ANNUAL REPORT
RHEINMETALL GROUP

2019

RHEINMETALL
GROUP

KEY FIGURES 2019 I RHEINMETALL GROUP

		2019	2018	2017[1]	2016	2015	2014	2013
RHEINMETALL GROUP								
Sales	€ million	**6,255**	6,148	5,896	5,602	5,183	4,688	4,417
Operating result	€ million	**505**	491	400	353	287	160	211
Operating result margin	%	**8.1**	8.0	6.8	6.3	5.5	3.4	4.8
EBIT	€ million	**512**	518	385	353	287	102	121
EBIT margin	%	**8.2**	8.4	6.5	6.3	5.5	2.2	2.7
EBT	€ million	**477**	485	346	299	221	22	45
Net income	€ million	**354**	354	252	215	160	21	22
Return on capital employed (ROCE)[2]	%	**15.4**	17.1	13.8	12.3	10.6	3.9	4.7
CASH FLOW								
Cash flow from operating activities	€ million	**602**	242	546	444	339	102	211
Cash flow from investments	€ million	**(288)**	(277)	(270)	(283)	(310)	(284)	(191)
Operating free cash flow	€ million	**314**	(35)	276	161	29	(182)	20
BALANCE SHEET								
Total equity	€ million	**2,272**	2,173	1,870	1,781	1,562	1,197	1,339
Total assets	€ million	**7,415**	6,759	6,101	6,150	5,730	5,271	4,866
Equity ratio	%	**30.6**	32.1	30.7	29.0	27.3	22.7	27.5
Cash and cash equivalents	€ million	**920**	724	757	616	691	486	445
Total assets less cash and cash equivalents	€ million	**6,496**	6,035	5,344	5,534	5,039	4,785	4,421
Net financial debt (-)/Net liquidity(+)[3]	€ million	**(52)**	(30)	230	19	(81)	(330)	(147)
Leverage ratio[4]	%	**0.8**	0.5	(4.3)	(0.3)	1.6	6.9	3.3
Net gearing[5]	%	**2.3**	1.4	(12.3)	(1.1)	5.2	27.6	11.0
HUMAN RESOURCES								
Employees (Dec. 31), according to capacity		**23,780**	22,899	21,610	20,993	20,676	20,166	20,264
Domestic		**11,587**	11,077	10,394	10,181	10,070	9,827	9,729
Foreign		**12,193**	11,822	11,216	10,812	10,606	10,339	10,535
RHEINMETALL AUTOMOTIVE								
Sales	€ million	**2,736**	2,930	2,861	2,656	2,592	2,448	2,262
Operating result	€ million	**184**	262	249	223	216	184	158
Operating result margin	%	**6.7**	8.9	8.7	8.4	8.3	7.5	7.0
Research & Development	€ million	**210**	193	186	142	126	112	114
Capital expenditure (Net investments)	€ million	**143**	161	154	149	167	158	142
RHEINMETALL DEFENCE								
Order Income	€ million	**5,186**	5,565	2,963	3,050	2,693	2,812	3,339
Order Backlog (Dec. 31)	€ million	**10,399**	8,577	6,416	6,656	6,422	6,516	6,050
Sales	€ million	**3,522**	3,221	3,036	2,946	2,591	2,240	2,155
Operating result	€ million	**343**	254	174	147	90	(9)	60
Operating result margin	%	**9.8**	7.9	5.7	5.0	3.5	(0.4)	2.8
Research & Development	€ million	**145**	143	109	74	73	65	74
Capital expenditure	€ million	**166**	101	89	95	96	76	62
SHARE								
Stock price (Dec. 31)	€	**102.40**	77.16	105.85	63.90	61.48	36.27	44.85
Earnings per share	€	**7.77**	7.10	5.24	4.69	3.88	0.47	0.75
Dividend per share	€	**2.40**	2.10	1.70	1.45	1.10	0.30	0.40

[1] Carrying amounts adjusted due to the change in measurement of operating land.
[2] EBIT/average capital employed
[3] Financial liabilities less cash and cash equivalents
[4] Net financial liabilities / total assets adjusted for cash and cash equivalents
[5] Net financial liabilities / equity

RHEINMETALL GROUP 2019

1
RHEINMETALL

2
CORPORATE SECTORS

6
DIVISIONS

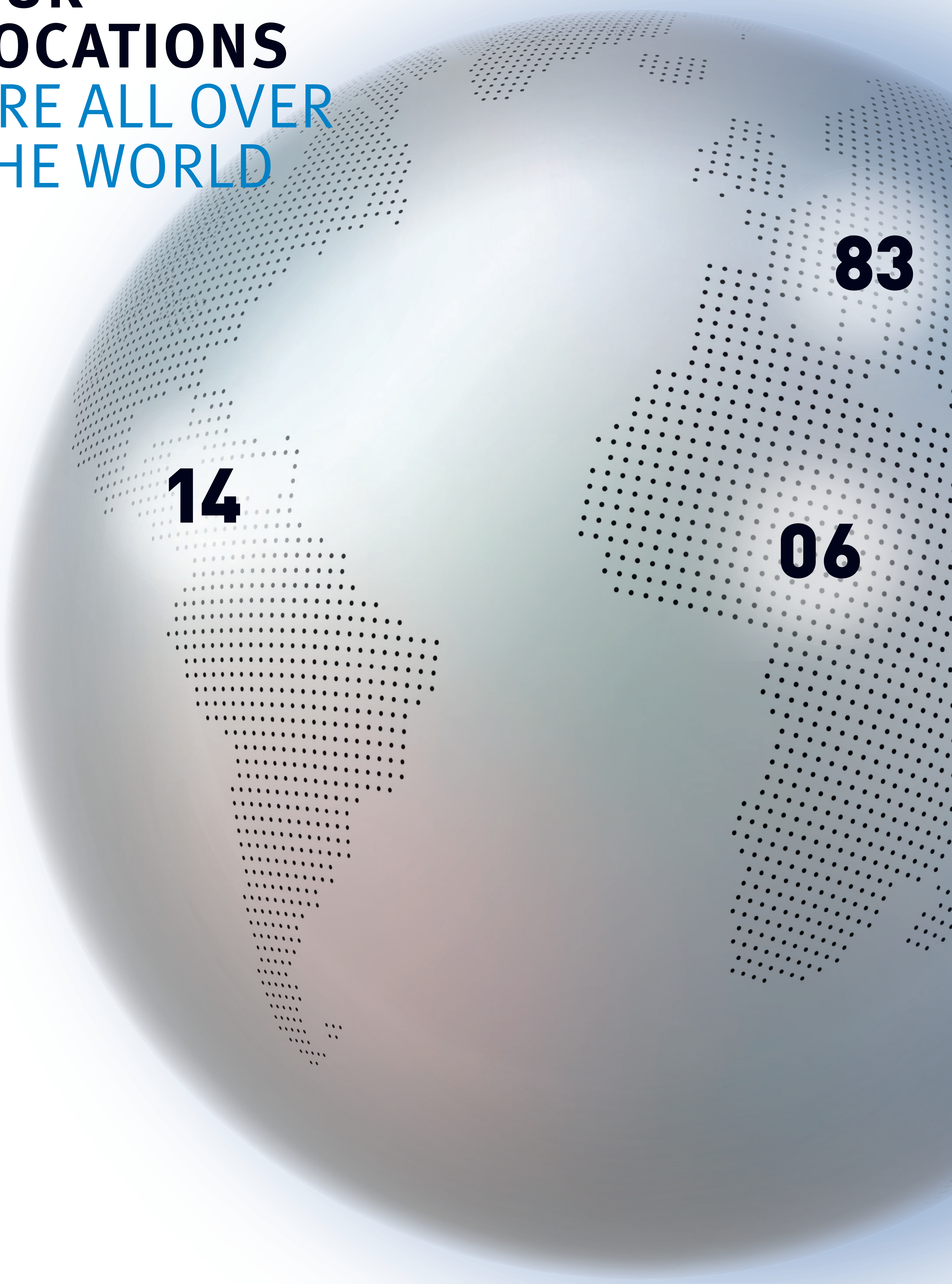
6.3
SALES € BILLION

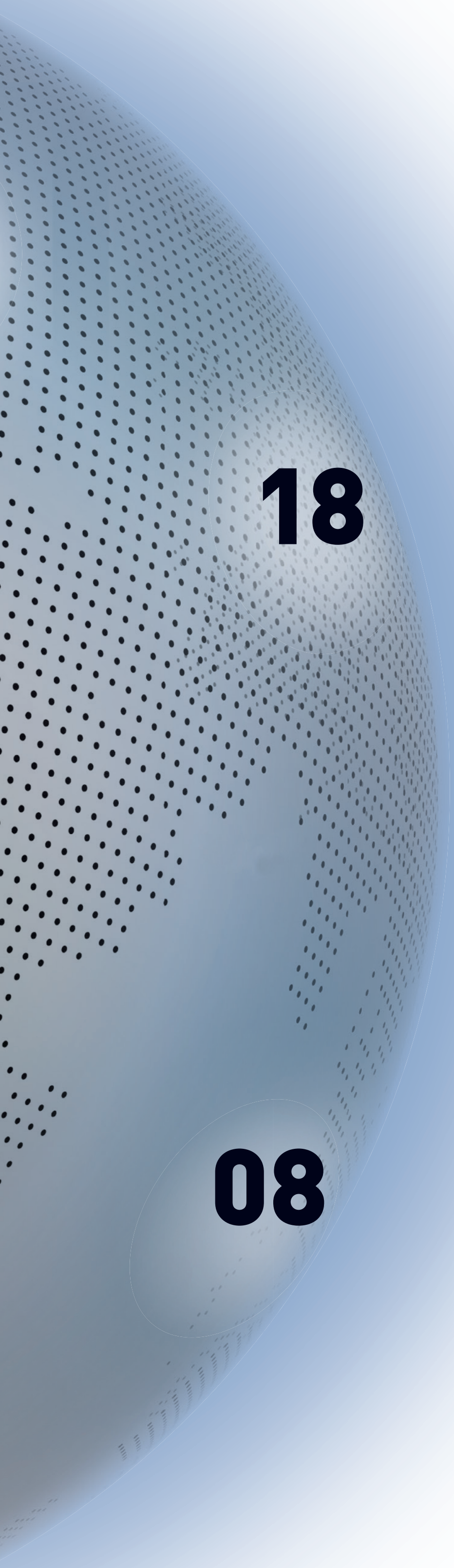
143
CUSTOMER COUNTRIES

129
LOCATIONS WORLDWIDE

25,767
EMPLOYEES

OUR LOCATIONS ARE ALL OVER THE WORLD





41 EUROPE GERMANY

Düsseldorf (Headquarters) · Aschau am Inn · Berlin · Bonn · Bremen Dormagen · Düren · Flensburg · Gardelegen (Letzlingen) · Gera · Hallbergmoos · Hamburg · Hartha · Harzgerode (Silberhütte) · Heilbronn Ismaning · Jena · Kassel · Koblenz · Kiel · Krefeld · Langenhagen Lohmar · Mainz · Munich · Neckarsulm · Neuenburg · Neuenstadt Neuss · Oberndorf · Papenburg · Rostock · Röthenbach (Pegnitz) Schneizlreuth (Fronau) · St. Leon-Rot · Stockach · Tamm · Trittau Unterlüß · Walldürn · Wedel

42 EUROPE

BELGIUM | Brussels · **FRANCE** | Le Blanc Mesnil · Meyzieu · Paris Roissy (Villepinte) · Thionville · **ITALY** | Bagnolo Mella · Domusnovas · Ghedi · Lanciano · Livorno · Pescara · Rome · **LITHUANIA** | Vilnius · **NETHERLANDS** | Ede · Hengelo · **NORWAY** | Nøtterøy **AUSTRIA** | Schwanenstadt · Vienna · **POLAND** | Gliwice · Warsaw **ROMANIA** | Campia Turrzi · **RUSSIAN FEDERATION** | Moscow **SWEDEN** | Stockholm · **SWITZERLAND** | Altdorf · Bern · Lohn-Ammannsegg · Studen · Urdorf · Wimmis · Zurich · **SPAIN** | Abadiano · Amorebieta · **CZECH REPUBLIC** | Trmice · Ústí nad Labem Chabařovice · **UNITED KINGDOM** | Bristol · Isle of Wight · Kirtlington London · Swindon · Telford

06 AFRICA

SOUTH AFRICA | Boskop · Maitland · Potchefstroom (Boksburg) Pretoria · Somerset West · Wellington

14 AMERICAS

BRASIL | Nova Odessa · **CANADA** | Ottawa · Saint-Jean-sur-Richelieu · **MEXICO** | Celaya · Mexico-City · **USA** | Auburn Hills/MI Biddeford/ME · Dover/DE · East Camden/AR · Greensburg/IN Greenville/SC · Marinette/WI · Stafford/VA · Wilmington/DE

18 ASIA

CHINA | Chongqing · Kunshan · Beijing · Shanghai · Yantai **INDIEN** | Mumbai · Pune (Takwe) · Supa · **JAPAN** | Hiroshima (Takaya) · Odawara (Kanagawa) · **MALAYSIA** | Malacca · **SAUDI ARABIA** | Riyadh · **SINGAPORE** | Singapore · **SOUTH KOREA** | Seoul **TURKEY** | Ankara · Istanbul · **UAE** | Abu Dhabi · SAIF Zone, Sharjah

08 AUSTRALIA

AUSTRALIA | Adelaide · Brisbane · Bundaberg · Canberra · Maryborough · Melbourne · Townsville · **NEW ZEALAND** | Wellington

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Letter to shareholders

Supervisory Board of Rheinmetall AG

SHAREHOLDER REPRESENTATIVES	YEAR BORN	NATIONALITY	MEMBERSHIP OF COMMITTEES	FIRST APPOINTED	MANDATE*
SHAREHOLDER REPRESENTATIVES					
Ulrich Grillo Chairman of the Supervisory Board	1959	German	S A P N V	May 10, 2016	2021
Dr.-Ing. Dr.-Ing. E.h. Klaus Draeger	1956	German	S	May 9, 2017	2022
Prof. Dr. Andreas Georgi	1957	German	A P	June 10, 2002	2022
Prof. Dr. Susanne Hannemann	1964	German	A	May 15, 2012	2022
Dr. Franz Josef Jung	1949	German	N	May 9, 2017	2022
Detlef Moog	1948	German	S	July 8, 2010	2021
Klaus-Günter Vennemann	1954	German	N	May 10, 2016	2021
Univ.-Prof. Dr. Marion A. Weissenberger-Eibl	1966	German	V	May 10, 2016	2021
EMPLOYEE REPRESENTATIVES					
Dr. Rudolf Luz Deputy Chairman of the Supervisory Board	1956	German	S P A V	January 26, 2001	2022
Roswitha Armbruster	1954	German	A	May 15, 2012	2022
Dr. Daniel Hay	1979	German	P	May 7, 2014	2022
Dr. Michael Mielke	1964	German		September 1, 2010	2022
Reinhard Müller	1960	German	V	May 9, 2017	2022
Dagmar Muth	1961	German	S	July 1, 2015	2022
Markus Schaubel	1963	German	S	July 1, 2014	2022
Sven Schmidt	1975	German	A	July 1, 2014	2022

*Until the end of the Annual General Meeting

S | A | P | N | V

Chairman | Strategy Committee | Audit Committee | Personnel Committee | Nomination Committee | Mediation Committee

Letter to shareholders
Report of the Supervisory Board

Supervisory Board of Rheinmetall AG
Left to right: Dr.-Ing. Dr.-Ing. E. h. Klaus Draeger, Dr. Rudolf Luz (Deputy Chairman), Professor Dr. Andreas Georgi, Univ.-Prof. Dr. Marion A. Weissenberger-Eibl, Reinhard Müller, Professor Dr. Susanne Hannemann, Ulrich Grillo (Chairman), Klaus-Günter Vennemann, Dr. Franz Josef Jung, Dr. Daniel Hay, Detlef Moog, Roswitha Armbruster, Dr. Michael Mielke, Markus Schaubel, Dagmar Muth, Sven Schmidt

Consultation and monitoring as part of ongoing dialogue with the Executive Board

During the year under review, as in previous years, we performed all the tasks and duties assigned to us in accordance with the law, Articles of Association and Rules of Procedure with commitment, responsibility and conscientiousness. We regularly advised the Executive Board on the management of the company and diligently monitored its management activities. Cooperation between the Supervisory Board and Executive Board is characterized by trust, openness and constructive dialogue.

The Supervisory Board was involved at an early stage in all decisions of key strategic, economic and organizational importance to the Rheinmetall Group. We received detailed written documentation from the Executive Board to help us to prepare for our meetings, which meant that we always had sufficient opportunity to look critically at the reports, presentations and proposed resolutions in the plenary assembly and in the committees and contribute our own suggestions before, following thorough examination and detailed discussion, passing resolutions where our approval was required in accordance with the law, Articles of Association or Rules of Procedure for measures or transactions of the Executive Board.

