>HVAC (~7% of RVS sales)</td>
<td>~20%</td>
<td>~1.1bn</td>
<td>King</td>
</tr>
</tbody>
</table>

\(^1\)Based on internal analyses for the relevant segments, for OE and aftermarket without labour, for competitors a price estimate was used, rounded to the nearest multiple of 5%
Historic development of OE and AM business

Strong growth both in OE and AM

RVS sales by type (until 2017 German Gaap/HGB, 2018-2020 IFRS, €bn, 2010-2020) ¹)

1) BilRUG sales allocated proportionally between OE and aftermarket; 2) RVS sales split 2019 may not add up due to rounding

<table>
<thead>
<tr>
<th>Year</th>
<th>OE</th>
<th>AM</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>1.5</td>
<td>0.5</td>
<td>2.0</td>
</tr>
<tr>
<td>2011</td>
<td>1.5</td>
<td>0.7</td>
<td>2.2</td>
</tr>
<tr>
<td>2012</td>
<td>1.5</td>
<td>0.7</td>
<td>2.2</td>
</tr>
<tr>
<td>2013</td>
<td>1.4</td>
<td>0.8</td>
<td>2.2</td>
</tr>
<tr>
<td>2014</td>
<td>2.0</td>
<td>1.0</td>
<td>3.0</td>
</tr>
<tr>
<td>2015</td>
<td>2.1</td>
<td>1.2</td>
<td>3.3</td>
</tr>
<tr>
<td>2016</td>
<td>2.1</td>
<td>1.2</td>
<td>3.3</td>
</tr>
<tr>
<td>2017</td>
<td>1.9</td>
<td>1.4</td>
<td>3.3</td>
</tr>
<tr>
<td>2018</td>
<td>2.1</td>
<td>1.4</td>
<td>3.5</td>
</tr>
<tr>
<td>2019</td>
<td>2.1</td>
<td>1.5</td>
<td>3.6</td>
</tr>
<tr>
<td>2020</td>
<td>1.8</td>
<td>1.5</td>
<td>3.3</td>
</tr>
</tbody>
</table>

CAGR (2010-2020)

<table>
<thead>
<tr>
<th>Total</th>
<th>AM</th>
<th>OE</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1%</td>
<td>11.6%</td>
<td>1.8%</td>
</tr>
</tbody>
</table>

¹) BilRUG sales allocated proportionally between OE and aftermarket; 2) RVS sales split 2019 may not add up due to rounding
Expected development of Aftermarket (RailServices) business

Characteristics aftermarket
- Long customer relationships & loyalty of >30 years
- Through tear & wear very attractive, high margin business
- Underlying global Rail market +2.6%\(^2\)

Development aftermarket
- Higher focus on life-cycle costs and availability commitments (contractually binding)
- Digitization with new players
- Increased business demand for reduced energy consumption

RVS aftermarket
Revenue development (€bn)\(^1\)

- Global footprint with a strong local presence
- High installed base
- High customer retention rate
- Additional data driven business models
- Development of energy efficient solutions

Notes: 1) Revenue based on external (third party) sales German GAAP (HGB); Values recognize FX rates; 2) Unife: expected average market growth until 2023
RVS is the only supplier world-wide certified for all local standards and norms

Market protected by unique level of complexity …

- Major global standards
- Unique configurations for vehicle types
- Brake subsystems
- Safety-critical components
- Country- and customer-specific variants
- 100k active brakes articles to homologate

… and long homologation time for each component

<table>
<thead>
<tr>
<th>Standard¹</th>
<th>Key regions</th>
<th>Typical time-to-market</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOST</td>
<td></td>
<td>Development (yrs)²</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Certification (yrs)²</td>
</tr>
<tr>
<td>A 4</td>
<td>A 3</td>
<td>A 1</td>
</tr>
</tbody>
</table>

Combination of IP ownership and homologation creates high barriers to entry

1) GOST based on recent homologation process, other norms based on expert estimates by Knorr-Bremse; 2) Estimated average required "time-to-market" of a basic freight car solution
Agenda

- Introduction
- Key Company Highlights
- Rail Vehicle Systems (RVS)
- Commercial Vehicle Systems (CVS)
- R&D Focus
- Financials
- Sustainability
- Capital Markets Summary
- Appendix
## CVS with high-quality business model – Outperformance and resilience

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Market leadership</strong></td>
<td>Global market leader → scale advantage</td>
</tr>
<tr>
<td>2</td>
<td><strong>Technology leadership</strong></td>
<td>Technology leader with innovation power shaping major industry trends</td>
</tr>
</tbody>
</table>
| 3 | **High barriers to entry** | Safety-critical highly technological products  
One of only two suppliers with global technology know-how and capabilities |
| 4 | **Strong growth profile** | Attractive end-market in goods and people transport (incl. buses)  
Continuously outperforming markets through content and market share growth |
| 5 | **Resilience** | Strong aftermarket share and content per vehicle growth  
Strength in cost efficiency |
| 6 | **Profitability** | Attractive margins based on differentiation, scale advantage and consequent cost management |
### CVS – One of two global leaders with an outstanding position in braking and safety-relevant systems

<table>
<thead>
<tr>
<th>Highlights</th>
<th>2020 key financials</th>
<th>2020 sales split</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global market position</td>
<td><strong>€2.8bn sales</strong></td>
<td>by region</td>
</tr>
<tr>
<td>Technology leader</td>
<td>5.3% CAGR 2010-2020</td>
<td>Europe 40%</td>
</tr>
<tr>
<td>Global market share</td>
<td><strong>€381m EBITDA (13.5% margin)</strong></td>
<td>Americas 34%</td>
</tr>
<tr>
<td>c.12k Employees</td>
<td><strong>€235m EBIT (8.3% margin)</strong></td>
<td>Asia/Australia 26%</td>
</tr>
<tr>
<td></td>
<td>27% aftermarket share</td>
<td>AM 27%</td>
</tr>
</tbody>
</table>

### Notes:
- Sales, EBITDA, EBIT and respective margins based on IFRS; other figures based on German GAAP (HGB)
- 1) 2020 global addressable Truck, Bus and Trailer OE market
- 2) Total reported CVS sales growth including OE and AM
- 3) Sales split by region based on IFRS; Other splits based on German GAAP (HGB)
Knorr-Bremse is the partner of choice for global OEMs with long-standing relationships

<table>
<thead>
<tr>
<th>Top 10 customers 2020 (% of sales)</th>
<th>Years of relationship</th>
<th>Other major Knorr-Bremse customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>PACCAR</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>DAIMLER</td>
<td>11%</td>
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<tr>
<td></td>
<td></td>
<td>[Blue Bird]</td>
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<tr>
<td>[Other logo]</td>
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<tr>
<td>TRATON</td>
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<td>[Other logo]</td>
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<tr>
<td>NAVISTAR</td>
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<td>ISUZU</td>
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<td>[Other logo]</td>
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</table>

Top 10 = 59% of total CVS sales 2020

1) Share of top 10 customers as % RVS sales 2020 may not add up due to rounding.
Knorr-Bremse is a global leader in safety-relevant products across key geographies

Global market share 2020\(^1\) (% of sales)

**Brake Systems & Vehicle Dynamics\(^2\)**

(incl. Automated Driving)

- **Others** ~61%
- **WABCO** ~15%
- **KNORR-BREMSE** ~23%

Market size €4.5bn

**Energy Supply & Distribution\(^3\)**

- **Others** ~30%
- **WABCO** ~23%
- **KNORR-BREMSE** ~48%

Market size €0.7bn

**Fuel Efficiency\(^4\)**

- **Others** ~62%
- **WABCO** ~24%
- **KNORR-BREMSE** ~14%

Market size €1.0bn

Notes: 1) 2019 addressable Truck, Bus and Trailer OE market, including “Brake Systems & Vehicle Dynamics (incl. Automated Driving)”, “Energy Supply & Distribution” and “Fuel Efficiency”; excluding aftermarket; Knorr-Bremse data based on market intelligence and experts estimate in 2019; 2) Air Disc Brake, Valves / Pedal Unit, Actuators, Foundation Drum Brake, Steering, ABS, EBS, ESP, DAS, ELC; including segment Others; 3) Compressors, Air Treatment; 4) Vibration Dampers, Engine Air Control, Transmission - Gear Actuation, Transmission - Clutch Actuation;
Complementary product portfolio provides foundation for positioning as key integrated systems and services provider

Knorr-Bremse CVS comprehensive offering

Commercial Vehicle Systems
Historic development of OE and AM business

Strong growth both in OE and AM

CVS sales by type (HGB, €bn, 2010-2017) 1) 2018-20 IFRS

<table>
<thead>
<tr>
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<tr>
<td>2010</td>
<td>1.7</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.7</td>
<td>0.7</td>
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<td>2.1</td>
<td>2.4</td>
<td>2.4</td>
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<td>0.8</td>
<td>0.8</td>
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<tr>
<td>2011</td>
<td>2.1</td>
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<td>2012</td>
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<td>1.4</td>
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<td>1.8</td>
<td>2.1</td>
<td>2.4</td>
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<tr>
<td>2013</td>
<td>2.2</td>
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<td>1.4</td>
<td>1.5</td>
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<tr>
<td>2014</td>
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<td>1.5</td>
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<td>1.8</td>
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<td>2015</td>
<td>2.5</td>
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<td>1.5</td>
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<td>2016</td>
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<tr>
<td>2017</td>
<td>2.9</td>
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<td>1.4</td>
<td>1.5</td>
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<td>1.8</td>
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<td>2018</td>
<td>3.2</td>
<td>1.4</td>
<td>1.4</td>
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<td>2019</td>
<td>3.3</td>
<td>1.4</td>
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<tr>
<td>2020</td>
<td>2.8</td>
<td>1.4</td>
<td>1.4</td>
<td>1.5</td>
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<td>2.1</td>
<td>0.8</td>
<td>0.8</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Notes: 1) BiRUG sales allocated proportionally between OE and aftermarket; 2) Global Truck and Bus market excluding aftermarket and Trailer; Source: Knorr-Bremse information and internal market research; IHS for truck production rate; 3) CVS sales split may not add up due to rounding.
Conversion in legislation drives the global adoption of technologies provided by Knorr-Bremse

Conversion of legislation creates growth opportunities for products respectively

Legislative decisions foster demand for Knorr-Bremse solutions

Notes: 1) Approved in May 2018, government intends to stimulate efficiency & vehicle safety; 2) European Commission: COM(2018) 286 & Vulnerable Road Users Directive (VRUD); 3) General Administration of Quality Supervision, Inspection & Quarantine of People’s Republic of China, technical specification for safety of power driven vehicles operating in roads; Source: Knorr-Bremse internal market research; Roland Berger market study: Trends in the truck & trailer market (August 2018)
Continued content growth expected in all regions

Growth of content per vehicle mainly driven by local regulation and total cost of ownership

Notes: CPV data rounded to nearest €25; 1) CPV for four specific categories analysed in Roland Berger market study: Trends in the truck & trailer market (August 2018): Braking systems, Powertrain, Steering and ADAS; Roland Berger scope excludes Valves / Pedal Unit, Actuators, Compressors, Air Treatment and Others; 2) Implied; applying Knorr-Bremse proprietary market growth CAGR 2010-2016 (made comparable to Roland Berger’s market definition) to Roland Berger’s 2016 absolute CPV data; Source: Knorr-Bremse internal market research for the CAGRs 2010-2016 and commentary; Roland Berger market study: Trends in the truck & trailer market (August 2018) for 2016 and 2022 CPV data as well as for the CAGRs 2010-2022; Data for Asia/Australia for 2016-2022 calculated based on separate Roland Berger data for (i) Asia/Pacific without China and (ii) China.
Strategy: combined braking and steering system

Notes: 1) ADAS = Advanced Driver Assistance Systems
Knorr-Bremse with clear strategy for Automated Driving

Steps | Action | Provider |
--- | --- | --- |
1. Perception | Complete environment perception of truck & trailer | Partner + KNORR-BREMSE |
2. Decision | Continuous situation analysis for motion planning | Partner + KNORR-BREMSE |
3. Actuation | Coordinated interaction of actuators for vehicle dynamics | KNORR-BREMSE |

System supplier – one interface for customers as the system integrator

Redundancy concept

Safety-relevant functions backed up by redundancy:
- Control
- Sensors
- Steering
- Braking
- Electric on-board net

Continuous vehicle dynamic control ensured

Notes: 1) Highly Automated Driving; 2) Electronic Control Unit; 3) Global Scalable Brake Control; 4) Advanced Driver Assistance Systems; Source: Knorr-Bremse information
Knorr-Bremse teams up with Continental to become a leading Automated Driving system supplier for commercial vehicles

- Function know-how based on passcar experience & carryover from passcar
- Hardware for localization (radar, camera) and Automated Driving Control Unit
- Truck- & trailer-specific vehicle dynamics: Vehicle guidance and stability control
- Fail-operational architecture
- Commercial vehicle-specific function development, application and release

Consumer Benefits
- Industry benchmark perception decision and actuation from the one source
- Superior performance through full-system approach
- Cost-optimized systems for commercial vehicles