Members of the Executive Board attended the meetings of the Supervisory Board and committees in order to discuss the matters in hand and answer our questions. We critically appraised, questioned and assessed the plausibility of all the information disclosed to us during these sessions.

Between meetings, we were informed of the course of business and the current situation of the Rheinmetall Group and its two sectors, Defence and Automotive, in writing on a quarterly basis.

I was in regular contact with the CEO throughout the entire fiscal year. At numerous face-to-face meetings and during telephone conversations, subjects including planned business policy, the background to pending decisions and significant transactions of importance to the assessment of the situation and the company's development were discussed.

On the basis of extensive reports and in-depth presentations and the detailed information provided by the Executive Board and the other managers, we performed a critical examination of the company's management. Based on our intensive work and reviews, we are convinced of the legality, propriety and appropriateness of management by the Executive Board and of the performance of the organization.

Issues and resolutions passed by the Supervisory Board as a whole

Four scheduled meetings and one extraordinary Supervisory Board meeting took place in the year under review. We examined the company's situation, challenges, opportunities and prospects in detail. In the regular Supervisory Board meetings, the members of the Supervisory Board addressed in detail matters including the award of upcoming projects and large orders, the course of business, the current earnings and financial position, general political, economic, business and technological conditions, the company's prospects and challenges when faced with competition from abroad and options, opportunities and risks in regional growth markets. Strategic and operational targets were discussed, along with their economic significance for Rheinmetall and their expected impact on the company's financial situation. Aside from the Group's corporate orientation and the structural development of the Automotive and Defence sectors, our discussions focused on opportunities and measures to ensure the competitiveness and future viability of the company. We also dealt with major acquisition projects and specific risks to the company as required.

At an extraordinary Supervisory Board meeting on **January 18, 2019**, the Supervisory Board approved the Executive Board's request to establish, through the acquisition of company shares in BAE Systems Global Combat Systems Ltd., a joint venture with BAE Systems in Great Britain that will engage in development, production and associated support services in the military land systems area. The joint venture, in which Rheinmetall holds 55% of shares and BAE Systems 45%, will operate under the name Rheinmetall BAE Systems Land and site its registered office in Telford, Great Britain. The project was subject to approval by the UK competition authority, which was granted on June 13, 2019.

One agenda item at the annual accounts meeting that took place in Düsseldorf on **March 12, 2019**, was discussion of the single-entity and consolidated financial statements of Rheinmetall AG as of December 31, 2018, issued with an unqualified auditor's opinion by PricewaterhouseCoopers (PwC), together with the combined management report for Rheinmetall AG and the Rheinmetall Group and the Executive Board's proposal for the appropriation of net income for the year. The Executive Board presented the company's performance and results for fiscal 2018 in detail and also looked more closely at important individual issues in the Automotive and Defence sectors in this context.

The auditors described the scope of their assignment, their audit methods and the main areas of the audit, and reported in detail on the material findings and results of their audits. Both the Executive Board and the auditor provided comprehensive answers to the Supervisory Board's questions. Taking into account the company's financial situation and the expectations of shareholders and the capital market, we approved the Executive Board's proposal for appropriation of net income. We also discussed the Supervisory Board's report to the Annual General Meeting and deliberated in detail on the draft proposals to be submitted to the 2019 Annual General Meeting, which we approved.

The Executive Board provided information on business performance as at January 2019 and gave its outlook on results to be expected in the first quarter of 2019.

Furthermore, we addressed the degree of achievement of targets by members of the Executive Board for fiscal 2018 and determined the Executive Board members' targets for fiscal 2019. At the recommendation of the Personnel Committee, we resolved to reappoint Peter Sebastian Krause as a member of the Executive Board and Director of Industrial Relations of Rheinmetall AG from January 1, 2020, for a duration of five years and approved the associated extension of his employment contract.

Following extensive discussions, and relating to the situation in Greece, we recommended to the Annual General Meeting the conclusion of a compromise agreement between Rheinmetall AG and its subsidiary Rheinmetall Electronics GmbH on the one hand and, on the other, D&O insurers AXA Corporate Solutions Deutschland and HDI Global SE as well as the former Executive Board members Klaus Eberhardt, Dr. Herbert Müller and Dr. Gerd Kleinert. The Annual General Meeting agreed to this compromise agreement on May 28, 2019.

The Executive Board presented its plans for rounding off the product portfolio in the field of protective technologies for military vehicles and outlined its reasons for an acquisition in the area of Protection Systems. It explained the structure of the planned transaction, the strategic fit and the planned expansion of this business area on the basis of this acquisition. Following consultation, we approved the conclusion of the purchase agreements associated with the transaction. Furthermore, the Executive Board outlined its intention to increase Rheinmetall's share in the Wheeled Tactical Vehicles entity to 100%. The buyback of company shares held by MAN Truck & Bus SE in parts of the Rheinmetall MAN Military Vehicles GmbH (RMMV) joint venture is aimed at further strengthening our main pillar in the field of tactical military vehicles (wheeled armored vehicles). The Executive Board explained that Rheinmetall and MAN, as shareholders of RMMV, believe that the tactical wheeled vehicle business can be further expanded more effectively under the sole management of Rheinmetall – and thus outside of RMMV. Cooperation in the field of military trucks will continue as normal between both partners in the Rheinmetall MAN Military Vehicles joint venture, in which Rheinmetall – as majority shareholder – holds 51% of shares. Following in-depth discussion, we approved the proposed resolution of the Executive Board to buy back the Wheeled Tactical Vehicles entity in Rheinmetall MAN Military Vehicles GmbH.

The second Supervisory Board meeting of the year was held in Berlin on **May 27, 2019**. The Executive Board outlined the business performance of the Rheinmetall Group and the Automotive and Defence sectors as of April 2019. They addressed not only the status of German procurement programs but also the situation with major international Defence projects, and reported on the progress of the construction of the production facility in Queensland, Australia. The Executive Board also provided an update on current M&A activities and informed us of the status of measures to integrate newly acquired companies. Furthermore, the Executive Board talked about the current status of investigations into the tragic accident in Somerset West, South Africa, and about the support being provided for the affected family members. The Executive Board presented the results of the analysis into the shareholder structure as of February 2019 and, in this context, talked about some of the most important issues discussed during the investor meetings.

Horst Binnig declared that, for personal reasons, he would be resigning from his position on the Executive Board of Rheinmetall AG at the end of 2019. I explained the process of seeking a successor. Furthermore, the Executive Board provided an overview of activities and current priorities in the area of diversity, talked about the proportion of women in technical functions at the German and foreign subsidiaries, outlined the measures that have already been introduced to promote diversity within the company and presented the targets for the staff development programs over the next five years. Later in the meeting, we prepared for the Annual General Meeting taking place the following day.

On **August 21, 2019**, at the Supervisory Board meeting that took place in Neckarsulm the Executive Board explained the development of the business as at July 2019 as well as the business performance expected for 2019 as a whole and in this context also addressed specific issues in the Automotive and Defence divisions. The Executive Board also presented the results of the annual statutory audit relating to the European Market Infrastructure Regulation (EMIR). According to the certificate issued by the independent auditor from March 2019, the company's system for ensuring compliance with the requirements under section 32(1) of the Wertpapierhandelsgesetz (WpHG – German Securities Trading Act) was appropriate and effective overall and in all material respects during the period for which the audit was required from January 1 to December 31, 2018. Furthermore, we discussed the implementation of the German Corporate Governance Code and, together with the Executive Board, issued a declaration of conformity in accordance with section 161 of the German Stock Corporation Act, the content of which remained unchanged with respect to the previous year. The Executive Board elucidated the submitted proposed resolution for the issue of promissory notes / bonds and provided a full justification of the planned expansion of the overall financial framework for the Rheinmetall Group. We approved the request. Another agenda item was the selection of the auditor for fiscal 2020 to be recommended to the Annual General Meeting. The Chairman of the Audit Committee summarized the selection process and the evaluation of the offers and presented the recommended resolution of the Audit Committee, which was approved by the Supervisory Board. We expressed our consent to the resignation of Horst Binnig on December 31, 2019, and approved the early termination of his employment contract. We also discussed the results of the effectiveness analysis of the Supervisory Board with external participation, which included an online survey and one-on-one interviews. These confirmed that cooperation between the Supervisory Board and Executive Board was professional, constructive and characterized by a high degree of openness and trust. No fundamental need for change was apparent. A number of suggestions for improvement were addressed and implemented during the year.

In the last meeting of the year, which was held in Düsseldorf on **December 5, 2019**, the Executive Board presented its report for the third quarter of 2019. It informed the plenary assembly about the current business situation of the Rheinmetall Group and provided an outlook on expected performance to the end of the fiscal year. Medium-term corporate planning from 2020 to 2022 – including financial, investment and human resources planning – was then presented to us in detail and the assumptions made by the Executive Board for the corporate planning were discussed in depth. This also included the plausibility of the expectations presented as well as the opportunities and risks. We took notice of and approved the plans for the Defence sector and approved the investment master budget for fiscal 2020 submitted for this corporate segment. With respect to the current transformation in the automotive industry, the dramatically changing market and competitive environment in this industry and the future strategic and operational alignment of the Automotive sector, it was decided to revise planning for the Automotive sector and to discuss this in an extraordinary Supervisory Board meeting together with the plans to be submitted at this time for the Rheinmetall Group. We also discussed in detail specific components of the remuneration of Executive Board members and, following extensive consultation, approved the system and terms for the new remuneration system. The Chairman of the Audit Committee stated that the assignment to audit the single-entity financial statements for 2019 had been awarded in writing to PwC on November 6, 2019.

On the work of the committees

The Supervisory Board had five permanent committees in the year under review: the Strategy Committee, the Audit Committee, the Personnel Committee, the Nomination Committee and the committee in accordance with section 27(3) of the Mitbestimmungsgesetz (German Codetermination Act). The primary task of these committees is to prepare a structure for complex and time-consuming topics prior to plenary assembly meetings and to examine proposed resolutions submitted by the Executive Board in advance. The Chairman of the Supervisory Board presides over all committees with the exception of the Audit Committee. The committee members taking part in the committee meetings are listed on page 10. Further information on the duties of the committees can be found in the corporate governance statement on page 133 et seq. The membership of the committees is shown on page 2.

The **Strategy Committee** met in February and July. The external boundary conditions presented by the Executive Board and the associated challenges and potential disruptions were discussed at length. Topics that were addressed in depth included entrepreneurial ambitions, relevant market-related and technological trends, potential for further profitable growth, the expansion of strategic core areas of expertise and technological positions, potential new areas of business, initiatives for expansion into emerging markets and regions and the future positioning of the Defence and Automotive sectors with their respective business models and the resulting targets and measures.

The upheaval in the automotive industry, the accompanying pressure to respond and the major strategic challenges and consequences for existing business models and product categories/developments as well as growing plant structures above all in Germany and the rest of Europe were discussed in detail, as were activities concerning the establishment of alternative areas of business and the huge importance of the five Group-wide technology clusters designed to make the technologies in the Group available across all areas of business and to leverage synergies. In this context, the Executive Board talked about the newly created organizational framework for integrating startup activities and strengthening the role of the Chief Technology Officer in both corporate units. The situation on the Chinese market was also discussed, as was the technological potential of alternative drive systems, especially in relation to electric-battery-powered vehicles with a fuel cell. The Executive Board also presented the strategic challenges in the Defence sector and explained not only the growth potential but also the resulting individual business opportunities in the three divisions.

The **Audit Committee** met in March, May, July, November and December in the last fiscal year and additionally held a teleconference in March. In addition to a preparatory examination of the single-entity and consolidated financial statements, on which it issued a recommendation to the plenary assembly of the Supervisory Board on the passing of a resolution in accordance with section 171 of the German Stock Corporation Act, it dealt in particular with the monitoring of the accounting process, the effectiveness of the internal control system, the risk management system, the internal auditing system and the compliance management system, including data protection management. Prior to publication, the quarterly and semi-annual results were discussed in detail with the Executive Board. The auditors of the financial statements participated in the meetings in March 2019 and December 2019.

In addition to the discussion of specific individual issues in the Automotive and Defence sectors, other subjects addressed in the meetings included reports on major projects in the Defence sector, asset liability management and management of currency risks, the non-financial statement in accordance with the German Act on Implementation of the EU CSR Directive as part of the combined management report, the EMIR statutory audit, the selection of a new auditor for fiscal 2020 for the upcoming rotation of the auditor in accordance with the German Audit Reform Act, which came into effect on June 17, 2016, and the mandating of the auditor elected in the Annual General Meeting on May 28, 2019, for fiscal 2019.

Regardless of developments in relation to the act on the transposition of the Second Shareholder Rights Directive (ARUG II), the Audit Committee has been monitoring progress concerning the implementation of a new risk management system and was informed of the potential impact on and risks to the company in connection with the impending Brexit. In addition to the circumstances surrounding and consequences of the malware cyber attacks on certain companies in the Automotive sector, the situation at the South African production facility Somerset West following the tragic accident in September 2018 was also discussed. The members of the Audit Committee discussed not only the Executive Board's plans to reposition and refinance promissory notes, but also the current Group rating, which appears stable at "investment grade."

At meetings during the year, the members of the Audit Committee were also informed by managers at the company about the Group function Legal, compliance – including data protection management – and tax compliance, risk management, internal audit and insurance management in the Rheinmetall Group. Along with the standard processes put in place, the individual content of reports was also discussed. The members of the Audit Committee gained a more in-depth picture of existing structures and organizations, workflows and rules and had the opportunity to ask questions about and comment on developments that were presented and the planned improvement measures in these areas. They concluded that Rheinmetall AG has appropriate, adequate and effective systems and control mechanisms in these areas and that it reviews these on an ongoing basis and is systematically and consistently expanding them.

Two members of the Audit Committee have particular knowledge and experience in the application of accounting principles and internal control processes (financial experts). Professor Susanne Hannemann and Professor Andreas Georgi are independent and are not former members of the Executive Board of the company.

The **Personnel Committee** met three times in March, July and November and held three teleconferences in February, August and November 2019 and prepared topics for the Supervisory Board including the structure of the target agreements, the extent to which targets were achieved for fiscal 2018 and the setting of targets and ranges for variable remuneration of the Executive Board in 2019.

It also discussed the reappointment of Peter Sebastian Krause and the associated contractual regulations. Following Horst Binnig's announcement in May 2019 to resign from his position on the Executive Board at the end of the fiscal year, the search for a suitable successor was initiated.

In addition, the Personnel Committee commissioned a review of the appropriateness of Executive Board remuneration by a renowned consulting firm specializing in remuneration issues. In the appraisal report, taking into account expected legislative amendments and the recommendations of the German Corporate Governance Code, which is currently being revised, changes to the formulation of the Executive Board contracts and remuneration structure were recommended. The members of the Personnel Committee discussed the new Executive Board remuneration system and its components in detail multiple times during the year. Details of remuneration for the Executive Board are presented in the remuneration report on pages 144–155.

The **Nomination Committee** did not meet in the year under review.

The **committee pursuant to Section 27(3) of the German Codetermination Act**, which is required under statutory law, also did not convene in the past fiscal year.

Composition of the Supervisory Board

There were no changes to the composition of the Supervisory Board in the year under review.

In terms of the proportion of men and women, the Supervisory Board complies with the legally prescribed minimum quotas in accordance with section 96 (2), sentences 1, 3 and 4 of the German Stock Corporation Act. The shareholders and employee representatives alike resolved that, under consideration of regulations as per section 96 (2), sentence 3 of the German Stock Corporation Act, the minimum quota of 30% for women and the minimum quota of 30% for men for members of the Supervisory Board shall be fulfilled separately.

Composition of the Executive Board

The Supervisory Board considers continuity in terms of staffing in the top management in the best interests of the company and additionally a key component for the further sustainable economic success of Rheinmetall AG. At the recommendation of the Personnel Committee, we voted in the Supervisory Board meeting on March 12, 2019, for the reappointment of Peter Sebastian Krause from January 1, 2020, to December 31, 2024, as a member of the Executive Board and Director of Industrial Relations of Rheinmetall AG and approved the associated extension of his employment contract.

In the Supervisory Board meeting on May 27, 2019, Horst Binnig announced his intention to resign, for personal reasons, from his position on the Executive Board at the end of 2019.The Supervisory Board thanks Horst Binnig for his many years of dedicated and successful work. He not only played a key role in the financial success of Rheinmetall's automotive business over the past few years, but also provided important stimuli for the growth of the Rheinmetall Group during his tenure as member of the Executive Board of Rheinmetall AG. The appointment of a new Executive Board member to replace Horst Binnig was decided upon in the Supervisory Board meeting on December 5, 2019. Due to existing contractual obligations, this person will be joining the company at a later point in time.