Joint Project Scope
- Development of systems, components and functionality for Automated Driving
- Validation and release of complete highly Automated Driving systems
- Collaboration in joint project house
Internationalisation: Global growth strategy focuses on North America penetration as well as Chinese and Indian market share expansion

Exploit leading position
- Bendix acquisition as enabler for footprint expansion
- Sheppard acquisition to strengthen position as global system supplier of integrated steering and braking systems
- Capitalisation of technological expertise and brand
- Increased content per vehicle (technology as driver)
- Continuous cost structure improvements

Leverage local presence
- Intensive localisation with key local players
- Capitalise on strong position in OE channel
- Increased content per vehicle (technology as driver)
- Expand network to establish truck aftermarket
- Exploit position in electric bus

Expand market share
- Strong business growth with major Indian customers
- Expansion of product portfolio (dampers, drum brakes)
- Localisation programme creating scale effects

Notes: Based on German GAAP (HGB); FTE includes leasing (EOP) 1) Plant under expansion; Source: Knorr-Bremse information
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R&D is at the very core of Knorr-Bremse’s DNA

With over 12,000 patents¹) Knorr-Bremse secures the future innovation roadmap. Largest patent portfolio in the industry²)

5 state-of-the-art R&D centres globally complemented by 23 local engineering entities with customer proximity

Focused & disciplined approach ensuring highest efficiency

Significant synergies between RVS and CVS

More than 80% of the most industry-defining innovations over the last decades came from Knorr-Bremse

Extensive external network with over 15 R&D partnerships

Long-term targeted R&D ratio: 5-6% of revenues³)

Notes: 1) Granted and applied patents; 2) Based on published number of patent families (granted and applied); 3) Knorr-Bremse 2020 R&D financial information based on IFRS;
R&D portfolio synergies between RVS and CVS...

<table>
<thead>
<tr>
<th>Services</th>
<th>Vehicle control &amp; automated driving</th>
<th>Chassis systems</th>
<th>Braking</th>
<th>Driving</th>
<th>Energy Supply &amp; Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telematics (iCom maintence, iTAP-push)</td>
<td>Driver assistance (ACC, AEBs, ASR, LEADER)</td>
<td>Hydraulics</td>
<td>Wheelend / bogie equipment</td>
<td>Conventional actuation</td>
<td>Compressed air</td>
</tr>
<tr>
<td>Remote &amp; on-demand maintenance and diagnostics</td>
<td>Motion control</td>
<td>Electronics</td>
<td>Disc brake</td>
<td>Combustion engine components</td>
<td>Compressed air generation</td>
</tr>
<tr>
<td>Training drivers/ work shops (Safety direct, simulator)</td>
<td>Brake control</td>
<td>HMI &amp; driver information (ITAP, etc.)</td>
<td>Brake actuator</td>
<td>Electronic actuation (Kiepe)</td>
<td>Air treatment</td>
</tr>
<tr>
<td>Spare parts</td>
<td>Automated Coupling</td>
<td>Level control</td>
<td>Wear-resistant brakes</td>
<td>E-motor</td>
<td></td>
</tr>
<tr>
<td>Remanufacturing</td>
<td>ABS / wheel slide protection</td>
<td>Electronic board net / Charge regulation (Kiepe)</td>
<td>Electrodynamic brakes / recuperation</td>
<td>Converter / traction control</td>
<td></td>
</tr>
<tr>
<td>Energy measurement</td>
<td>Emergency brake</td>
<td>Pantograph (Kiepe)</td>
<td>Tread brake</td>
<td>Automated manual transmission</td>
<td></td>
</tr>
<tr>
<td>Ticketing</td>
<td>V2X communication</td>
<td>Windscreen wiper and wash systems</td>
<td>Electromagnetic brake system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport and logistics optimisation</td>
<td>Vehicle control (TCMS / UCS)</td>
<td>Entrance systems / doors</td>
<td>Eddy current brake</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brake distance management / sanding</td>
<td>Air conditioning</td>
<td>Drum brake &amp; adjuster</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dynamic driving control (ESP)</td>
<td>Conventional steering</td>
<td>Exhaust brake</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vehicle dynamics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Torque overlay steering system</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In >50% of Knorr-Bremse’s portfolio the underlying technology can be applied to both divisions
...resulting in synergies and cross-proliferation

Cross-divisional R&D examples

1990 Air Disc Brake

1985 Screw Compressor

2021/2022 Collision Avoidance

Technology transfer for ADB from RVS to CVS

RVS Screw Compressor technology adopted for CVS applications

Collision Avoidance for RVS based on CVS system know-how within the field of sensor technology

1992 Air Disc Brake

2011 Screw Compressor

2008 Collision Avoidance

✓ Faster time-to-market
✓ Higher cost benefit
✓ Focused customer solutions
Leveraging Knorr-Bremse’s synergies & partnerships: centres of excellence as basis for sustained technology leadership

Globally $\Sigma \approx 3,600$ FTE$^{1)}$

Knorr-Bremse’s innovations are supported by a network of specialized development centres with joint production and R&D

Notes: 1) FTE refers to number of employees in R&D function (includes engineers, technicians, merchants) EOP 2019, TCI allocated to Asia
Knorr-Bremse deploys structured and effective processes to drive innovation results

Knorr-Bremse R&D process

1. Idea generation
2. Business Story
3. Smart Business Case

Notes: 1) TCO refers to total cost of ownership; 2) NPV refers to net present value; 3) IRR refers to internal rate of return

Knorr-Bremse’s innovations are designed for clear customer impact...

- Optimisation of TCO\(^1\)
- Reduction of energy consumption, noise, weight
- Safety & reliability
- Connectivity, wireless solutions, ethernet
- Adaption to regulation

...and maximum economic benefit for Knorr-Bremse

- All projects assessed based on NPV\(^3\)
- Prioritisation of projects according to IRR\(^3\)
- Optimise time-to-market
- Short payback time of investment
- Ability to leverage innovation across customer portfolio

Notes: 1) TCO refers to total cost of ownership; 2) NPV refers to net present value; 3) IRR refers to internal rate of return
Close co-operation with customers & strategic partners

Government partnerships
- Shift2Rail: EU supported initiative amongst suppliers and OEMs to jointly develop an efficient transportation system
- VDA¹ participation in ~20 committees
  - Design of norms/standards
  - Early anticipation of industry trends
  - Grants/subsidies

VC partnerships with Start-ups
- Partnerships with accelerators
- Investment in start-ups
  - Technology access
  - R&D acceleration

Partnerships with Universities
- Research cooperations
  - Access to future talent
  - Scouting of new technologies at minimal cost

JVS with OEMs / technology partners
- 18 joint ventures globally
- Joining complementary competences to extend product and service lines, and capacities
  - IP protection
  - Local presence
  - Flexible solutions for customers

Notes: 1) VDA - Verband der Automobilindustrie (German Association of the Automotive Industry)

Countries Knorr-Bremse is present

⁹ Countries Knorr-Bremse is present

Fact Book  50
Agenda

- Introduction
- Key Company Highlights
- Rail Vehicle Systems (RVS)
- Commercial Vehicle Systems (CVS)
- R&D Focus
- Financials
- Sustainability
- Capital Markets Summary
- Appendix
Review of Knorr-Bremse financial profile

1. Track record of sustainable growth and margin improvement
2. High degree of earnings resilience & visibility
3. Focus on quality of earnings and returns
4. Strong balance sheet & financing structure
## Strong financials prove KB’s remarkable business model

| Track record of organic growth market outperformance | ~5% sales CAGR (2010–2020)\(^1\) plus selective, value-added M&A |
| Strong profitability & cash flow vs. peers | Sustainable EBITDA margin range of ~18–20% (2014–2020)\(^2\) |
| | Sustainable cash conversion range of ~80–90% (2014–2019)\(^2\), ~129% in 2020 \(^3\) |
| Consistent high return on capital | ROCE range of ~26–53% (2014–2020)\(^2\) |
| Proven resilience through the cycle | Aftermarket exposure of ~30–37% of sales (2014–2020) |
| | Well-balanced regional and divisional sales mix |

Notes: 1) Based on financial statements prepared in accordance with German GAAP (HGB); Group net sales including BilRUG without acquisitions for RVS and CVS; 2) Based on financial statements prepared in accordance with IFRS; 3) Significant cash preservation measures during COVID-19 crisis lead to strong CCR, which is not sustainable
Track record of strong and sustainable top-line growth ...

Historical sales\(^1\)\(^2\) by division

(\(\text{€m}\))

**German GAAP**

- 2005: 2,743
- 2006: 3,121
- 2007: 3,251
- 2008: 3,384
- 2009: 3,712
- 2010: 4,241
- 2011: 4,300
- 2012: 4,303
- 2013: 5,206
- 2014: 5,217
- 2015: 5,824
- 2016: 5,471
- 2017: 6,154
- 2018: 6,616
- 2019: 6,937
- 2020: 6,157

**IFRS**

- 2005: 1,778
- 2006: 1,968
- 2007: 1,966
- 2008: 1,975
- 2009: 1,701
- 2010: 2,068
- 2011: 2,098
- 2012: 2,070
- 2013: 2,228
- 2014: 2,228
- 2015: 2,492
- 2016: 2,493
- 2017: 2,891
- 2018: 3,160
- 2019: 3,280
- 2020: 2,819

**CAGR\(^2\)**

- 2005-20: 5.5%
- 2010-20: 5.2%
- Group:
  - 3.1%
  - 5.2%
  - 8.4%
  - 5.1%

**Notes:**

1) Divisional historic figures do not add up to group sales excluding consolidations/other; 2) 2014 represents the first year that Knorr-Bremse prepared its financial statements in accordance with IFRS. Prior to 2014, financial statements were only prepared in accordance with German GAAP (HGB). IFRS differs in certain aspects from German GAAP (HGB), and accordingly data presented in accordance with German GAAP (HGB) may not be comparable to data prepared in accordance with IFRS; Source: Knorr-Bremse information
… combined with disproportionate EBITDA growth

### Historical EBITDA\(^1\)\(^2\) profitability

<table>
<thead>
<tr>
<th>Year</th>
<th>€m</th>
<th>CAGR (^3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>349</td>
<td>12.7%</td>
</tr>
<tr>
<td>2006</td>
<td>410</td>
<td>13.2%</td>
</tr>
<tr>
<td>2007</td>
<td>438</td>
<td>13.5%</td>
</tr>
<tr>
<td>2008</td>
<td>420</td>
<td>12.4%</td>
</tr>
<tr>
<td>2009</td>
<td>268</td>
<td>9.7%</td>
</tr>
<tr>
<td>2010</td>
<td>528</td>
<td>14.2%</td>
</tr>
<tr>
<td>2011</td>
<td>667</td>
<td>15.7%</td>
</tr>
<tr>
<td>2012</td>
<td>628</td>
<td>14.6%</td>
</tr>
<tr>
<td>2013</td>
<td>678</td>
<td>15.7%</td>
</tr>
</tbody>
</table>

\(\text{CAGR} = \left( \frac{FV}{PV} \right)^{1/\text{years}} - 1\)

Notes: 1) Divisional historic figures do not add up to group sales excluding consolidations/other; 2) 2014 represents the first year that Knorr-Bremse prepared its financial statements in accordance with IFRS. Prior to 2014, financial statements were only prepared in accordance with German GAAP (HGB). IFRS differs in certain aspects from German GAAP (HGB), and accordingly data presented in accordance with German GAAP (HGB) may not be comparable to data prepared in accordance with IFRS; Source: Knorr-Bremse information
... all supported by solid aftermarket sales growth

RVS – Aftermarket sales\(^1\)

<table>
<thead>
<tr>
<th>Year</th>
<th>CAGR</th>
<th>Sales (€m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>-</td>
<td>971</td>
</tr>
<tr>
<td>2020</td>
<td>7.4%</td>
<td>1,492</td>
</tr>
</tbody>
</table>

CVS – Aftermarket sales\(^1\)

<table>
<thead>
<tr>
<th>Year</th>
<th>CAGR</th>
<th>Sales (€m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>-</td>
<td>701</td>
</tr>
<tr>
<td>2020</td>
<td>1.4%</td>
<td>764</td>
</tr>
</tbody>
</table>

Notes: 1) Based on IFRS; BilRUG sales allocated proportionally between OE and aftermarket
Order Intake for Group, RVS & CVS FY/20

**Group**

<table>
<thead>
<tr>
<th>(€m)</th>
<th>FY19</th>
<th>Organic</th>
<th>M&amp;A net disposals</th>
<th>FX</th>
<th>FY20</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.02</td>
<td>7,066</td>
<td>-514</td>
<td>-128</td>
<td></td>
<td>6,442</td>
</tr>
</tbody>
</table>

-8.8%

R.H. Sheppard € +52m (FY/20)
Hitachi € +20m (Q1/20)
Powertech € -54m (9M/19)

-7.3%

**RVS**

<table>
<thead>
<tr>
<th>(€m)</th>
<th>FY19</th>
<th>Organic</th>
<th>M&amp;A net disposals</th>
<th>FX</th>
<th>FY20</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.10</td>
<td>4,017</td>
<td>-417</td>
<td>-54</td>
<td>-61</td>
<td>3,485</td>
</tr>
</tbody>
</table>