Corporate governance

The further development of the fundamental principles and regulations concerning corporate governance in the company – in particular, the application of the recommendations of the German Corporate Governance Code – are regularly monitored by the Supervisory Board. In August 2019, the Executive Board and Supervisory Board issued their declaration of conformity with the German Corporate Governance Code. We are following the recommendations contained in the latest version of the code dated February 7, 2017, with just one exception (regulatory limit on membership of the Supervisory Board).The declaration – along with an explanation of the deviation – can now be accessed by shareholders at any time on the Rheinmetall Group homepage. In accordance with the German Corporate Governance Code, the no-longer-current declarations of conformity with the code can be viewed in the archive on the company's homepage under the heading "Corporate Governance."

No indications of any conflicts of interest involving members of the Executive Board or Supervisory Board within the meaning of item 5.5.2 of the German Corporate Governance Code were identified in the last fiscal year. No former members of the Executive Board of the company are members of the Supervisory Board.

The corporate governance statement in accordance with section 315d of the German Commercial Code in conjunction with section 289f of the German Commercial Code contains, from page 128, not only the wording of the aforementioned declarations of conformity, but also information about corporate governance practices. The working methods of the Executive Board, Supervisory Board and the committees are also described. In addition, information is provided about the gender quota and diversity concept for the Executive Board and Supervisory Board.

Individual attendance of the members of the Supervisory Board at face-to-face meetings and teleconferences

	Chair | Member	Attendance | meetings/teleconferences
Plenary assembly	Ulrich Grillo	5 | 5
	Dr.-Ing. Dr.-Ing. E. h. Klaus Draeger	5 | 5
	Professor Dr. Andreas Georgi	5 | 5
	Professor Dr. Susanne Hannemann	5 | 5
	Dr. Franz Josef Jung	5 | 5
	Detlef Moog	5 | 5
	Klaus-Günter Vennemann	5 | 5
	Univ.-Prof. Dr. Marion A. Weissenberger-Eibl	4 | 5
	Dr. Rudolf Luz	5 | 5
	Roswitha Armbruster	5 | 5
	Dr. Daniel Hay	4 | 5
	Dr. Michael Mielke	5 | 5
	Reinhard Müller	5 | 5
	Dagmar Muth	5 | 5
	Markus Schaubel	5 | 5
	Sven Schmidt	5 | 5
Strategy Committee	Ulrich Grillo	2 | 2
	Dr.-Ing. Dr.-Ing. E. h. Klaus Draeger	2 | 2
	Detlef Moog	1 | 2
	Dr. Rudolf Luz	2 | 2
	Dagmar Muth	2 | 2
	Markus Schaubel	1 | 2
Audit Committee	Professor Dr. Andreas Georgi	6 | 6
	Ulrich Grillo	6 | 6
	Professor Dr. Susanne Hannemann	6 | 6
	Dr. Rudolf Luz	6 | 6
	Roswitha Armbruster	5 | 6
	Sven Schmidt	5 | 6
Personnel Committee	Ulrich Grillo	6 | 6
	Professor Dr. Andreas Georgi	6 | 6
	Dr. Rudolf Luz	6 | 6
	Dr. Daniel Hay	6 | 6
Nomination Committee	Ulrich Grillo	0 | 0
	Dr. Franz Josef Jung	0 | 0
	Klaus-Günter Vennemann	0 | 0
Mediation Committee	Ulrich Grillo	0 | 0
	Univ.-Prof. Dr. Marion A. Weissenberger-Eibl	0 | 0
	Dr. Rudolf Luz	0 | 0
	Reinhard Müller	0 | 0

With 14 meetings and 5 teleconferences, the participation level in the previous fiscal year was 96%. In the event that members of the Supervisory Board were unable to attend meetings of the Supervisory Board or its committees, they were excused and submitted their votes in writing by proxy.

Auditing of accounting and the proposal for appropriation of net income

The single-entity financial statements prepared by the Executive Board in accordance with German GAAP as of December 31, 2019, and the consolidated financial statements prepared on the basis of section 315a of the German Commercial Code in accordance with the International Financial Reporting Standards (IFRS) as adopted by the EU, together with the combined management report, including the non-financial statement, for Rheinmetall AG and the Rheinmetall Group, including the accounts, were audited by PricewaterhouseCoopers GmbH Wirtschaftsprüfungsgesellschaft, Frankfurt am Main, Düsseldorf branch, in accordance with statutory regulations and were issued with an unqualified auditor's opinion. The auditor conducted the audit in accordance with German generally accepted standards for the audits of financial statements promulgated by the Institut der Wirtschaftsprüfer (Institute of Public Auditors in Germany) (IDW).

The members of the Supervisory Board were issued with the single-entity and consolidated financial statements documentation, the draft proposal on the appropriation of net income and the audit reports prepared by the auditors in good time in order to ensure an in-depth, thorough review. This financial statement documentation was discussed in detail during the Audit Committee's meeting on March 16, 2020, and the annual accounts meeting of the Supervisory Board on March 17, 2020, in the presence of the auditors and following the presentation of the auditors' report. They provided information on the scope, focal points and key results of their audit, answered all questions without reservations and also offered additional information.

We examined the single-entity and consolidated financial statements, the combined management report and the proposal for the appropriation of net income for the year. There were no objections. We concurred with the results of the audit performed by the auditors. We approved the single-entity and consolidated financial statements presented by the Executive Board for the 2019 fiscal year in today's Supervisory Board meeting. The single-entity financial statements are thus adopted under the terms of section 172 of the German Stock Corporation Act. We concurred with the Executive Board's proposal for the appropriation of net income, which provides for the distribution of a dividend of €2.40 per entitled share for the year under review, taking into account the company's results of operations and financial position, investment planning and the interests of stakeholders.

Also on behalf of my colleagues in the Supervisory Board, I would like to thank all our customers, shareholders and business partners for the trust they have placed in Rheinmetall, often over many years And we would like to thank the members of the Executive Board, the managers and all employees for their work, unstinting passion, outstanding commitment and their esprit de corps, which once again secured the success of Rheinmetall in 2019.

Düsseldorf, March 17, 2020

On behalf of the Supervisory Board
Ulrich Grillo
Chairman

ARMIN PAPPERGER

Chief Executive Officer

Dear Shareholders,

The year 2019 was a challenging year for our key markets and for Rheinmetall itself. So it is all the more pleasing that, despite the subdued economic situation, we enjoyed robust business development. We increased sales slightly compared with the previous year by 1.7% to € 6.3 billion and also achieved a slightly improved operating margin of 8.1%. This success can be attributed to a strong performance in the Defence sector. In the Automotive sector, however, we were unable to uncouple ourselves completely from the downward trends on the global markets. That said, the fact that we – as a technology group for Automotive and Defence – manage a balanced portfolio has once again paid off. At the same time, we are benefiting from the fact that we are tackling the current challenges in our established Automotive business with a technological diversification strategy that we launched early on.

Both the technological transformation as a whole and the upheaval in the automotive industry are forcing us not only to become less dependent on the combustion engine, but also expand our activities to other areas. Technology leadership is the key here to future success. This is where the big chance for Rheinmetall lies, especially since our Automotive and Defence sectors provide mutual technological enrichment. As an integrated technology group, we possess outstanding expertise in the fields of automation, sensor technology, digitalization, electromobility and artificial intelligence. We pool our Group-wide competencies in these technological fields – including at an organizational level. To support this, we opened the Rheinmetall Technology Center last year as a central hub for coordinating these innovative endeavors and with one overarching goal: Over the medium term, we want to develop innovative products, open up new markets and so optimize our growth potential.

We have already achieved new milestones along the path toward greater diversification: We have since significantly increased the number of orders relating to new products beyond conventional combustion engines. A large, well-known mobile network operator, for example, has commissioned us to produce complex cast components for a new generation of 5G transmitters. And that's just one example. We are also receiving an increasing number of orders for battery-powered vehicles, hybrids and fuel cell components. The trust placed in us by our shareholders and business partners acts as both a confirmation and an incentive for us along this path.

Sincerely,

HELMUT P. MERCH

Finances

In fiscal 2019, we once again demonstrated our performance as an integrated technology group. We remain on the road toward profitable growth because we have more than compensated for the downward trend in the automotive industry thanks to the strong performance of our Defence sector. Our One Rheinmetall strategy program will play a key role in the future. Thanks to the ever-closer dovetailing of Automotive and Defence, we are not only promoting mutual technological enrichment but also leveraging additional cost-related potential that will further increase our profitability. Rheinmetall is well-positioned as a driver of innovation in the central and pioneering fields of mobility and security. Our balanced portfolio gives us a high degree of stability, even in times of economic fluctuations and uncertainties. Rheinmetall is on a path of robust growth and offers an exciting outlook for customers, investors and employees.

PETER SEBASTIAN KRAUSE

Human Resources

Anyone looking to make an impact in the pioneering fields of mobility and security will find the perfect employer in Rheinmetall. We are a technology group for Automotive and Defence that has broken down the silos among and within these sectors and is breaking new ground. In terms of our markets and products, we have introduced a range of measures aimed at transformation and diversification. Now more than ever, we are being challenged to create innovations that are truly unique. To achieve this, we rely on the outstanding performance of our highly motivated and highly skilled employees. But to meet the challenges that lie ahead, we need to further strengthen our workforce. Reinforcements from top performers. Because we don't want to be simply part of the two megatrends for ecofriendly mobility and threat-appropriate security technology – we want to influence and shape these pioneering trends long into the future. Rheinmetall is already a highly attractive company. But we'll help to make it even more exciting, diverse, international and successful.

Letter to shareholders
Rheinmetall on the capital markets

Rheinmetall share basic information

	2019
Share class	Bearer shares
Securities identification number (WKN)	703000
International Securities Identification Number (ISIN)	DE 0007030009
Stock exchange	Xetra and all German stock exchanges
Deutsche Börse admission segment	Prime Standard/Regulated Market
Sector	Industrial products
Indices	MDAX, EURO STOXX 600
Bloomberg ticker symbol	RHM
Reuters ticker symbol	RHMG.DE
Designated sponsors	Commerzbank, Deutsche Bank
Announcements	Electronic Federal Gazette
First listed on the stock exchange	November 14, 1894

Rheinmetall share key figures

		2019	2018	2017	2016	2015
Equity as of year-end						
Subscribed capital	€ million	111.51	111.51	111.51	111.51	111.51
Issued shares	Thousands of units	43,559	43,559	43,559	43,559	43,559
Free float (incl. treasury stocks)	Percent	100	100	100	100	100
Treasury stock	Percent	1.1	1.3	1.6	2.0	2.4
Share						
Share price at end of fiscal year (Xetra)	€	102.40	77.16	105.85	63.90	61.48
Performance over the year	Percent	+33	-27	+66	+4	+70
Highest closing price (Xetra)	€	117.55	118.15	108.65	70.61	63.19
Lowest closing price (Xetra)	€	76.68	70.94	64.13	51.47	34.60
Stock exchange data						
Stock market value of all shares as of year-end	€ billion	4.5	3.4	4.6	2.8	2.7
Average sales per trading day (Xetra)	Thousands of units	146	179	156	179	225
Ranking at year end (scope: all companies listed in Germany)						
according to market capitalization		51	54	49	56	54
according to stock exchange turnover		55	54	60	58	58
Key figures						
Earnings per share	€	7.77	7.10	5.24	4.69	3.88
Equity per share	€	52.76	50.58	45.67	41.78	40.07
Dividend						
Total payout	€ million	103	90.3	72.9	61.9	46.8
Payout ratio	Percent	31	30	32	31	28
Dividend per dividend-entitled share	€	2.40	2.10	1.70	1.45	1.10
Dividend yield	Percent	2.3	2.7	1.6	2.3	1.8

Stock markets display a strong performance in a volatile environment

Following an eventful 2018, which saw a clear downward trend on the stock markets, the German indices DAX® and MDAX® have, despite interim corrections, regained their old strength.

In 2019, the capital markets faced a host of challenges. A further-delayed Brexit as well as the ongoing trade war between the US and China and the risk of this spreading to Europe put a great deal of pressure on the markets at macro level. In addition, weak global demand in the automotive sector, yet another weak economic performance in Europe and multiple profit warnings by companies in the automotive sector resulted in short-term uncertainty. Despite this, however, the continued expansionist monetary policy pursued by the central banks in the US and Europe supported the positive stock market trend over the course of the year.

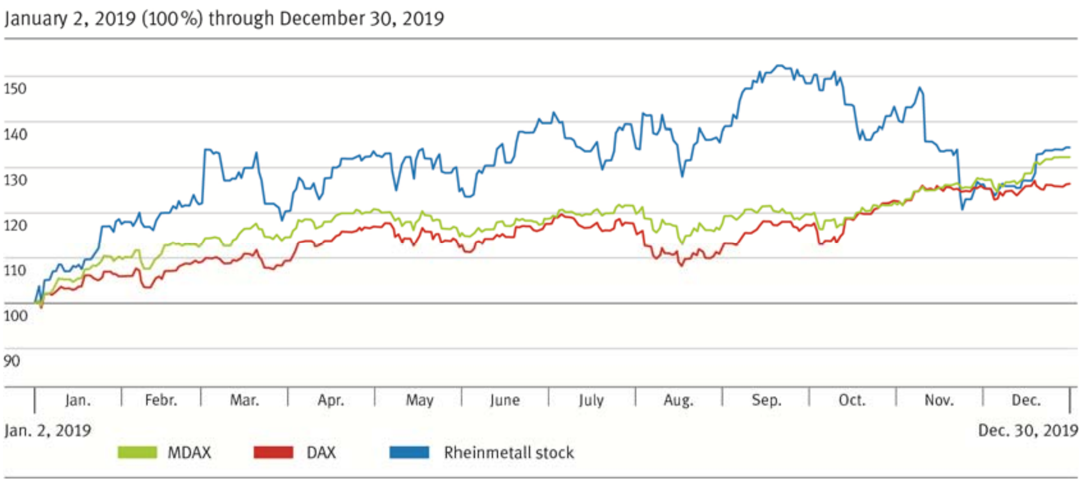
Toward the end of the year, the rapprochement between the US and China and the announcement that the first phase of a trade agreement had been completed resulted in a positive market response. The election in Great Britain and the subsequent Brexit decision in the British parliament also contributed to a positive development on the markets.

DAX®, the leading index in Germany, ended 2019 on 13,249 points, an increase of 25.5% compared with the end of 2018. MDAX® saw an increase of 31.2% to 28,313 points. The development of the Rheinmetall share price exceeded even this strong trend and has enjoyed excellent growth since the beginning of the year. The closing price of the share on December 30, 2019, was €102.40, an increase of 32.7% compared with the closing price at the end of the previous year.

Deutsche Börse AG uses the two criteria “market capitalization” and “trade volume” for inclusion in the indices DAX® and MDAX®. The performance of the Rheinmetall share saw market capitalization increase from last year’s figure of €3.4 billion to €4.5 billion, which means that the company improved its ranking among all listed companies in Germany by three places to 51st place.

Deutsche Börse AG also takes into account the volume of shares traded on the trading platform Xetra. In the ranking according to trade volume, Rheinmetall was in 55th place at the end of the year, slightly below its ranking last year. At around 146,000, the average number of Rheinmetall AG shares traded via Xetra each day in 2019 was slightly down on the previous year’s level (179,000).

Rheinmetall stock price trend in comparison to development of the DAX and MDAX



Letter to shareholders
Rheinmetall on the capital markets

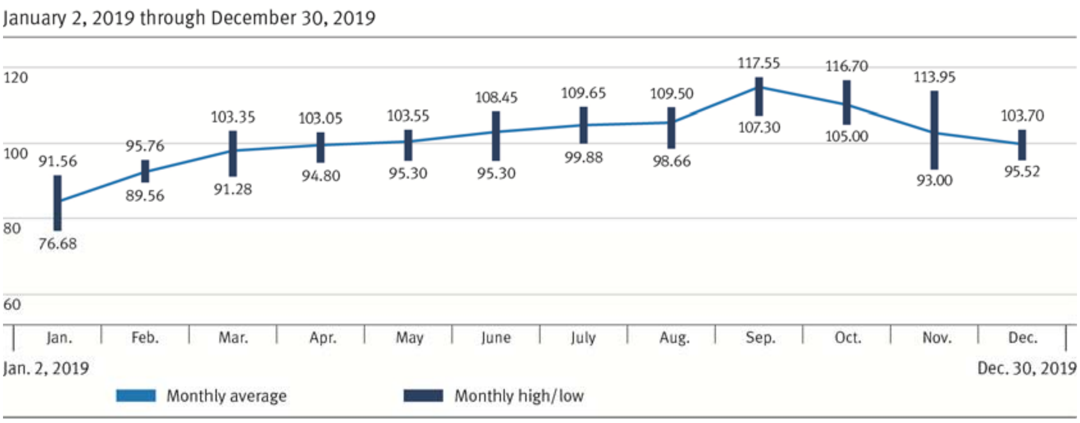
The Rheinmetall share over the course of the year

In 2019, the Rheinmetall share performed outstandingly and grew more strongly than the benchmark indices DAX® and MDAX®.