-13.2%

Powertech € -54m (9M/19)

-10.4%

**CVS**

<table>
<thead>
<tr>
<th>(€m)</th>
<th>FY19</th>
<th>Organic</th>
<th>M&amp;A net disposals</th>
<th>FX</th>
<th>FY20</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.93</td>
<td>72</td>
<td>-92</td>
<td>-68</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

-3.2%

R.H. Sheppard € +52m (FY/20)
Hitachi € +20m (9M/20)

-3.0%
## Revenue for Group, RVS & CVS FY/20

<table>
<thead>
<tr>
<th>Group</th>
<th>RVS</th>
<th>CVS</th>
</tr>
</thead>
<tbody>
<tr>
<td>(€m)</td>
<td>(€m)</td>
<td>(€m)</td>
</tr>
<tr>
<td>6,937</td>
<td>3,656</td>
<td>3,280</td>
</tr>
<tr>
<td>-679</td>
<td>-199</td>
<td>-441</td>
</tr>
<tr>
<td>16</td>
<td>-59</td>
<td>75</td>
</tr>
<tr>
<td>-16</td>
<td>-62</td>
<td>-55</td>
</tr>
<tr>
<td>-11.2%</td>
<td>-8.7%</td>
<td>-14.1%</td>
</tr>
</tbody>
</table>

### Group FY/20
- Organic: 6,937
- FX: -62
- M&A net disposals: 16
- FY20: 6,157

### RVS FY/20
- Organic: 3,656
- FX: -62
- M&A net disposals: 16
- FY20: 3,337

### CVS FY/20
- Organic: 3,280
- FX: -55
- M&A net disposals: 75
- FY20: 2,819

**M&A net disposals**
- FY20: €53m (FY/20)
- FY19: €22m (9M/20)

**Organic**
- FY19: 3,337
- FY20: 3,337

**FX**
- FY19: -59
- FY20: -59

**R.H. Sheppard**
- €53m (FY/20)

**Hitachi**
- €22m (9M/20)

**Powertech**
- €-59m (9M/19)
EBITDA for Group, RVS & CVS FY/20

**Group**

<table>
<thead>
<tr>
<th></th>
<th>FY19</th>
<th>FY20</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBITDA (€m)</td>
<td>1,303</td>
<td>1,107</td>
</tr>
<tr>
<td>Margin (%)</td>
<td>18.8%</td>
<td>18.0%</td>
</tr>
</tbody>
</table>

**RVS**

<table>
<thead>
<tr>
<th></th>
<th>FY19</th>
<th>FY20</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBITDA (€m)</td>
<td>815</td>
<td>764</td>
</tr>
<tr>
<td>Margin (%)</td>
<td>22.3%</td>
<td>22.9%</td>
</tr>
<tr>
<td>Change (%)</td>
<td>-6.2%</td>
<td></td>
</tr>
</tbody>
</table>

**CVS**

<table>
<thead>
<tr>
<th></th>
<th>FY19</th>
<th>FY20</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBITDA (€m)</td>
<td>523</td>
<td>381</td>
</tr>
<tr>
<td>Margin (%)</td>
<td>12.3%</td>
<td>8.3%</td>
</tr>
<tr>
<td>Change (%)</td>
<td>-27.1%</td>
<td></td>
</tr>
</tbody>
</table>

1) Operating | rep.: EBITDA: EUR 1,329m (19.2%)
2) Operating | rep.: EBITDA: EUR 504m (15.4%)
Focus on quality of earnings – a closer look at key P&L items

Key items

<table>
<thead>
<tr>
<th>€m</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net sales</strong></td>
<td>5,824</td>
<td>5,471</td>
<td>6,154</td>
<td>6,616</td>
<td>6,937</td>
<td>6,157</td>
</tr>
<tr>
<td><strong>% growth</strong></td>
<td>11.6%</td>
<td>(6.0%)</td>
<td>12.5%</td>
<td>7.5%</td>
<td>5.4%</td>
<td>(11.2%)</td>
</tr>
<tr>
<td><strong>Changes in inventory of finished and unfinished goods</strong></td>
<td>(7)</td>
<td>(11)</td>
<td>39</td>
<td>34</td>
<td>6</td>
<td>(11)</td>
</tr>
<tr>
<td><strong>Own work capitalised</strong></td>
<td>19</td>
<td>21</td>
<td>32</td>
<td>48</td>
<td>73</td>
<td>76</td>
</tr>
<tr>
<td><strong>Total operating performance</strong></td>
<td>5,836</td>
<td>5,481</td>
<td>6,224</td>
<td>6,698</td>
<td>7,016</td>
<td>6,222</td>
</tr>
<tr>
<td><strong>Other operating income</strong></td>
<td>89</td>
<td>83</td>
<td>81</td>
<td>66</td>
<td>117</td>
<td>92</td>
</tr>
<tr>
<td><strong>Material expenses</strong></td>
<td>(2,747)</td>
<td>(2,571)</td>
<td>(3,010)</td>
<td>(3,318)</td>
<td>(3,429)</td>
<td>(2,961)</td>
</tr>
<tr>
<td><strong>Personnel costs</strong></td>
<td>(1,272)</td>
<td>(1,272)</td>
<td>(1,439)</td>
<td>(1,497)</td>
<td>(1,594)</td>
<td>(1,526)</td>
</tr>
<tr>
<td><strong>Other operating expenses</strong></td>
<td>(636)</td>
<td>(669)</td>
<td>(741)</td>
<td>(771)</td>
<td>(782)</td>
<td>(720)</td>
</tr>
<tr>
<td><strong>EBITDA</strong></td>
<td>1,269</td>
<td>1,052</td>
<td>1,116</td>
<td>1,178</td>
<td>1,329</td>
<td>1,107</td>
</tr>
<tr>
<td><strong>Margin, %</strong></td>
<td>21.8%</td>
<td>19.2%</td>
<td>18.1%</td>
<td>17.8%</td>
<td>19.2%</td>
<td>18.0%</td>
</tr>
<tr>
<td><strong>Depreciation / Amortisation</strong></td>
<td>(170)</td>
<td>(166)</td>
<td>(211)</td>
<td>(206)</td>
<td>(266)</td>
<td>293</td>
</tr>
<tr>
<td><strong>EBIT</strong></td>
<td>1,099</td>
<td>886</td>
<td>904</td>
<td>972</td>
<td>1,063</td>
<td>814</td>
</tr>
<tr>
<td><strong>Margin, %</strong></td>
<td>18.9%</td>
<td>16.2%</td>
<td>14.7%</td>
<td>14.7%</td>
<td>15.3%</td>
<td>13.2%</td>
</tr>
<tr>
<td><strong>Financial result</strong></td>
<td>(51)</td>
<td>(45)</td>
<td>(52)</td>
<td>(97)</td>
<td>(156)</td>
<td>(63)</td>
</tr>
<tr>
<td><strong>EBT</strong></td>
<td>1,048</td>
<td>841</td>
<td>852</td>
<td>876</td>
<td>907</td>
<td>751</td>
</tr>
<tr>
<td><strong>Margin, %</strong></td>
<td>18.0%</td>
<td>15.4%</td>
<td>13.9%</td>
<td>13.2%</td>
<td>13.1%</td>
<td>12.2%</td>
</tr>
<tr>
<td><strong>Income tax</strong></td>
<td>(337)</td>
<td>(274)</td>
<td>(265)</td>
<td>(246)</td>
<td>(275)</td>
<td>(218)</td>
</tr>
<tr>
<td><strong>Effective tax rate</strong></td>
<td>32.2%</td>
<td>32.6%</td>
<td>31.1%</td>
<td>28.1%</td>
<td>30.3%</td>
<td>29.1%</td>
</tr>
<tr>
<td><strong>Net income</strong></td>
<td>711</td>
<td>567</td>
<td>587</td>
<td>629</td>
<td>632</td>
<td>532</td>
</tr>
</tbody>
</table>