The Automotive sector was affected by the difficult economic situation in the automotive sector. The market environment for the Defence sector remained positive throughout 2019 too, which allowed Defence to compensate for the weaker performance in the Automotive sector. This was also viewed positively by investors. Numerous reports on negative trends in the automotive industry did not affect the continued growth of the Rheinmetall share. The annual high of €117.55 was reached on September 17.

A change in the outlook in the last two months of the year led to a share price adjustment, although the price recovered to €102.40 by the end of the year. This corresponds to an increase of 32.7% compared with the closing price in 2018 of €77.16.

Rheinmetall share price performance €



Rheinmetall's share listing

Only the trade volume on the Xetra platform is relevant when it comes to determining the ranking list position in the calculation of MDAX® membership. In 2019, too, more Rheinmetall shares were traded via trading platforms other than the Deutsche Börse's own Xetra system. The number of shares traded via Xetra has stabilized at a low level.

Rheinmetall shares processed on trading platforms %

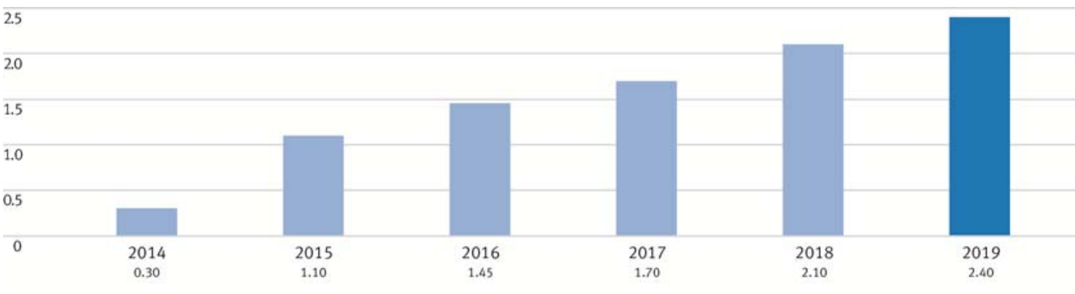
Trading platform	2019	2018
1 Xetra	29.9	28.1
2 Over the Counter (OTC)	41.1	46.1
3 Other (MTF, Floor Exchange)	29.0	25.8

Dividend distribution for fiscal 2019

Our dividend policy is earnings-oriented and designed to ensure that our shareholders receive an adequate share in the Group's profit on an ongoing basis. The dividend amount is based on business performance and a payout ratio geared towards Rheinmetall AG's business results. We take care to ensure that the dividend is widely accepted by shareholders and that it represents an attractive investment criterion, especially for investors geared towards long-term investment. It is our goal to distribute an annual dividend of 30% to 35% of the earnings attributable to shareholders after taxes on income and revenue.

At the Annual General Meeting on May 5, 2020, the Executive Board and Supervisory Board will propose a dividend payment of €2.40 per dividend-entitled share. The total amount paid out will therefore be €103 million. In accordance with section 58 (4) sentence 2 of the German Stock Corporation Act, the claim to the dividend is due on the third business day following the Annual General Meeting resolution. Subject to approval by shareholders, the dividend will be paid on May 8, 2020. Based on the closing price of the shares for 2019 of €102.40, this corresponds to a dividend yield of 2.3%. The distribution ratio – i.e. the dividend in relation to earnings per share – will be around 31% for the year under review (previous year: 30%).

Dividend per dividend-entitled share €



Shareholder structure

Rheinmetall AG's group of shareholders comprises a relatively stable and high number of institutional investors and has changed only slightly over the past few years. We commissioned an external institute to analyze our shareholder structure at the end of the reporting period on December 31, 2019. This analysis was based on, among other things, publications from investment companies and other institutional shareholders. Our shareholder structure is dominated by investors from the Anglo-American region.

Shareholder structure as of December 31 %

	2019	2018
1 Institutional investors	79	76
Europe	30	46
North America	48	29
Rest of world	1	1
2 Private shareholders	17	17
3 Rheinmetall Treasury Stocks	1	2
Other	0	4
4 Not identified	3	1

Voting rights notifications

The Federal Financial Supervisory Authority (BaFin) not only monitors the reporting thresholds for ownership of shares (section 33 of the German Securities Trading Act), but also requests notification when financial and other instruments are acquired that entitle the holder to purchase shares (sections 38 and 39 of the German Securities Trading Act). Rheinmetall AG notified the capital markets of this in accordance with section 40 WpHG and also informed the general public on its website.

As of December 31, 2019, the following voting rights notifications in accordance with section 33 of the German Securities Trading Act had been submitted by shareholders regarding the exceeding reporting thresholds:

Voting rights notifications in accordance with section 33 of the German Securities Trading Act – as of December 31, 2019

Shareholders	Total voting rights in %	Publication Rheinmetall
The Capital Group Companies Inc., Los Angeles, CA, USA	20.88	Jul. 23, 2019
FMR LLC, Wilmington, Delaware, DE, USA	3.32	Dec. 12, 2019
BlackRock, Inc., Wilmington, DE, USA	3.30	Mar. 6, 2019

Treasury stock

The Annual General Meeting on May 10, 2016, authorized the Executive Board to acquire treasury shares. The Executive Board is thus authorized to acquire treasury bearer shares up to a maximum of 10% of the current share capital of €111,510,656 by May 2021.

Rheinmetall AG did not exercise the aforementioned authorization to purchase treasury shares in fiscal 2019. The structure of the employee share purchase program was changed in fiscal 2018. In contrast to the previous year, treasury shares are no longer used; the required shares are instead acquired directly on the stock market. There were therefore no appropriations for these programs in 2019 (12,929 shares in 2018). More shares were issued to eligible employees in 2019 to serve the long-term incentive (LTI) program. A total of 101,448 shares were appropriated from the stock for this purpose.

At the end of the 2019 reporting period, the number of treasury shares was 475,608 or 1.1% of the share capital.

Acquisition and use of treasury stocks no. of shares

	2019	2018
Acquisition of shares	–	–
Used for employee share purchase program	–	12,929
Used for long-term incentive program	101,448	89,724
Portfolio on December 31	475,608	577,056
Share of treasury stocks in Rheinmetall shares	1.1%	1.3%

Research coverage

The equity research market is currently undergoing a phase of consolidation. Since 2017, research institutes have been under greater pressure to merge. This has so far not resulted in a decrease in the number of analysts for Rheinmetall. Coverage of the Rheinmetall share remains at a high level and confirms the high level of interest shown by the capital market in our company. At the end of 2019, another broker – in this case, Goldman Sachs – took up coverage.

During the course of 2019, 22 equity research analysts published their analyses of the current development at the Rheinmetall Group and their assessments and recommendations regarding its shares. Nine analysts gave Rheinmetall shares a “Buy” rating, while a further thirteen analysts recommended holding the shares. At the end of the year, no analyst recommended selling the shares.

Investment recommendations for Rheinmetall shares as of December 31, 2019

Rating	Institution	Headquarters
Buy	Agency Partners	London
	Alpha-Value	Paris
	Bank of America Merill Lynch	London
	DZ Bank	Frankfurt am Main
	Goldman Sachs	London
	Metzler Research	Frankfurt am Main
	Pareto	Frankfurt am Main
	Société Générale	Frankfurt am Main
	UBS	Frankfurt am Main
Hold	Bankhaus Lampe	Düsseldorf
	Berenberg Bank	London
	CFRA Research	London
	Commerzbank	Frankfurt am Main
	Deutsche Bank	Frankfurt am Main
	Exane BNP Paribas	Paris
	HSBC	Düsseldorf
	Independent Research	Frankfurt am Main
	KeplerCheuvreux	Frankfurt am Main
	LBBW	Stuttgart
	MainFirst	Frankfurt am Main
	Oddo BHF	Frankfurt am Main
	Warburg	Hamburg

Regular dialog with the capital market

We maintain close contact with the capital market. The aim is to create the right conditions for a fair assessment of the Rheinmetall share and enable investors to make a realistic estimate of the Rheinmetall Group’s future development. We communicate our business development and corporate strategy continuously and reliably, which further strengthens investor confidence and ensures a fair valuation of our share over the long term.

Last year, too, personal contact with the capital market participants was extremely important. The Executive Board and Investor Relations team were engaged in continuous dialogue with investors and analysts.

During the period under review, we had around 700 investor contacts. A large proportion of these took place at a total of 17 investor conferences and roadshows. The focus was on the major financial centers in Europe and the US. In addition to these activities, we conducted numerous telephone calls with investors, analysts and private investors. The Annual General Meeting on May 28, 2019, was another important platform for dialog with private investors.

We not only provided comprehensive information on the economic environment and the current business situation, but also discussed issues such as current trends, the potential of products and technologies, growth opportunities and risks and existing and future challenges for the Rheinmetall Group with national and international fund managers. A total of 26 analysts and investors accepted the invitation to the Capital Markets Day in Unterlüss in November 2019. At this event, the Executive Board provided an overview of the Group's strategic alignment.

In addition, detailed and up-to-date information about the Group and our shares can be found at www.rheinmetall.com under "Investor Relations".

In this fiscal year, too, we will be showcasing our company at a host of roadshows and capital market events. An up-to-date overview of the dates of these events can be found in our financial calender on our website under "Investor Relations".

Money and capital market financing

The commercial paper program, which was launched in 2002 and currently has a volume of €500 million, was used especially in the second half of 2019 to cover working capital financing peaks. Consistently highly attractive conditions with largely negative yields were achieved through this program. The program had not been utilized to the full by the end of 2019.

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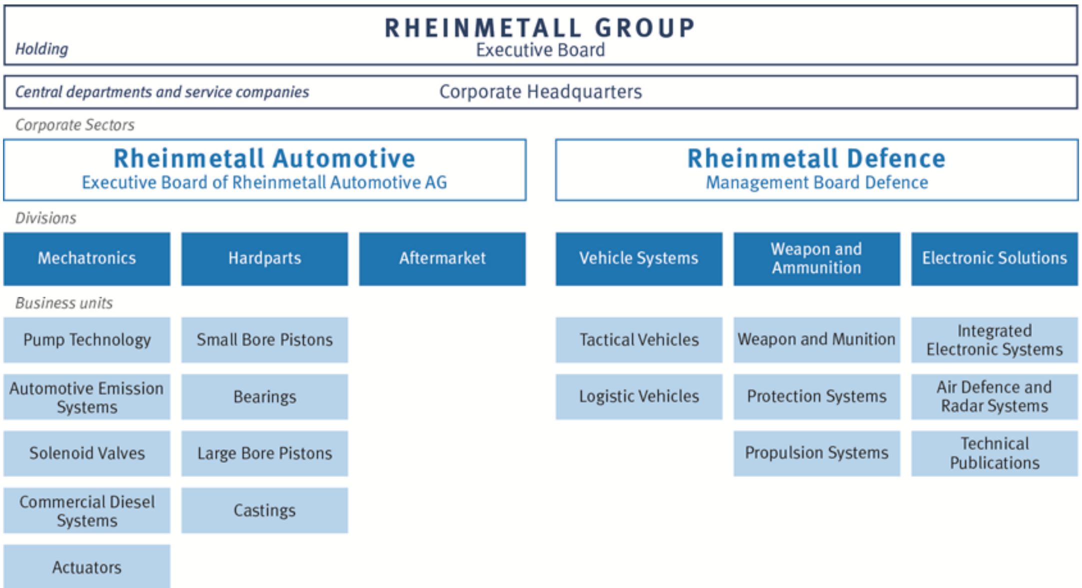
COMBINED MANAGEMENT REPORT

Basic information on the Rheinmetall Group
Corporate structure

Structure of the Rheinmetall Group

Rheinmetall Aktiengesellschaft (Rheinmetall AG), which is a listed stock corporation with its head office in Düsseldorf, is entered in the commercial register of the District Court of Düsseldorf under the number HRB 39401 and is the parent company of the Rheinmetall Group. The Articles of Association of the company were last amended May 8, 2018. The purpose of the company is to establish companies; acquire and sell equity investments and rights similar to equity investments in companies concerned with mechanical engineering, the processing of metals and other materials, industrial electronics and related industries; manage such companies and, where appropriate, to aggregate them under common management; and acquire, sell, develop, use and manage land and buildings, including where this is not connected to the aforementioned companies.

Rheinmetall AG's corporate structure



As of December 31, 2019

Our market and customer-oriented approach is an important factor in our success. Lasting relationships with our customers have formed the basis of our business activities in the Automotive and Defence sectors for over a century. Our activities in the business areas of environmentally friendly mobility and threat-appropriate security are consistently aligned towards the three largest economic regions of Europe, the US and Asia. In the year under review, we concluded sales with customers in 143 countries. We are represented at 41 locations in Germany, a further 42 in Europe (excluding Germany), 14 on the American continent, 18 in Asia, 6 in Africa and 8 in Australia.

The business activities of the companies in the Rheinmetall Group have a strong international focus. In 2019, the international share of sales was 69% (previous year: 72%). We now employ 12,932 staff abroad (previous year: 12,624 employees), which represents 50% of our total workforce (previous year: 51%).

Rheinmetall AG has direct or indirect holdings in 193 companies in Germany and abroad (previous year: 189) that are part of the Rheinmetall Group. A total of 156 companies (previous year: 151) are fully consolidated in the consolidated financial statements. A total of 37 companies are carried at equity (previous year: 38). The consolidated group is presented in the notes to the consolidated financial statements on pages 218 to 222.

Basic information on the Rheinmetall Group
Corporate management and control

Corporate management and control

The Executive Board of Rheinmetall Aktiengesellschaft, which has consisted of four members since January 1, 2017, is the governing body of the Rheinmetall Group. The Executive Board is responsible for the Group's strategic orientation and development and for setting and monitoring corporate targets. Moreover, it is responsible for the introduction and further development of adequate management, control and monitoring processes, including the risk management system, internal control system, internal auditing and compliance management system and the allocation of resources.

The clearly defined core business areas of Automotive and Defence are equipped with all the necessary functions as independent sectors that operate in line with the strategies, targets and guidelines determined by the Executive Board of the Group, each with responsibility for their global business operations and their own management. The division heads report to the members of the sectors' executive boards on current business performance in regular target-setting, review and strategy meetings and, with them, discuss operational and economic measures in addition to strategies and targets. The respective management bodies of the subsidiaries are responsible for operational management of their units. They are supported in their tasks by the service and support functions that have been set up within the management holding company.

The Supervisory Board, which consists of 16 members and is based on joint representation in accordance with the provisions of the 1976 German Codetermination Act, appoints, advises and monitors the Executive Board. The Executive and Supervisory Boards work together closely, constructively and in an atmosphere of trust, with the aim of ensuring the continued existence of the company and creating sustainable value added.

Rules of procedure are in place for both boards, containing regulations on the composition, tasks, responsibilities and areas subject to approval. Further details on corporate governance can be found in the corporate governance statement on pages 128 et seq.

In the Rheinmetall Group, the Automotive and Defence sectors are controlled and the economic success of the operational entities is assessed using the key performance indicators of sales, operating result (EBIT before special items), EBIT and EBT. Profitability is also assessed for management purposes on the basis of ROCE calculated on an annual basis, which represents the ratio of EBIT to average capital employed (average of values as of January 1 and December 31 of the year under review).

Central management indicators

		2019	2018
Sales	€ million	6,255	6,148
Operating result	€ million	505	491
EBIT	€ million	512	518
EBT	€ million	477	485
Return on capital employed (ROCE)	in %	15,4	17.1
Operating free cash flow	€ million	314	-35

Further indicators that are relevant to management include the volume of capital expenditure, research and development expenditure and the headcount by full-time equivalent (FTE). Further details are provided in the non-financial statement on pages 108 et seq.

Basic information on the Rheinmetall Group
Business model

Rheinmetall Group

Rheinmetall is an international group for leading technologies in the mobility and security segments. Globalization, protectionism, digitalization as well as disruption and transformation in various sectors and industries – especially in the field of mobility – as well as the increasing frequency and intensity of conflicts and military disputes mean that efforts to improve mobility and security are constantly increasing. With its two sectors, Automotive and Defence, Rheinmetall fulfills these basic key needs of modern society.

Operating activities of Rheinmetall Automotive

The Automotive sector counts among the world's major automotive suppliers. Its activities encompass development, production and replacement parts supply in the Mechatronics, Hardparts and Aftermarket divisions. The core areas of expertise of companies in the Automotive sector lie in the reduction of emissions, pollutants and consumption, cooling and thermal management, downsizing and reduction of weight and friction in relation to combustion engines. This applies to not only passenger cars, but also light- and heavy-duty commercial vehicles, off-road vehicles and large engines. Rheinmetall Automotive also works intensively on drives for the electric, fuel-cell and hybrid vehicles of the future.

Corporate sector	Division	Areas of activity
Automotive	Mechatronics	Cutting emissions Actuators Solenoid valves Water, oil and vacuum pumps
	Hardparts	Pistons Engine blocks, structural components and cylinder heads Plain bearings and bushes
	Aftermarket	Global replacement parts business

Markets of Rheinmetall Automotive

Rheinmetall Automotive's business performance is largely determined by the production development of our international customers. This applies to not only existing customer contracts, but also future projects relating to our customers' technological requirements. The technologies of tomorrow are largely determined by the ongoing strong trends toward the more efficient use of fuels, the reduction of emissions and alternative drive technologies.

The Mechatronics and Hardparts divisions hold a "tier 1" position in the value-added chain of automotive production because they generally supply automotive manufacturers directly rather than via other suppliers / system integrators. Despite a relatively small number of international automotive manufacturers, the customer portfolio of both divisions is highly diversified; this also applies at regional level. With production sites in the key economic areas of Western Europe, USMCA and Asia, the divisions can meet customer requirements for local or international production.

According to IHS Markit (February 2020), China was once again – and despite the downward trend compared with the previous year – the world's biggest passenger car market in 2019, with 24.3 million units produced. Rheinmetall Automotive has a presence in this market with one regional holding company, joint ventures with two Chinese partners and one Japanese partner and four wholly owned companies.

The Aftermarket division also serves, among others, the automotive manufacturers directly – in this case, the manufacturers' service units. The core business, however, involves supplying a strongly diversified customer base in the segment covering independent service providers. A number of different sales channels such as websites, call centers and catalogs are used for this. In addition to its own products under the Pierburg and Kolbenschmidt brands, the division sells products from third-party providers with a view to acting as a one-stop shop for our customers and, in turn, strengthening customer loyalty and the cross-selling of its own products.

The debate surrounding the future of diesel technology for use in passenger cars is not yet over, even if the proportion of new diesel passenger car registrations had by the end of 2019 stabilized at around 32% in Germany and 30.5% in Europe. The first legal restriction on the entry of diesel vehicles with the emission class Euro 4 or lower came into effect in Stuttgart on January 1, 2019. Other German cities followed suit in 2019. Since the beginning of 2020, Stuttgart extended this restriction to vehicles with the emission class Euro 5. It is possible that this led to further uncertainty among buyers of new cars in Germany.

The automotive industry is currently in the grip of massive structural change, driven by alternative drive concepts, vehicle networking and automated/autonomous driving. This shift away from the combustion engine as a drive system is especially relevant for established suppliers in the field of drive trains. The introduction of partially or fully electric drives is causing the requirements that automotive manufacturers place on their suppliers to change in terms of expertise and technology. Yet although the supply of hybrid vehicles in particular is increasing, the absolute market volume remains low. The European Automobile Manufacturers' Association (ACEA) counted more than 459,000 units for newly registered vehicles with alternative drives in the European Union in 2019, which equates to 3% of the total number of new registrations. Major European automotive manufacturers in particular have announced a large number of new plug-in hybrid models for 2020. The combustion engine will nevertheless remain the main drive system for the transportation of passengers and goods by road for the foreseeable future.

In the TOP 100 Automotive Supplier study for 2018 authored by Berylls Strategy Advisors and published in June 2019, Rheinmetall Automotive occupied 99th place in terms of sales, a fall from 91st position according to last year's study.

Regulatory environment of Rheinmetall Automotive

Mobility in its current form relies on the burning of fossil fuels, which is inextricably linked to the emission of substances that are harmful to health and the environment. In metropolitan areas in particular, traffic is repeatedly leading to severe impairment of air quality. To reduce the negative impact on citizens' health from traffic-related exhaust gases and cut greenhouse gas emissions, legislators in many countries are issuing limits for passenger cars and for light and heavy-duty commercial vehicles. The focus here is on emissions of hydrocarbons (HC), nitrous gases (NO_X), carbon monoxide (CO), carbon dioxide (CO_2) and particulate matter (PM) caused by road traffic.

Basic information on the Rheinmetall Group
Business model

An upper limit of an average of 130 g CO_2/km has applied to new car fleets in Europe since 2015 for emissions of the greenhouse gas carbon dioxide (CO_2). According to information available from the International Council on Clean Transportation (ICCT), average CO_2 emissions of passenger cars sold in the EU in 2018 increased for the second time since 2016. Measured according to the New European Driving Cycle (NEDC), average CO_2 emissions amounted to around 121 g CO_2/km, so 2 g/km higher than in the previous year. For 2020, the European Commission has adopted a target value of 95 g CO_2/km, although, due to a phase-in regulation, manufacturers are allowed to deduct 5% of new registrations from the average value of their new car fleet. This concession will cease to apply from 2021, with the target value applying to the entire new car fleet in a given year.

In accordance with the agreement reached between EU institutions, CO_2 emissions per kilometer are to be cut by a further 37.5%.

The maximum limit for light-duty commercial vehicles in Europe was set at 175 g CO_2/km for 2017. This limit will be reduced by 16% to 147 g CO_2/km by 2020. The agreement signed by the EU institutions in December 2018 will require a further reduction of 31% by 2030.

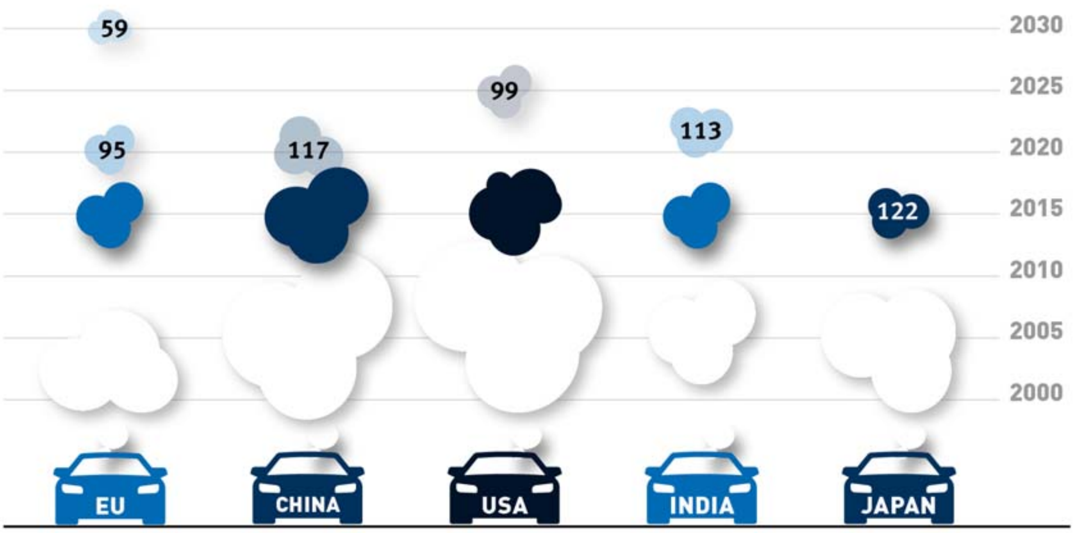
Noncompliance with the CO_2 fleet values will lead to substantial financial penalties for passenger car manufacturers. From 2020, the system of staggering the penalty payment over the first four exceeded grams will be abolished. A fee of €95 per gram is payable from the first gram exceeding the limit. Whether and to what extent fines will apply depends, among other things, on how quickly manufacturers can push ahead with the production and sale of partially and fully electric vehicles with CO_2 emissions lower than 50 g per kilometer. This is because they can be included twice in the average value and so compensate for vehicles with above-average emissions.

From 2025, heavy-duty commercial vehicles in Europe will be subject to legally prescribed fleet values expressed in grams of CO_2 emissions per tonne per kilometer (g CO_2/tkm). In relation to the reference value of average CO_2 emissions from all trucks registered in the EU during the period from July 1, 2019 to June 30, 2020, the CO_2 emissions performance of new, heavy-duty commercial vehicles is to decrease from 2025 by 15% and from 2030 by 30%.

Excess emissions from heavy-duty commercial vehicles will also be sanctioned. If, from 2015, a manufacturer misses the CO_2 fleet limit within a reporting period, a penalty of €4,250 per g CO_2/tkm and vehicle shall be payable. From 2030, the penalty will increase to €6,800 per g CO_2/tkm and newly registered vehicle.

In international terms, the EU has in the past assumed a pioneering role with respect to the limits on CO_2 emissions from passenger cars. Some large countries have followed the EU's example and adopted limits equivalent to the EU target of 95 g CO_2/km. They include the US and Canada, each with 99 g CO_2/km from 2025 as well as South Korea with 97 g CO_2/km from as early as 2020. China has set a limit of 117 g CO_2/km from 2020 onward.

Limits for CO_2 emissions in selected regions/countries g/km



Source: The International Council on Clean Transportation: Policy update, CO_2 emission standards for passenger cars and light commercial vehicles in the European Union, January 2019

The Euro standards are being adapted by many countries worldwide and introduced simultaneously or with a time delay. Some countries, primarily the US and Japan, are issuing their own limits on emissions of pollutants. Standards around the world for reducing emissions of harmful substances will therefore gradually continue to become more stringent in the future.

Operating activities of Rheinmetall Defence

The Defence sector of the Rheinmetall Group is among the defence and security industry's leading providers of innovative products for the German and international armed and security forces. Rheinmetall Defence provides system and subsystem solutions as well as a broad portfolio of services for capabilities in the areas of mobility, reconnaissance, command and control, C4I and protection.It also develops customized training and simulation solutions.

As a leading European systems supplier for armed forces technology, Rheinmetall Defence has many years of experience and innovation in armored vehicles, weapons and ammunition and in the areas of air defence and electronics – including serving the requirements of the navy and air force and for internal security. Whether for requirements specific to different branches of the armed forces or overall requirements, whether for external or internal security, the sector has a wide product portfolio of platforms and components, which are offered as individual and connected system solutions. This makes Rheinmetall Defence a strong and reliable partner to the German armed forces, their allies and friendly armies, along with civil national security forces.

All development, production and service activities are geared towards ensuring the best possible protection for soldiers on deployment. Rheinmetall Defence continuously sets new technological standards here: from vehicle, protection and weapon systems, through infantry equipment and air defence, to the networking of function sequences, electro-optics and simulation.

Basic information on the Rheinmetall Group
Business model

Corporate sector	Division	Areas of activity
Defence	Vehicle Systems	Armored tracked vehicles CBRN protection systems Turret systems Wheeled logistics vehicles Wheeled tactical vehicles
	Weapon and Ammunition	Large- and medium-caliber weapons and ammunition Weapon stations Protection systems Propellants and powder
	Electronic Solutions	Air defence systems Soldier systems Command, control and reconnaissance systems Fire control systems Sensors Simulation for the army, air force, navy and

Markets of Rheinmetall Defence

The world of the 21st century occasionally faces very tense security situations as well as complex and new threats.

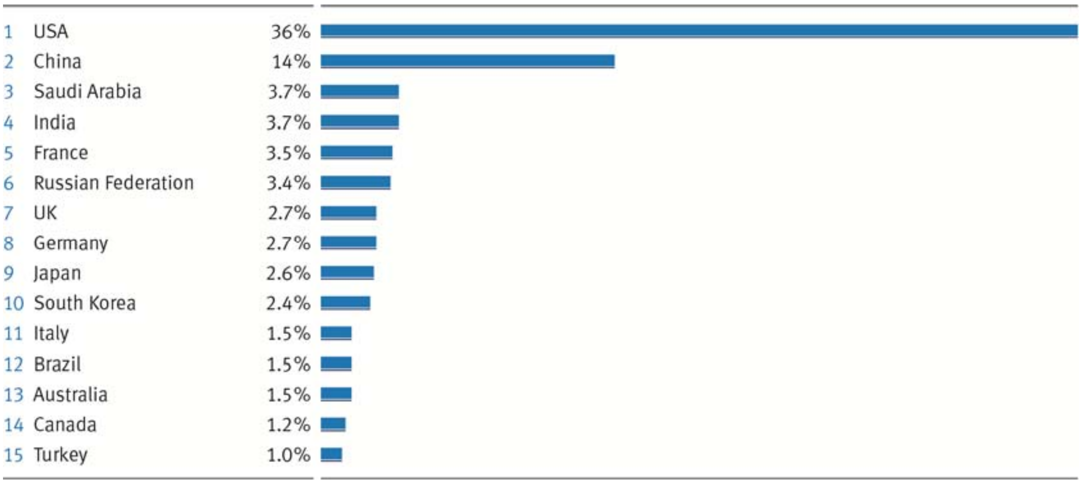
Blurred boundaries between peace and war, military interventions, latent trouble spots, the outbreak of new conflicts, uncontrolled and irregular refugee and migration flows on an unprecedented scale and the consequences of the collapse of state structures in countries in geopolitically sensitive regions call for new answers to the significantly heightened challenges and constant risks associated with external and internal security and new and/or extended and powerful capabilities for international efforts to maintain stability, security and peace.

The range of products and capabilities of Rheinmetall Defence is tailored to central defence technology requirements that result nationally and internationally from many armed forces' substantial ongoing need for technical modernization and replacements on the one hand and from new military deployment scenarios requiring armies to have an increased ability to react and to take action as well as increased readiness for duty and deployability, for example in order to ensure the security of allies or engage in international peace-keeping missions, on the other.

The market potential for Rheinmetall Defence comes mainly from the defence budgets of customer nations. Rheinmetall Defence is still in an international growth market in the medium term, even though national defence budgets fluctuate to varying degrees, depending on the security situation. While in 2014 just three of 29 NATO member states achieved the 2% target according to the study “The Role of NATO for Europe's Security” published by the German Institute for International and Security Affairs in November 2019, by 2018 this figure had risen to seven countries. A positive trend was also observed regarding the target of investing 20% of this in new armaments and research projects: 16 allies in 2018, after just seven in 2014.

The overall trend toward increased spending is due in part to complex existing and new geostrategic challenges in terms of security and defence policy, the continuing significant need for modernization in the armed forces of many emerging and developing countries and the demand for new military applications. It is also the result of calls to increase governments' resilience to internal and external threats, ability to take military action and the need to guarantee stable and secure supplies in periods of peace and war.

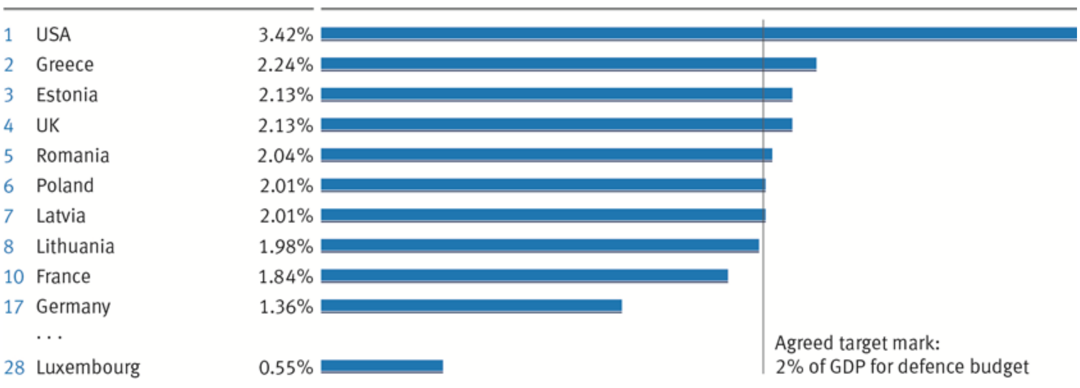
2018 defence budgets and its share in worldwide armaments expenditure



Source: Trends in World Military Expenditure 2018, SIPRI Fact Sheet, April 2019

According to the target set at the NATO summit in Wales in 2014, each NATO member state is to spend at least 2% of its gross domestic product on defence by 2024, with 20% of this sum being invested in new armaments and research projects. This target could create additional opportunities for Rheinmetall Defence, particularly with respect to procurement projects in the European and German market. The German defence budget has risen continuously over the past few years, from €33.1 billion in 2014, through €43.1 billion in 2019 to €44.9 billion in 2020. This is intended in particular to clear the existing investment backlog and to provide the German armed forces as a whole with significantly better equipment over the coming decade, with a focus on the defence of nations and alliances. At the Riga Security Forum in October 2019, the defence minister made it her stated aim to successively increase the German defence budget to 2% of the gross domestic product by 2031. This naming of a year correlates with the specifications of the capability profile "National Ambition 2032," which was signed in September 2018 by the Inspector General of the Bundeswehr and details the requirements of the Bundeswehr and the key modernization steps to be taken by 2031.