Notes: Based on financial statements prepared in accordance with IFRS;
1) Including leased personnel; Source: Knorr-Bremse information 2) Reported figures shown; op. EBITDA € 1,303m (18.8%); op. EBIT: € 1,063m (15.4%)
Knorr-Bremse is a high return and cash generative business

Strong cash generation abilities

(€m)

100%

Key drivers and factors

Notes: 1) 2014 represents the first year that Knorr-Bremse prepared its financial statements in accordance with IFRS. Prior to 2014, financial statements were only prepared in accordance with German GAAP (HGB). IFRS differs in certain aspects from German GAAP (HGB), and accordingly data presented in accordance with German GAAP (HGB) may not be comparable to data prepared in accordance with IFRS; 2) FCF (Free Cash Flow) defined as cash flow from operations minus cash-relevant capex; 3) ROCE defined as EBIT divided by capital employed (Fixed assets + Intangible assets + Net working capital); 5) Asset turnover defined as sales divided by capital employed; Source: Knorr-Bremse information
Fully invested asset base driving low capex requirements

Capex<sup>1)</sup>

<table>
<thead>
<tr>
<th>Year</th>
<th>Investments in tangible</th>
<th>Investments in intangible</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>161</td>
<td>31</td>
</tr>
<tr>
<td>2015</td>
<td>208</td>
<td>31</td>
</tr>
<tr>
<td>2016</td>
<td>203</td>
<td>46</td>
</tr>
<tr>
<td>2017</td>
<td>190</td>
<td>45</td>
</tr>
<tr>
<td>2018</td>
<td>235</td>
<td>73</td>
</tr>
<tr>
<td>2019</td>
<td>234</td>
<td>98</td>
</tr>
<tr>
<td>2020</td>
<td>241</td>
<td>100</td>
</tr>
</tbody>
</table>

D&A

<table>
<thead>
<tr>
<th>Year</th>
<th>Investments in tangible</th>
<th>Investments in intangible</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>109</td>
<td>16</td>
</tr>
<tr>
<td>2015</td>
<td>140</td>
<td>30</td>
</tr>
<tr>
<td>2016</td>
<td>134</td>
<td>32</td>
</tr>
<tr>
<td>2017</td>
<td>168</td>
<td>43</td>
</tr>
<tr>
<td>2018</td>
<td>165</td>
<td>41</td>
</tr>
<tr>
<td>2019</td>
<td>213</td>
<td>53</td>
</tr>
<tr>
<td>2020</td>
<td>218</td>
<td>75</td>
</tr>
</tbody>
</table>

Net working capital<sup>2)</sup>

<table>
<thead>
<tr>
<th>Year</th>
<th>Net working capital</th>
<th>Net working capital days</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>748</td>
<td>14%</td>
</tr>
<tr>
<td>2015</td>
<td>710</td>
<td>12%</td>
</tr>
<tr>
<td>2016</td>
<td>719</td>
<td>13%</td>
</tr>
<tr>
<td>2017</td>
<td>782</td>
<td>13%</td>
</tr>
<tr>
<td>2018</td>
<td>862</td>
<td>13%</td>
</tr>
<tr>
<td>2019</td>
<td>809</td>
<td>12%</td>
</tr>
<tr>
<td>2020</td>
<td>746</td>
<td>12%</td>
</tr>
</tbody>
</table>

Notes: Based on financial statements prepared in accordance with IFRS; 1) As per asset register, defined as investments in fixed and intangible assets incl. finance leasing; 2) Net working capital defined as Inventory + Accounts receivables + Construction contracts with positive balances - Accounts payables - Construction contracts with negative balances - Pre-payments received; 3) Step-ups from key PPA’s (Selectron, Powertech, GT & Kiepe Electric); 4) Including €25m from impairment of assets held for sale; Source: Knorr-Bremse information.
Healthy capital structure and financial position

### Capital structure as of December 31, 2020

<table>
<thead>
<tr>
<th></th>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current assets</td>
<td>4,597</td>
<td>2,793</td>
</tr>
<tr>
<td>Non-current assets</td>
<td>2,793</td>
<td>5,468</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>7,390</strong></td>
<td><strong>7,390</strong></td>
</tr>
</tbody>
</table>

- Equity: 1,922
- Debt: 5,468

### Solid financial position as of December 31, 2020

- **Equity ratio:** 26%
- **Net cash:** €103m
- **Cash and cash equivalents:** €2,345m

Notes: Based on financial statements prepared in accordance with IFRS
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- Introduction
- Key Company Highlights
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- Financials
- **Sustainability**
- Capital Markets Summary
- Appendix
The basis of our responsibility

Our values

- Entrepreneurship
- Technological Excellence
- Reliability
- Passion
- Responsibility

UN Global Compact

Commitment to ten basic principles:
- Human rights
- Labor standards
- Environmental protection
- Anti-corruption

CR Policy

- Comprises our understanding of Corporate Responsibility
- Sets down guidelines for our CR focus areas
- Points out the main focus of our efforts to realize social and environmental responsibility
Our CR policy and focus areas

Strategy and management
We aim for sustainable value creation. By this we understand achieving long-term economic success while at the same time acting responsibly towards our employees and business partners as well as the environment and society.
We are committed to sustainable corporate governance that includes environmental and social aspects in strategic planning, management and corporate processes.
We act and work according to legal and ethical principles laid down in our Group-wide Code of Conduct.

Products and partners
We consistently work on developing innovative products and solutions that combine a high degree of customer value with a contribution to sustainable development. Safety is always our overriding goal.
We work closely with our customers and suppliers to jointly ensure continuous improvement of product quality and minimal undesirable impact on the environment and society.
We take into account and support the activities of our business partners aimed at improving their environmental and social compatibility.

Employees and governance
We create an attractive working environment in which the principles of mutual trust, team-work, diversity and equality of opportunity as well as fair and respectful treatment of each other are recognized and practiced.
We offer a safe and healthy working environment and enable our employees to develop their own individual potential.
We conduct an ongoing dialogue with our managers on the subject of value-oriented, sustainable corporate governance.

Environment and climate
We accept our responsibility for ensuring a clean environment and protecting the climate and operate in compliance with our HSE Policy (Healthy, Safety and Environment).
We have set ourselves the goal of handling resources in a responsible manner, consistently reducing CO₂ emissions, minimizing and where possible avoiding undesirable impact on nature and the environment and actively using opportunities to protect the environment.
We are concerned to optimize the environmental compatibility of our products across their entire life-cycle.

Commitment and society
We are involved, as a member of society, in social issues and are engaged world-wide as a good corporate citizen. We supplement the activities of the charitable organization Knorr-Bremse Global Care e.V. with social projects implemented directly at our production sites (Local Care).
We encourage and support social involvement on the part of our employees.
We see ourselves as partners for the regions in which we live and work, and we support their long-term development.

Communication and co-operation
We seek constructive dialogue with our stakeholders and provide them with regular and transparent updates on our sustainability activities.
We support social, educational and environmental projects and enter into partnerships with organizations that contribute towards sustainable development.
In 2018 Knorr-Bremse selected its Core Sustainable Development Goals (SDGs)
Knorr-Bremse to become carbon neutral from 2021

Carbon neutrality from 2021

- KB renews its climate strategy with even more ambitious targets
- 50% CO₂ emission reduction by 2030
- Additionally: Increasing purchase of renewable energy and carbon offsetting
- Starting point of CO₂ emissions in 2018 at 143,000 tons

Contribution by our products

- Rail is a cornerstone of eco-friendly transport solutions
- Truck products support lower fuel consumption
- ~9% of KB’s revenues are driven by remanufactured and recycled products
- Circular economy supported by remanufactured and overhauled products

Focus on 5 SDGs

- In 2018 ~150 top managers of KB committed to 5 core United Nations Sustainability Development Goals
- Sponsorship of Executive Board Members to drive initiatives around the KB world

Knorr-Bremse AG is part of the new DAX 50 ESG index
The KB climate strategy 2030 is currently rolled out, governance and control tools are set up

- Reduction measures for 2020
  - Energy efficiency
  - Own production
  - Green power supply
  - Compensation

- Governance for the implementation
  - House of Climate Initiative Group

- Implementation Control
  - Integration with existing financial controlling process
  - Steering of the target achievement via to be defined sub-targets
Knorr-Bremse takes active part in corporate memberships throughout the world

United Nations Global Compact (participation since 2010)

<table>
<thead>
<tr>
<th>Membership</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>APTA - American Public Transportation Association, USA</td>
<td>UNIFE - Sustainable Transport Committee of the Union des Industries Ferroviaires Européennes, BEL</td>
</tr>
<tr>
<td>AAR - Association of American Railroads, USA</td>
<td>VDA - Verband der Automobilindustrie e. V., GER</td>
</tr>
<tr>
<td>AIAG - Automotive Industry Action Group, USA</td>
<td>Working Groups: Sustainable supply chain &amp; products</td>
</tr>
<tr>
<td>MEMA - Motor &amp; Equipment Manufacturers Association, USA</td>
<td>Railponsible – founding member (sustainable rail supply chain initiative)</td>
</tr>
<tr>
<td>New York and New Jersey Minority Supplier Development Council, USA</td>
<td>VDB - Fachgruppe Umwelt im Verband der Bahnindustrie e. V., GER</td>
</tr>
<tr>
<td></td>
<td>APRA - Automotive Parts Remanufacturers Association - Chairman Europe</td>
</tr>
</tbody>
</table>
Achieved CSR ratings and awards

Ratings

- CDP: A-
- ROBECOSAM: 50
- MSCI: A
- SUSTAINALYTICS: 19.0
- ISS ESG: C+

Awards

- Top employer 5th time in a row
- Supplier Sustainability Award 2014
- Industrial Sustainability Supplier 2015
- Special Price: “Green Award” 2018
Our 9 material (non-financial) corporate responsibility areas

Evaluation of non-financial facts was carried out in the workshop on the basis of qualitative considerations regarding the extent of business relevance and its impact (2018)

- Anti-corruption and fair competition
- Product and system safety
- Ecological product design
- Energy and CO$_2$ emissions
- Personnel development
- Sustainability standards in the supply chain
- Employment conditions
- Occupational safety and health protection
- Diversity and equality
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## Share data

<table>
<thead>
<tr>
<th>Type of share</th>
<th>Bearer shares with no-par value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bloomberg ticker</td>
<td>KBX</td>
</tr>
<tr>
<td>Reuters ticker</td>
<td>KBX.DE</td>
</tr>
<tr>
<td>German security identification number (WKN)</td>
<td>KBX100</td>
</tr>
<tr>
<td>ISIN</td>
<td>DE000KBX1006</td>
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<tr>
<td>Shares outstanding as at December 31, 2018</td>
<td>161.200.000</td>
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## The Corporate Bonds of Knorr-Bremse AG

<table>
<thead>
<tr>
<th>Security Identification Number</th>
<th>A2LQP5</th>
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<tbody>
<tr>
<td>International Securities Identification Number</td>
<td>XS1837288494</td>
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<tr>
<td>Issuer</td>
<td>Knorr-Bremse AG</td>
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<tr>
<td>Issuer ratings</td>
<td>A2/outlook stable (Moody’s), A/outlook stable (Standard &amp; Poor’s)</td>
</tr>
<tr>
<td>Volume</td>
<td>EUR 750 million</td>
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<tr>
<td>Term</td>
<td>7 years</td>
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<tr>
<td>Settlement</td>
<td>June 14, 2018</td>
</tr>
<tr>
<td>Maturity</td>
<td>June 13, 2025</td>
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<tr>
<td>Coupon</td>
<td>1.125% p. a.</td>
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<tr>
<td>Reoffer spread</td>
<td>1.188% p. a.</td>
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<td>Listing</td>
<td>EURO MTF Luxembourg</td>
</tr>
<tr>
<td>Denomination</td>
<td>EUR 1,000</td>
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<tr>
<td>Applicable law</td>
<td>German law</td>
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<table>
<thead>
<tr>
<th>Security Identification Number</th>
<th>A2DARP</th>
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<tr>
<td>International Securities Identification Number</td>
<td>XS1531060025</td>
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<tr>
<td>Issuer</td>
<td>Knorr-Bremse AG</td>
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<td>Issuer ratings</td>
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<tr>
<td>Volume</td>
<td>EUR 500 million</td>
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<td>Term</td>
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<td>Settlement</td>
<td>December 6, 2016</td>
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<td>Maturity</td>
<td>December 8, 2021</td>
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<td>Coupon</td>
<td>0.5% p. a.</td>
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<td>Reoffer spread</td>
<td>0.571% p. a.</td>
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<tr>
<td>Listing</td>
<td>EURO MTF Luxembourg</td>
</tr>
<tr>
<td>Denomination</td>
<td>EUR 1,000</td>
</tr>
<tr>
<td>Applicable law</td>
<td>German law</td>
</tr>
</tbody>
</table>