Defence spending of selected NATO member states as a proportion of gross domestic product in 2019



Source: NATO press release, June 2019 | Excluding Iceland, which has no armed forces | Forecast

Basic information on the Rheinmetall Group
Business model

We will also continue with the internationalization of Rheinmetall Defence, which has been successfully pursued for years. The sector's strategic priority still lies in expanding its local presence in promising growth regions. We continue to see particular potential in Asia and Australia, as well as in the Western and Eastern European markets. In fiscal 2019, we achieved 60% of Defence sales with customers outside Europe. In the global ranking of the Stockholm International Peace Research Institute (SIPRI) from December 2019, Rheinmetall Defence was in 22nd place based on 2018 sales (previous year: 26th place).

Regulatory environment of Rheinmetall Defence

German military equipment exports are governed by the Grundgesetz (GG – German Basic Law), the Gesetz über die Kontrolle von Kriegswaffen (KrWaffKontrG – German War Weapons Control Act) and the Außenwirtschaftsgesetz (AWG – Foreign German Trade and Payments Act) in conjunction with the Außenwirtschaftsverordnung (AWV – German Foreign Trade and Payments Regulation).

The "Political Principles Adopted by the Government of the Federal Republic of Germany for the Export of War Weapons and Other Military Equipment" of June 26, 2019, provide the licensing authorities with guidelines.

Legal regulations on exports of military equipment – The Federal Republic of Germany has one of the strictest export control systems in the world. These strict rules apply in particular to companies in the security and defence industry.

Export law makes a distinction between the following types of goods, which should be understood to refer not only to products, but also to technology and software:

- Purely civilian goods
- Dual-use goods
  (i.e. goods that can be used for civilian and military purposes)
- Military equipment

Purely civilian goods are not generally subject to any export restrictions. With a few exceptions, they can be exported without requiring a license.

The export of dual-use goods has been harmonized at the level of the European Union since 1995. Council Regulation (EC) No. 428/2009 of May 5, 2009, "setting up a Community regime for the control of exports, transfer, brokering and transit of dual-use items" (OJ of, p. 1) applies here. A common list of items lists all dual-use items that are subject to uniform control regulations in all EU countries. The transfer of these goods within the EU is free, apart from a few exceptions.

However, with respect to classic military equipment, there are essentially no harmonized regulations within the EU. A Common Military List for the EU also exists, although this more or less matches the corresponding lists of EU member states. However, there are no common legal regulations on exports of military equipment. This is linked to the Treaty on European Union (TEU). According to Article 346 TEU, all member states can take measures they consider necessary for the protection of their essential security interests. In particular, decisions on the production of or trade in arms, munitions and war materials are up to the respective national lawmakers. Although there are signs of efforts to harmonize regulations in the Common Foreign and Security Policy, these have not yet been implemented on a large scale within the EU. For this reason, exports of military equipment to other EU countries continue to require a license.

German regulations on military equipment – With regard to defence equipment, the Federal Republic of Germany distinguishes between war weapons and other types of military equipment.

Regulations on war weapons – The War Weapons Control Act (KrWaffKontrG) lays down particularly strict rules. These are based on Article 26 (2) of the Basic Law. This states that the manufacture, transportation and marketing of war weapons requires a license from the German government.

An annex to the KrWaffKontrG, the War Weapons List, lists all items that are definitively regarded as war weapons. War weapons include not only devices such as battle tanks, armored combat support vehicles and machine guns, but also certain types of ammunition such as tank or artillery ammunition. As well as complete devices and ammunition systems, certain assemblies and components such as the turret and chassis of a battle tank or the projectile, warhead or fuse for certain types of ammunition are additionally defined as war weapons.

The KrWaffKontrG includes an extensive licensing system for war weapons. Almost every activity relating to these goods requires a license. A license is required for the production of war weapons, both during development and in series production. Transfer of the actual control over war weapons also requires a license, as does the purchasing of these weapons. The transportation of war weapons within a country is also subject to licensing. Above all, the importing, exporting and transit of war weapons requires a license. Two licenses are actually necessary for exporting war weapons, one license in accordance with the KrWaffKontrG and one export license in accordance with the Foreign Trade and Payments Act (AWG)/Foreign Trade and Payments Regulation (AWV). Moreover, the transportation of war weapons using German ships or aircraft outside German territory requires a license. Trading and brokerage transactions involving war weapons that are not intended to affect German territory are also subject to licensing.

Dealings in war weapons are strictly controlled. Each individual movement of war weapons must be entered in the “War Weapons Book”, which must be submitted to the supervisory authority, the Federal Office of Economics and Export Control (BAFA), for checking on a half-yearly basis. In addition, the BAFA conducts an external on-site audit every two years of each company that keeps war weapons, in which it checks not only whether inventories match the entries in the War Weapons Book, but also whether a corresponding receipt is available for each entry.

Regulations on other military equipment – Other types of military equipment are listed in Part I Section A of the Export List, an annex to the German Foreign Trade and Payments Regulation. In particular, the export of these goods requires a license. Licenses are also needed for certain types of services and technical support and for some trading and brokerage transactions. It is generally possible to import other types of military equipment without a license.

Decision of the German government on exports of military equipment – The German government makes decisions on exports of military equipment based on its “Political Principles for the Export of War Weapons and Other Military Equipment.” A key component of these principles is the European Union’s Code of Conduct for Exports of Weapons. This contains eight test criteria (e.g. observance of human rights, internal situation, compliance with international obligations in the country of receipt) and operational regulations that apply to decisions regarding the countries to which military equipment may be exported. The new principles on the export of military equipment from June 26, 2019, however, expressly prohibit the export of small arms and light weapons to third countries. Licenses for these weapons and the associated ammunition are now issued by the federal government only in exceptional cases.

Basic information on the Rheinmetall Group
Strategy

Strategic alignment toward sustained and profitable growth

The strategic alignment of the Rheinmetall Group and its entities is reviewed at regular intervals by the Executive Board and Supervisory Board and adapted to ongoing framework conditions. In addition to the relevant market- and industry-specific aspects, cross-disciplinary regional and technological developments also play a role here. Furthermore, strategic decisions are reviewed against a background of the long-term development of the Rheinmetall Group with respect to the environmental and societal context. Strategy development remains focused overall on sustainable and profitable growth across economic cycles. As an international technology group for mobility and security, we still see strong potential for organic growth in our Automotive and Defence sectors.

In the Automotive sector, these growth opportunities derive not only from the ongoing tightening of regulatory conditions worldwide, which will lead to ever lower emissions limits for conventional combustion engines, but also additional long-term opportunities arising from the increasing electrification and digitalization of vehicles. Growth potential in the Defence sector results from the global trend toward greater defence spending, which in many countries is linked to new and additional equipment initiatives. Both sectors also have good growth prospects thanks to innovations in the product portfolio that have been initiated in recent years at considerable expense.

Central technology fields for the long-term strengthening of competitiveness

Looking beyond pure product development in our sectors, we have now identified the key technology fields for the Rheinmetall Group where we see medium- to long-term growth potential for us. These technology fields include automation, digitalization and artificial intelligence, electromobility and sensor technology. Across our various sectors and locations, we possess extensive knowledge, experience and development capacities. In the future, we want to combine this technological expertise systematically and in a controlled exchange, with the aim of speeding up our innovation processes and creating new products or new product generations in the long term. Last year, we started to create the organizational structures with which we can ensure systematic technology management for the Rheinmetall Group as a whole and an intensive technology transfer between the Automotive and Defence sectors. With this approach, we want to better fulfill our role as an integrated industrial company and strengthen the long-term competitiveness of the Rheinmetall Group.

Growing demand for mobility worldwide

The automotive business is set to be confronted with a range of major technological upheavals over the coming years, with new mobility concepts becoming increasingly important. In addition to alternative drive systems, which will expand with growing momentum, these radical changes will generally be reflected in increasing digitalization and autonomous driving. Irrespective of these technological developments, the global trend toward a growing demand for mobility looks set to continue. An overall increase in automotive production can be expected over the medium and long term, albeit to varying degrees from region to region. Based on 88.9 million vehicles up to 6.0 t manufactured in 2019, experts at IHS Markit forecast in their Automotive Industry Climate market research from February 2020 that the number of vehicles manufactured worldwide will increase by around 13% to 100 million by 2025.

Our Automotive sector, which is active on all the world's major automotive markets – Europe, North and South America, Japan, China and India – with its own manufacturing facilities and with development expertise, continues to see excellent growth prospects based on the expansion of automotive production. With this in mind, we will orient the establishment and restructuring of our development and manufacturing as well as all our strategic investment decisions to the growth rates in the different regions.

Taking into account our joint ventures in China, we currently generate around 46% of sales at Rheinmetall Automotive outside Europe. We intend to systematically expand this share. This applies in particular to the Mechatronics division, where we are continually expanding the business activities in Asia and, above all, on the Chinese market. In the Hardparts division, we intend to continue the strategy that we have been pursuing over the past few years of making selective investment decisions and optimizing our international location network.

In addition to sales growth driven purely by the number of units, Rheinmetall Automotive is also benefiting from worldwide regulations on fuel consumption (CO_2 reduction) and the emission of pollutants. With our products, we make a significant contribution towards the fulfillment of these legal requirements, which are constantly being tightened. This means that the number, complexity and value of our components that are installed per vehicle will increase further.

In this context, and given that alternative drive systems will begin to gain acceptance only gradually, we expect the need for continuous optimization of conventional combustion engines to continue for many years to come. This is why we intend to further enhance and refine our drive system product range, especially for our products in the field of mechatronics. With regard to the reduction of consumption and emissions, we intend to remain an indispensable development partner to vehicle manufacturers.

Product portfolio becoming increasingly independent from drive system type

In light of ever-tightening legal regulations, we are anticipating a clear trend toward hybridization in the coming years – in other words, toward a combination of conventional and electric drives in one vehicle. All-electric mobility will also become increasingly widespread. We are strategically prepared for these developments – developments that will lead to a long-term, structural decline in the number of conventional combustion engines ("fill the gap" strategy). We have expanded our product portfolio step by step over the last few years in terms of hybrid technology, all-electric drive systems and fuel cell technology and reduced the reliance of our product range on passenger-car-only engines.

For the alternative passenger car drive system types, we – along with our joint ventures – have now acquired orders amounting to around €1.3 billion (lifetime volume). On the basis of our many years of experience with small electric motors, we will also continue our development activities in the field of micro-mobility – so for first-/last-mile vehicles and e-bikes – in order to leverage for ourselves the strategic growth potential of these new forms of mobility.

Basic information on the Rheinmetall Group
Strategy

In the medium term, the Automotive sector's research and development strategy is geared toward risk reduction. This means that on the product side, we want to gradually reduce our dependence on certain drive types (drive neutrality) and allocate our development activities and R&D funding accordingly. In addition, we will continue to move into products for non-engine applications, such as structural components, or components that are not related to conventional passenger car applications. One of our Chinese joint venture companies, for example, received in fiscal 2019 its first high-volume order for complex cast components for expanding the 5G network in China.

Global defence spending continues to increase

Changes in the geostrategic power structure and developments in the international security situation, in some cases linked to new and previously unknown threats, have over the past few years led to a trend toward increased global defence spending. This trend is set to continue. More and more countries are prepared to invest more in their own security again and to modernize their armed forces. A definite reversal is thus becoming apparent in the previous trend toward lower defence spending and smaller armed forces, thirty years after the end of the Cold War. International defence markets are at the beginning of a sustained, long-term cycle that will be characterized by rising budgets and new purchases. For our Defence sector over the coming years, this will result in excellent growth prospects that we will leverage as part of our strategic further development ("manage the super cycle" strategy).

Growing national demand among land forces

The objective postulated by NATO member states to bring national defence budgets up to the level of 2% of their respective gross domestic product by 2024 and to invest 20% of total spending in equipment will create new market potential. In addition, the conflict in Crimea and Ukraine is causing NATO to refocus on the necessities and responsibilities of defending alliances. This defence of alliances in some cases requires different equipment for armed forces than that needed for stabilization missions abroad, which has boosted the political will to modernize and expand the armed forces in many countries in the western defensive alliance. After many years of decline, defence budgets in the EU member states have increased significantly since 2014. This also applies to Germany, where the defence budget has risen from €33.1 billion in 2014 to €43.1 billion in 2019. The federal government has in the meantime announced that is aiming for a target of 1.5% – as a proportion of the gross domestic product – for the national defence budget. From today's perspective, this would entail a further budget increase to around €60 billion (2020: €44.9 billion).

This development in Germany is being driven primarily by the German armed forces' responsibility as the lead nation in NATO's Very High Readiness Joint Task Force for protection of the eastern border within the alliance. This will lead to increased demand over the next few years for new and additional equipment for land forces in particular. The portion of sales generated in Germany will therefore increase again significantly, with further growth in the overall business volume of Rheinmetall Defence.

The joint project agreed between the German and French governments to develop a new European battle tank (Main Ground Combat System), in which Germany will play the leading role from a military and industrial viewpoint, is of particular strategic importance to Rheinmetall. Rheinmetall, along with Krauss-Maffei Wegmann (KMW, Germany) and Nexter (France), has been asked to develop and present realization concepts. For an initial development phase, the three companies formed a consortium in fiscal 2019 that will receive its first allocation of development funds in fiscal 2020.

Strategically important markets: Great Britain, Australia and Eastern Europe

Of special strategic importance for our Defence sector are the markets in Great Britain, Australia and various Eastern European NATO member states. In Great Britain, we formed a joint venture in fiscal 2019 with BAE Systems, in which Rheinmetall holds a majority stake of 55%. This joint venture – which will handle, among other things, the large order awarded in 2019 to equip the British armed forces with Boxer wheeled armored vehicles – marks the starting point for the establishment of Rheinmetall as a key equipment partner to the British armed forces. It also represents another step toward consolidation of the European land systems industry.

Our strategic approach to develop new home markets (“home market” strategy) by leveraging local value added has already proved highly successful in Australia, where long-term customer relations have been established through the successful acquisition of further large-volume orders for military trucks, wheeled armored vehicles and munitions. In Queensland, we are currently building a Military Vehicle Center of Excellence, which will include not only development capacity but also production and service capacity and is scheduled to open in the second quarter of 2020. In the long term, the Military Vehicle Center of Competence will also be able to handle export orders.

In Eastern Europe, a number of NATO states will over the coming year be modernizing their still largely Russian-made equipment and adapting to the standards required in the western defence alliance. This development will offer new opportunities for our Defence sector to establish itself over the coming years as a long-term partner, especially for equipping armies.

We are expanding the systems business of Rheinmetall Defence. The aim of this strategy is to increase the number of our platforms and systems employed by international armed forces in order to generate from this follow-up business with maintenance, modernization and service. Furthermore, this will help us to improve our prospects for successfully marketing system-independent key components such as electronics, weapon systems, munitions and protection packages.

As a leading provider of military land systems, we remain committed to playing an active and formative role as part of further industry consolidation. This is why we will continue to monitor potential for strategically and economically expedient partnerships and acquisitions and, if necessary, enter into such partnerships.

Economic report

Executive Board statement on the general economic situation

In fiscal 2019, consolidated sales rose year-on-year from €6,148 million by €107 million or 1.7% to €6,255 million.

Rheinmetall Group – actual vs. forecast business performance in 2019

	2019	Forecast 2019	Forecast 2019	Forecast 2019	Forecast 2019	2018
		Q3 | November	Q2 | August	Q1 | May	February	
			Sales growth compared to last year			
Sales	€6.3 billion	slightly above 1 %	about 4 %	4-6 %	4-6 %	€6,1billion
Operating result	8.1 %	about 8 %	about 8 %	about 8 %	about 8 %	8.0 %

Following consolidated sales of around €6.1 billion in fiscal 2018, we forecast organic sales growth of between 4% and 6% for the Rheinmetall Group in the year under review on February 26, 2019, although we assumed a modest increase in sales for Rheinmetall Automotive of between 0% and 1% and growth in sales for Rheinmetall Defence of between 9% and 11% for Rheinmetall Defence. At that time, we planned to achieve an operating margin of around 8% for the Group, with a figure of around 8% for Automotive and between 8.0% and 8.5% for Defence.