Strong current rating: S&P (A) and Moody’s (A2)
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- Capital Markets Summary
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<table>
<thead>
<tr>
<th>%</th>
<th>Percentage</th>
<th>CF</th>
<th>Cash flow</th>
<th>ELC</th>
<th>Electronic leveling control</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS</td>
<td>Anti-lock brake system</td>
<td>CFO</td>
<td>Chief Financial Officer</td>
<td>ELC</td>
<td>End of period</td>
</tr>
<tr>
<td>ACC</td>
<td>Adaptive Cruise Control</td>
<td>CRK</td>
<td>Czech Koruna</td>
<td>EOP</td>
<td>End of period</td>
</tr>
<tr>
<td>AD</td>
<td>Automated Driving</td>
<td>CNY</td>
<td>Chinese Yuan</td>
<td>ESP</td>
<td>Electronic stability program</td>
</tr>
<tr>
<td>ADAS</td>
<td>Advanced driver assistance systems</td>
<td>CVS</td>
<td>Commercial Vehicle Systems</td>
<td>EUR</td>
<td>Euro</td>
</tr>
<tr>
<td>ADB</td>
<td>Air Disk Brake</td>
<td>D&amp;A</td>
<td>Depreciation &amp; Amortization</td>
<td>FTE</td>
<td>Full-time equivalent</td>
</tr>
<tr>
<td>AEBS</td>
<td>Advanced Emergency Braking System</td>
<td>DE</td>
<td>Germany</td>
<td>GAAP</td>
<td>Generally Accepted Accounting Principles</td>
</tr>
<tr>
<td>AG</td>
<td>Aktiengesellschaft (German: Stock Corporation)</td>
<td>Dol</td>
<td>Date of Implementation</td>
<td>GBP</td>
<td>British Pound</td>
</tr>
<tr>
<td>AM</td>
<td>Aftermarket</td>
<td>e</td>
<td>Expected</td>
<td>GDP</td>
<td>Gross domestic product</td>
</tr>
<tr>
<td>BDM</td>
<td>Brake Distance Management</td>
<td>EAC</td>
<td>Electronic Air Control</td>
<td>GSBC</td>
<td>Global Scalable Brake Control</td>
</tr>
<tr>
<td>bn</td>
<td>billion</td>
<td>EBIT</td>
<td>Earnings before Interest, Tax</td>
<td>HU</td>
<td>Hungary</td>
</tr>
<tr>
<td>CAGR</td>
<td>Compound Annual Growth Rate</td>
<td>EBITDA</td>
<td>Earnings before Interest, Tax, Depreciation, Amortization</td>
<td>HUF</td>
<td>Hungarian Forint</td>
</tr>
<tr>
<td>CAPEX</td>
<td>Capital expense</td>
<td>EBS</td>
<td>Electronic brake system</td>
<td>HUF</td>
<td>Hungarian Forint</td>
</tr>
<tr>
<td>CEO</td>
<td>Chief Executive Officer</td>
<td>EGR</td>
<td>Exhaust Gas Reduction</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Glossary (2/2)

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HVAC</td>
<td>Heating, ventilation &amp; air conditioning</td>
<td>LDW</td>
<td>Lane Departure Warning</td>
</tr>
<tr>
<td>IAA</td>
<td>International Automobil-Ausstellung (German: International Motor Show)</td>
<td>m</td>
<td>million</td>
</tr>
<tr>
<td>IAM</td>
<td>Independent Aftermarket</td>
<td>M&amp;A</td>
<td>Merger &amp; acquisitions</td>
</tr>
<tr>
<td>iCOM</td>
<td>Intelligent Condition-Oriented Maintenance</td>
<td>OEM, OE</td>
<td>Original equipment manufacturer</td>
</tr>
<tr>
<td>IFRS</td>
<td>International Financial Reporting Standards</td>
<td>OES</td>
<td>Original equipment service</td>
</tr>
<tr>
<td>IN</td>
<td>India</td>
<td>OPEX</td>
<td>Operating expense</td>
</tr>
<tr>
<td>IoT</td>
<td>Internet of Things</td>
<td>p.a.</td>
<td>per annum</td>
</tr>
<tr>
<td>IPO</td>
<td>Initial Public Offering</td>
<td>PWM</td>
<td>Private Wealth Management</td>
</tr>
<tr>
<td>JV</td>
<td>Joint venture</td>
<td>R&amp;D</td>
<td>Research &amp; Development</td>
</tr>
<tr>
<td>KB</td>
<td>Knorr-Bremse</td>
<td>ROE</td>
<td>Return on Equity</td>
</tr>
<tr>
<td>KB2020</td>
<td>Knorr-Bremse 2020</td>
<td>ROS</td>
<td>Return on Sales</td>
</tr>
<tr>
<td>KPI</td>
<td>Key Performance Indicator</td>
<td>RVS</td>
<td>Rail Vehicle Systems</td>
</tr>
<tr>
<td>LCC</td>
<td>Life-cycle cost</td>
<td>TCMS</td>
<td>Train Control Management System</td>
</tr>
<tr>
<td>TCO</td>
<td>Total cost of ownership</td>
<td>TPR</td>
<td>Truck Production Rate</td>
</tr>
<tr>
<td>UIC</td>
<td>International union of railways</td>
<td>US</td>
<td>United States</td>
</tr>
<tr>
<td>USD</td>
<td>US Dollars</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WC</td>
<td>Working Capital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KB2020</td>
<td>Knorr-Bremse 2020</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R&amp;D</td>
<td>Research &amp; Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RVS</td>
<td>Rail Vehicle Systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TCMS</td>
<td>Train Control Management System</td>
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</table>
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