In August 2019, we adjusted the sales increase for Defence in 2019 to 11% and so were at the upper end of the original sales forecast. Against a background of gloomy market expectations, we corrected the sales growth assumed for Automotive in 2019 downward to between -2% and -3% after originally expecting sales to be stagnating or slightly negative. We expected Group sales to increase by around 4%, which would be at the lower end of the growth forecast of 4% to 6%. For Rheinmetall Automotive, we anticipated an operating earnings margin of around 7%; our previous forecast, which was based on a strong market recovery in the second half of the year, was around 8%. In the Defence sector, we anticipated a further improvement in operating earnings in fiscal 2019 and forecast an increase from now on to around 9%, following our original forecast of 8.0% to 8.5%. For the Rheinmetall Group, we confirmed an operating margin for 2019 as a whole of around 8%.

On the basis of the downward trend in global automotive production, we expected in November to see sales for 2019 fall by around 7% in the Automotive sector, following our original forecast of -2% to -3%. Taking into account lower sales due to outstanding export licenses at two foreign subsidiaries, the expected sales growth for 2019 in the Defence sector has since been reduced from the original forecast of 9% and 11% to around 9%. Consolidated sales for 2019 should increase slightly to just above 1%, following the originally expected sales increase of 4%. Based on these market expectations for automotive business and the new sales forecast derived from them, we project an operating margin of around 6.5% in the Automotive sector in 2019, slightly lowering our previous forecast of around 7%. In the Defence sector, we expected a further improvement in operating earnings in fiscal 2019 and that the operating margin would rise slightly to slightly above 9.5%. This marked a further improvement compared with the end of the first half of 2019, when the forecast was raised to 9%. Taking holding costs into account, the Rheinmetall Group's forecast for the expected operating margin for 2019 as a whole is around 8%. This meant that the original forecast for the Group's expected operating margin remained unchanged.

Operating segments – actual vs. forecast business performance in 2019

	Sales				Operating result		
	2019	Forecast February 2019	Actual 2019 vs. Actual 2018	2018	2019	Forecast February 2019	2018
Automotive	€2,736 million	up 0 % to 1 %	minus 6.6 %	€2.930 million	6.7 %	up around 8 %	8.9 %
Defence	€3,522 million	up 9 % to 11 %	up 9.4 %	€3.221 million	9.8 %	up 8,0% to up 8,5 %	7.9 %

Economic report
General economic conditions

Global economic growth continues to slow

According to experts at the International Monetary Fund (IMF), the global economy grew by 2.9 percentage points in 2019. In its World Economic Outlook Update published in January 2020, the IMF confirmed that the global economy grew even more slowly than in 2018 (+3.6%). Last year was marked by, among other things, the trade conflict between the US and China, which has been ongoing since March 2018, as well as various economic risks. In the production sector, the consequences of rising customs duties and geopolitical uncertainties were particularly evident. The year 2019 was also dominated by Great Britain's planned withdrawal from the European Union, with the economy in particular suffering from planning uncertainty and falling investment. The IMF warned early in the year that a "no-deal" Brexit would plunge Great Britain's economy into recession – with a correspondingly negative impact on British trade partners.

Growth in the developed industrial nations fell by 1.7%, so was half a percentage point weaker than in the previous year. Only Japan enjoyed economic growth from 0.3% in 2018 to 1.0% in 2019. In the US, the world's biggest economy, growth fell to 2.3%. China's growth rate was just 6.1%. According to the experts from the IMF, 2019 saw a clear slowing of growth in the world's developing and emerging economies, falling from 4.5% to 3.7%. The Indian economy suffered particularly badly, with growth falling by two percentage points to 4.8%.

The fact that the trade conflict is impacting not only the countries directly involved is shown by the data from the eurozone, with Germany's growth rate at just 0.5%. The export-oriented German economy suffered especially badly under the difficult global trade situation. With regard to the economic situation, Chancellor Angela Merkel stated at the German Engineering Summit in October 2019 that this development was concerning. In its Autumn Report 2019, the German Council of Economic Experts commented on the assessment of the overall economic development, stating that although the upswing has come to an end, there is no sign of a broad and deep recession. Clemens Fuest, President of the Ifo Institute, does not expect a recession either. Regarding the background to the current situation, he states the following: "The current economic weakness is largely due to the crisis in the automotive industry and the global decline in demand for German export products. In other sectors, an increasing skills shortage is another contributing factor."

Fall in global production figures of passenger cars and light-duty commercial vehicles

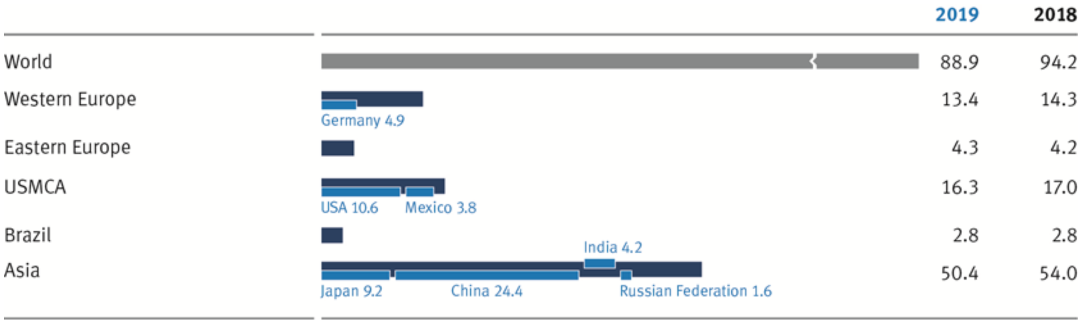
The number of passenger cars and light-duty commercial vehicles (up to 6.0 t) produced worldwide fell significantly in 2019, according to IHS Markit data from February 2020. Automotive manufacturers produced 88.9 million units in 2019, which is 5.6% less than the strong showing in the previous year. This trend toward declining figures was observed on nearly all markets. Especially badly affected was production in Asia, which fell by 6.7%. In particular, the ailing Chinese (-8.2%) and Indian (-11.0%) markets reported a significant production downturn. Japan, however, remained comparatively stable (-0.1%).

Brazil recorded an increase in the number of units produced (+0.9%). In USMCA, the number of light-duty commercial vehicles produced fell by 3.9%. After a slight increase in the previous year, the US recorded a 4.0% decline in production figures. This trend was much more pronounced in many western European countries, with production falling in both Germany (-8.5%) and France (-5.4%). An even greater decrease was observed in Great Britain (-13.9%) and Italy (-14.0%). With 2.8 million units produced in 2019, Spain remained at the previous year's level.

Economic report
General economic conditions

Experts attribute the weaker production figures overall to, among other things, the technological transformation and weak economic demand. “After a long period of growth, we are now facing economic headwinds,” says Bernhard Mattes, President of the German Association of the Automotive Industry, who retired from office at the turn of the year.

Production of passenger cars and light-duty commercial vehicles up to 6.0 t in selected countries million



Source: IHS Markit, February 2020 | Figures for 2018 taken from IHS Markit from February 2020

Given the challenging industry situation overall, Rheinmetall Automotive’s broad regional footing and wide-ranging product portfolio have enabled us to absorb the negative trends observed in certain segments. Even if we were unable to fully uncouple ourselves from the generally negative trend seen in 2019, our targeted internationalization strategy once again proved its worth. The regional distribution of sales in 2019 was as follows: We generated 62% of our sales in Europe (Western and Eastern Europe, including Germany), 16% in USMCA and 8% in China. The share of sales generated in both Brazil and India was 3%.

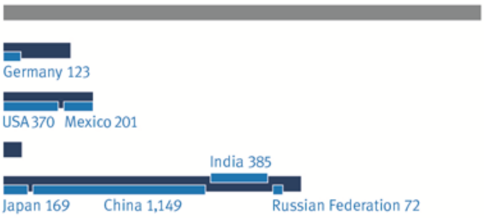
Falling production volume in the commercial vehicle market

After a period of strong growth in previous years, the market for medium- and heavy-duty commercial vehicles weighing more than 6.0 t suffered a decline in 2019. The number of trucks produced worldwide was 3.2 million, which represents an 8.1% decrease compared with 2018. This heralded the expected slowdown on the Western European markets (-7.1%); in particular, the number of units produced in Germany fell compared with 2018 from around 149,000 to around 123,000 (-17.4%).

Despite the tense political situation, production in Russia increased by 1.4% to 72,000 units. In the course of the ongoing trade conflict with the US, where commercial vehicle production increased by 0.5%, the production volume in China fell unexpectedly sharply to 1.1 million vehicles (-11.4%). This is in line with the general trend on the Asian automotive markets, where, for example, neither India (-19.8%) nor Indonesia (-17.3%) matched last year’s level.

In contrast, a positive trend was observed on the various South American markets with cumulated growth of 10.4%; Brazil in particular increased production by 12.1% and was thus among the key growth drivers in the region.

Production of engines for heavy-duty commercial vehicles over 6.0 t in selected countries ‘000



	2019	2018
World	3,161	3,439
Western Europe	443	477
USMCA	592	573
Brazil	120	107
Asia	1,969	2,240

Source: IHS Markit, January 2020 | Figures for 2018 taken from IHS Markit from January 2020

Rheinmetall Automotive: diverse solutions for efficient mobility

A diverse portfolio ensures stability: With its expertise in the field of drive concepts, Rheinmetall Automotive is so diversified that we can benefit from both the ongoing trend toward optimization of the combustion engine – regardless of whether the engine is gas or diesel – and the growing market for electromobility.

Now more than ever, technology designed to promote ecofriendly mobility forms the focus of our research and development activities. Electrification is a key component of Rheinmetall Automotive’s strategy. Despite a weakening in the market for electric mobility in China and the USA according to a study by the Center of Automotive Management (CAM), new registrations of electric cars in Germany rose significantly, with the study stating an absolute increase of around 41,000 electric cars. According to a study conducted by the Boston Consulting Group, 2030 could be the first year in which global sales of electric cars outstrip those of cars with combustion engines. This trend is being driven by, among other things, falling battery costs and the pressure arising from emission requirements imposed by regulators.

Through our Automotive division, we want to make a contribution to the sustainable transportation of the future – whether for new forms of mobility in urban areas; for sustainable, everyday commuting between work and home; or for low-emission driving on highways and over long distances.

But with regard to combustion engines, we also have to optimize automotive components and leverage the potential of hybrid solutions. Dr. Kurt-Christian Scheel, Managing Director of the German Association of the Automotive Industry (VDA): “The trend with newly registered passenger car models is clearly toward economical consumption with low CO_2 emissions. Modern hybrid vehicles are impressive testament to the fact that, in conjunction with mechatronic systems, combustion engines can unleash their full potential and prove themselves as viable propositions for the future.”

Economic report
General economic conditions

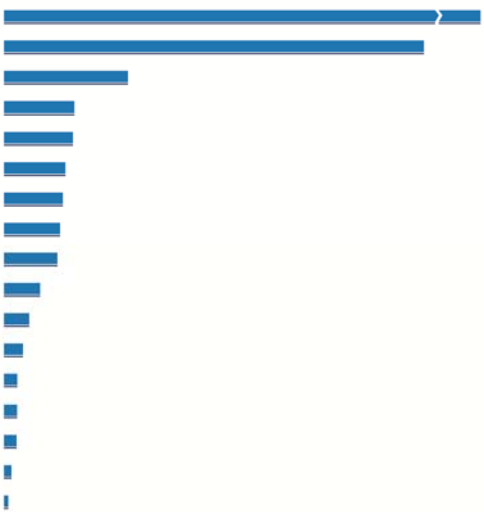
Trend toward higher defence budgets continues

With defence budgets increasing, many nations all over the world have invested in the modernization of their armed forces. According to data released by IHS Markit in January 2020, budgets in 2019 achieved a global volume of USD 1,827.4 billion, an increase of 1.5% compared with 2018 (€1,800.9 billion).

At EU level, following her election to the position of President of the European Commission, Ursula von der Leyen underscored the importance of cooperation in security and defence. The creation of the Directorate-General for the Defense Industry and Space represents a groundbreaking step here. To assist with the creation of the European Defence Fund from 2021 onward, the previous EU commission launched a series of work programs back in March 2019 for co-financing joint industrial projects amounting to as much as €500 million. In addition, a sum of €25 million for supporting cooperation projects in the field of defence research was made available in 2019.

Among the exceptions to last year's worldwide growth in the defence budget was the US. The country with the biggest defence budget in the world spent USD 740.3 billion. This represents a decrease of 1.8% compared with 2018. In contrast, China increased its volume by USD 15 million to USD 218.4 billion. India increased its spending to USD 61.9 billion. The big economies in Europe – Great Britain (+1.8%) and France (+2.1%) – also increased their defence budgets.

Defence budgets of selected countries USD billion



	2019	2018
World	1,827.4	1,800.9
USA	740.3	754.0
China	218.4	203.4
India	61.9	59.3
UK	60.6	59.6
Saudi Arabia	54.0	58.6
France	51.7	50.6
Russian Federation	49.4	49.1
Germany	47.0	42.7
Australia	31.7	31.0
United Arab Emirates (UAE)	22.1	21.5
Canada	16.6	16.4
Poland	11.5	10.9
Netherlands	11.4	10.3
Algeria	11.0	9.9
Norway	6.4	5.9
South Africa	3.6	3.5

Source: IHS Markit, January 2020 | Figures for 2018 taken from IHS Markit from January 2020

In Germany, the defence budget in 2019 increased to USD 47.0 billion, after USD 42.7 billion in 2018. This 10.2% increase reflects the federal government's willingness to assume greater responsibility at a European and international level, which means that the new German federal defence minister Annegret Kramp-Karrenbauer (CDU) is sticking rigidly to the modernization plans initiated by her predecessor, Ursula von der Leyen (CDU).

Metal and energy markets in 2019

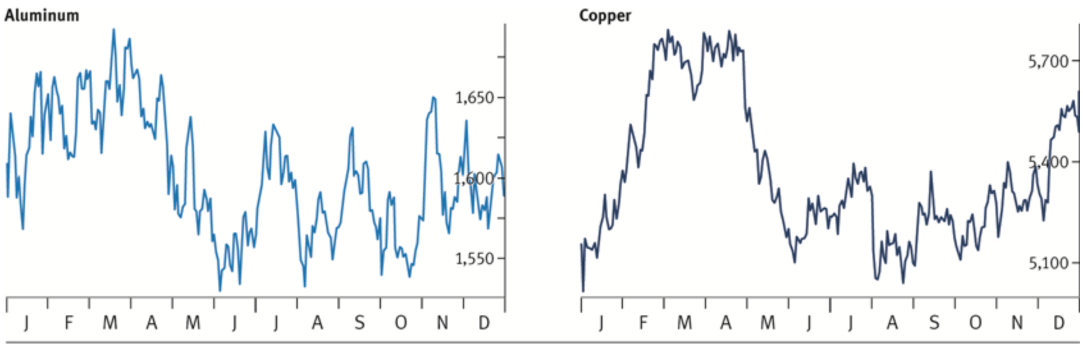
The year 2019 was an eventful and challenging one on the metal markets. News relating to the metal markets was frequently pushed into the background by politics, especially the trade conflict between the US and China. This – and, above all, the comments from US President Trump – was a constant source of major volatility. While market participants had started the year full of confidence that the trade conflict would find an early settlement, the spring brought disillusionment and prices went downhill. The outlook for the global economy became noticeably gloomier as the year progressed, with commodity prices falling as a result. Compared with the previous year, the prices for industrial metals and natural gas, which are highly dependent on economic cycles, have been hit especially hard. The Federal Reserve's and European Central Bank's return to an expansionist monetary policy in the summer and fall saw commodity prices stabilize, but did not bring about any reversal of the downward trend. The Phase 1 agreement between the US and China, which was finally reached in December, ultimately ensured a conciliatory end to the year.

While most metal prices subsequently made up for their losses if only slightly, the price of copper actually increased. The copper price this year reacted strongly in both directions to news of the trade dispute, with developments at macro level overshadowing copper-specific data. The price of copper rose by 7% over the course of the year.

However, it was nickel that received the most attention over the course of several months: The metal had become much more expensive due to the threat of supply shortages – in Indonesia, an export ban on untreated ore was discussed and finally announced. The biggest loser this year was tin. The price of tin has fallen so sharply this year that the main producing and exporting countries announced production cuts and export restrictions in order to support the price – so far with only limited success. The one thing that nearly all the metal markets had in common this year was that the tight supply situation has eased. The sometimes high supply shortfalls were in most cases reduced over the course of the year.

The uncertainties arising from the trade dispute between the US and China as well as the weakness in the manufacturing sector triggered a decline in demand for aluminum this year, which has led to falling prices over the course of the year. Following a sharp rise in the first quarter, the aluminum price on the London Metal Exchange (LME) had by the end of the year returned to its initial level.

Aluminum and copper prices in 2019 €/t



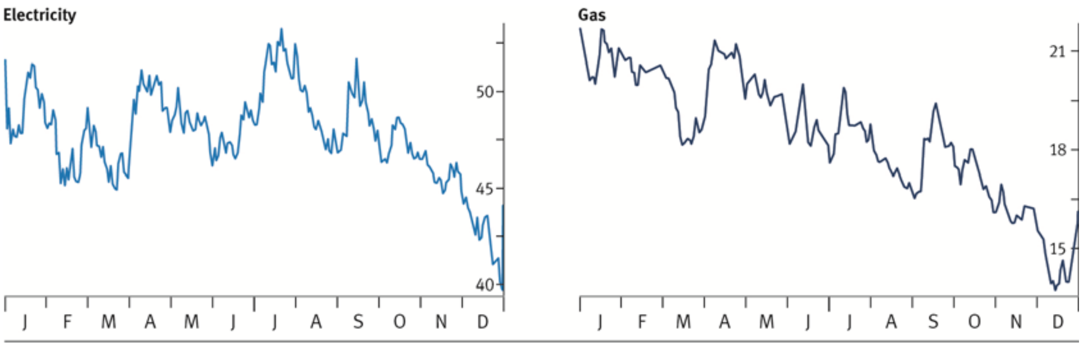
Source: Thomson Reuters Eikon

Economic report
General economic conditions

On the energy markets, weaker demand combined with a sharp rise in supply led to an oversupply situation. Gas prices fell significantly over the course of the year due to a sharp increase in the supply of liquefied natural gas from the US. Coal also experienced lower demand, especially in the industrialized countries. And even the rally in EU emissions trading came to an end in the late summer of 2019 after two years because the economic slowdown in the EU coupled with the major shift in power generation from coal to gas slowed the demand for emission rights. The status of climate protection at the top of the political agenda played only a small role on the energy exchanges. Forward prices for base-load electricity for supply in 2020 fell by 21% over the course of the year. The EEX price for supplies of natural gas in 2020 was €16.5 per MWh at the end of 2019, so 21% lower than at the start of the year.

Within the context of our electricity and gas price hedging strategies, we take action several years in advance based on our medium-term planning, meaning that our energy purchases did not suffer the full impact of the increase in prices in 2019.

Electricity and gas prices in 2019 €/MWh



Source: www.eex.com

KEY FACTS RHEINMETALL GROUP

6,255
SALES € MILLION

505
OPERATING RESULT € MILLION

323
CAPITAL EXPENDITURE € MILLION

25,767
EMPLOYEES

10.8
ORDER BACKLOG € BILLION

5.7
R&D INTENSITY %

Economic report
Rheinmetall Group business performance

General disclosures

All figures in this combined management report have been rounded on a standalone basis. This can result in minor deviations when adding figures together. The new rounding method can also lead to minor deviations between the previous year's figures stated here and the figures in the combined management report for 2018.

Consolidated sales increase to €6,255 million

In fiscal 2019, the Rheinmetall Group increased its consolidated sales compared with the previous year by 1.7% to €6,255 million. Adjusted for positive currency effects of €26 million and sales from M&A activities of €52 million, sales grew by 0.5%.

Sales € million

	2019	2018
Rheinmetall Group	**6,255**	**6,148**
1 Automotive	2,736	2,930
2 Defence	3,522	3,221
Consolidation	(3)	(4)

The Group's sales growth in fiscal can be attributed exclusively to increased revenue in the Defence sector, which increased sales by €301 million (9.4%). By contrast, sales in the Automotive sector remained €194 million lower than the previous year's figure owing to the declining trend in global automotive production in the year under review. At 69%, the international share of consolidated sales in fiscal 2019 was slightly lower than in the previous year (72%).

Sales by region € million

	2019	2018
Rheinmetall Group	**6,255**	**6,148**
1 Germany	1,946	1,700
2 Other Europe	1,866	1,863
3 North-, Middle- and South America	655	735
4 Asia	1,080	1,136
5 Other regions	708	713

Consolidated operating earnings exceed €500 million for the first time ever

In fiscal 2019, consolidated operating earnings (EBIT before special items) exceeded €500 million for the first time ever. At €505 million, they were up 2.9% compared with the previous year's figure of €491 million. The operating margin also improved slightly compared with last year to 8.1% (previous year: 8.0%). The Defence sector achieved an operating result of €343 million, exceeding the previous year's figure of €254 million by 35%. As a result of the significant decline in sales, Rheinmetall Automotive did not achieve the previous year's high figure. At €184 million, the operating result of the Automotive sector was below last year's €262 million. In Others/Consolidation, the operating result fell by €3 million to €-22 million (previous year: €-25 million).

Operating result € million

	2019	2018
Rheinmetall Group	**505**	**491**
Automotive	184	262
Defence	343	254
Others/consolidation	(22)	(25)

The operating result in fiscal 2019 was adjusted for special items of €7 million. The Defence sector reported non-recurring effects of €2 million, while the Automotive sector received non-recurring income of €2 million from real estate income. Non-operational insurance income of €7 million was included in Others/Consolidation. Taking into account these non-recurring effects, EBIT in the Rheinmetall Group was €512 million and thus €6 million below the previous year's value of €518 million.

Special items 2019 € million

	Operating result	Corporate transactions	Restructuring	Others	Special items	EBIT
Rheinmetall Group	**505**	**-**	**(2)**	**9**	**7**	**512**
Automotive	184	-	-	2	2	186
Defence	343	-	(2)	-	(2)	341
Others/consolidation	(22)	-	-	7	7	(15)

Special items 2018 € million

	Operating result	Corporate transactions	Restructuring	Others	Special items	EBIT
Rheinmetall Group	**491**	**-**	**(7)**	**34**	**27**	**518**
Automotive	262	-	-	4	4	266
Defence	254	-	(7)	-	(7)	247
Others/consolidation	(25)	-	-	30	30	5

Net income € million

	2019	2018
EBIT	**512**	**518**
Net interest	(35)	(33)
EBT	**477**	**485**
Income taxes	(123)	(131)
Group net income	**354**	**354**
of which:		
Minority interests	19	49
Rheinmetall AG shareholders	335	305
Earnings per share from continuing operations (€)	**7.77**	**7.10**

Net interest income fell to €-35 million, compared with €-33 million in the previous year. The Rheinmetall Group's earnings before taxes (EBT) were €477 million after €485 million in the previous year. At €354 million, earnings after taxes were the same as in the previous year. After deduction of earnings of €19 million (previous year: €49 million), earnings attributable to shareholders of Rheinmetall AG were €335 million. This represents an increase of 9.8% against the previous year's figure of €305 million. Taking into account the weighted number of shares (2019: 43.06 million; 2018: 42.95 million), earnings per share came to €7.77, compared with €7.10 in the previous year.

Economic report
Rheinmetall Group business performance

Incoming orders significantly above annual sales

Incoming orders for the Rheinmetall Group in fiscal 2019 amounted to €7,889 million, so €562 million lower than the previous year's figure of €8,451 million. The previous year's value, however, was influenced to a large degree by an exceptionally large single order amounting to €2 billion in the Defence sector. In fiscal 2019, too, incoming orders for the Rheinmetall Group were – as was the case in both sectors – above annual sales. Incoming orders in the Automotive sector totaled €2,705 million, after €2,888 million the year before. In fiscal 2019, the Defence sector once again achieved incoming orders in excess of €5 billion; at €5,186 million, however, this was still €379 million lower than the previous year's figure of €5,565 million.

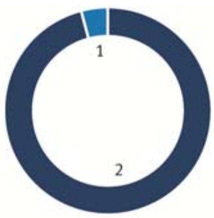
Incoming orders € million

	2019	2018
Rheinmetall Group	**7,889**	**8,451**
1 Automotive	2,705	2,888
2 Defence	5,186	5,565
Consolidation	(3)	(3)

Order backlog exceeds €10 billion for the first time ever

On December 31, 2019, the order backlog in the Rheinmetall Group exceeded €10 billion for the first time. At €10.8 billion, this was €1.8 billion – or 20% – above the previous year's figure of €9,055 million.

Order backlog € million



	2019	2018
Rheinmetall Group	**10,846**	**9,055**
1 Automotive	447	478
2 Defence	10,399	8,577

Capital expenditure at a high level

In fiscal 2019, too, the Rheinmetall Group made targeted investments in areas offering growth opportunities and enabling it to strengthen its profitability on a sustained basis. In addition, investment decisions were influenced by the need to secure competitiveness on international markets and to further expand technological competence through the expansion of plants, facilities and processes. The Rheinmetall Group's capital expenditure on property, plant and equipment and intangible assets amounted to €323 million, after €271 million in the previous year. This is equivalent to 5.2% of consolidated sales (previous year: 4.4%). A total of €72 million of the capital expenditure volume related to leases as per IFRS 16 (previous year: €24 million). Capital expenditure was offset by depreciation and amortization of €280 million (previous year: €318 million).

Investments € million

	2019	2018
Rheinmetall Group	**323**	**271**
Automotive (Net investments[1])	143	161
Defence	166	101
Other	13	9

[1] Total capital expenditure less payments received from customers of €36 million (previous year: €31 million).

Employees

Rheinmetall had 25,767 employees (FTE: 23,780) at the end of the 2019 reporting period, compared with 24,949 on December 31, 2018 (+3.3%). A total of 12,393 people (FTE: 11,405, or 48.1%; previous year: 51.5%) were employed in the Automotive sector, while 13,080 people (FTE: 12,100, or 50.8%; previous year: 47.4%) were employed in the Defence sector and 294 people or or 1% were employed at Rheinmetall AG and in the service companies (previous year: 1.1%). In the year under review, just over half of the workforce (50.2%; previous year: 50.6%) was employed at Rheinmetall companies outside Germany; 5,899 employees (previous year: 5,446) were in Europe, while there were 1,366 employees working in South America (previous year: 1,449) and 2,247 employees in North America (previous year: 2,376). A total of 1,527 employees worked in Africa (previous year: 1,620) and 370 employees in Australia (previous year: 211). In Asia, the number of employees rose to 1,523 (previous year: 1,522).

In the last fiscal year, Rheinmetall's German companies employed 9,570 staff covered by collective wage agreements (previous year: 9,242), 1,486 staff with contracts not covered by collective wage agreements (previous year: 1,412) and 240 managerial staff (previous year: 234).

Whether employees are young or a little older, whether they have only recently joined Rheinmetall or have been here longer, our corporate culture aims to ensure that each individual employee can make an active contribution with their personal qualities, skills, qualifications and commitment to help the company to achieve its targets on a lasting basis. In 2019, 628 employees (2.6%) belonged to generation Z (years of birth: 1996–today | previous year: 406; 1.8%); 8,761 employees (35.7%) belonged to Y (years of birth: 1981–1995 | previous year: 7,952; 35.1%); 9,318 employees (37.9%) to generation X (years of birth: 1966–1980 | previous year: 9,046; 40.0%); 5,432 employees (22.1%) to the babyboomer generation (years of birth: 1956–1965 | previous year: 5,548; 24.5%); and 424 employees (2%) to the post-war generation (years of birth: 1946-1955 | previous year: 681; 3.0%); the aforementioned figures relate to salaried staff. The average age of employees (excluding trainees and interns) in the Rheinmetall Group was, as in the previous year, 43.3. In 2019, the average age in the German companies was unchanged at 44.8; in the Rheinmetall companies outside Germany, it was 41.9. The average age of managers at the German Rheinmetall companies was 48.7 (previous year: 49.0).

In the year under review, the average tenure with the company was 13.0 years in the Automotive sector (previous year: 12.7) and 11.0 years in the Defence sector (previous year: 12.4). In the holding/service companies, this was 8.4 years (previous year: 8.9), while the average within the Rheinmetall Group in 2019 was 11.9 years (previous year: 12.5). On average, employees in the Rheinmetall companies outside Germany had worked at the company for 9.9 years (previous year: 10.4), while those in the German companies averaged 14.0 years (previous year: 14.7). In the past fiscal year (as in the year before), 449 people had been employed at the company for more than 40 years. The average tenure for managers at the German companies fell slightly to 15.0 years, compared with 15.9 years in the previous year.

Personnel expenses came to €1,678 million in the year under review, compared with €1,574 million in the previous year, which corresponded to a personnel expenses ratio of 26.8% (previous year: 25.6%). Personnel expenses per employee amounted to €72 thousand (previous year: €70 thousand). Sales per employee stood at €267 thousand in the last fiscal year (previous year: €274 thousand).

Employees

	2019	2018
Rheinmetall Group	**25,767**	**24,949**
Automotive	12,393	12,855
Defence	13,080	11,832
Others/consolidation	294	262

Total workforce | on the reporting date

Economic report
Rheinmetall Group business performance

Research and development

Expenditure on research and development in fiscal 2019 in the Rheinmetall Group reached €355 million (previous year: €336 million), of which €76 million (previous year: €95 million) was passed on to customers. Of the total expenditure on research and development, €41 million (previous year: €16 million) was capitalized as development costs. The research and development ratio of the Rheinmetall Group was 5.7% (previous year: 5.5%). The corresponding ratio in Rheinmetall Automotive was 7.7% (previous year: 6.6 %) and in Rheinmetall Defence 4.1% (previous year: 4.4%).

Research and development € million

	2019	2018
Employees in research and development	4,129	3,608
Employees in research and development as % of total workforce	16.0	14.5
R&D: Expenses	355	336
of which capitalized	41	16
R&D ratio (research and development expenses in relation to sales)	5.7	5.5

Statement of cash flows

With steady earnings after taxes, increased working capital made an important contribution to the €360 million increase in cash flow from operating activities from €242 million to €602 million. Following a figure of €40 million in the previous year, €20 million was paid into an external fund (CTA) in the year under review to cover provisions for pensions and partial retirement obligations. Operating free cash flow – defined as cash flow from operating activities less capital expenditure on intangible assets, property, plant and equipment and investment property – amounted to €314 million (previous year: €-35 million). Investments increased slightly here from €277 million to €288 million. Taking into account the proceeds from the sale of assets and divestments, in addition to the payments for acquisitions, the free cash flow amounted to €350 million (previous year: €34 million), €316 million higher than in the previous year.

Statement of cash flows € million

	2019	2018
Net income	**354**	**354**
Amortization, depreciation and impairments	280	318
Payment into external Fund (CTA)	(20)	(40)
Changes in Working Capital and others	(12)	(390)
Cash flows from operating activities	**602**	**242**
Investments in property, plant and equipment, intangible assets and investment property	(288)	(277)
Operating free cash flow	**314**	**(35)**
Cash receipts from the disposal of property, plant and equipment, intangible assets and investment property	8	73
Net cash outflow from financial investments in/divestments of consolidated subsidiaries and other financial assets	(56)	(21)
Payments for the purchase of short-term commercial papers	84	17
Free Cash Flow	**350**	**34**

Asset and capital structure

In fiscal 2019, the Rheinmetall Group's total assets rose by €656 million or 9.7% to €7.415 million. Non-current assets accounted for 43% of total assets as of December 31, 2019, after 44% in the previous year. They increased by €244 million to €3,195 million. This increase resulted mainly from the corporate acquisition transacted in 2019. Current assets increased by €412 million overall year-on-year to €4,220 million. A total of €204 million of this increase was attributable to inventories and €115 million to liquid assets and cash and cash equivalents.

Asset and capital structure € million

	Dec. 31, 2019	%	Dec. 31, 2018	%
Non-current assets	3,195	43	2,951	44
Current assets	4,220	57	3,808	56
Total assets	**7,415**	**100**	**6,759**	**100**
Equity	2,272	31	2,173	32
Non-current liabilities	2,365	32	1,980	29
Current liabilities	2,779	37	2,607	39
Total equity and liabilities	**7,415**	**100**	**6,759**	**100**

The equity ratio is 30.6%, following 32.1% at the start of the year. The equity of the Rheinmetall Group rose by €99 million or 4.6% to €2,272 million in fiscal 2019. This increase mainly resulted from earnings after taxes (€354 million). This was offset by the distribution of the dividend to the shareholders of Rheinmetall AG amounting to €90 million, the purchase of non-controlling interests amounting to €136 million and a negative other income of €54 million. The €385 million increase in non-current liabilities to €2,365 million is essentially due to an increase in provisions for pensions (€196 million) resulting from a decrease in interest rates, especially in Germany and Switzerland. Current liabilities increased by €172 million. This increase results mainly from increased contract liabilities (€+298 million). Liabilities from deliveries and services, however, have fallen by €102 million.

ROCE € million

	Dec. 31, 2019	Dec. 31, 2018
Net financial debts (-)/Net liquidity (+)	(52)	(30)
Pension provisions	1,169	972
Equity	2,272	2,173
Capital Employed	**3,493**	**3,175**
Average capital employed	3,334	3,030
EBIT	512	518
ROCE (in %)	**15.4**	**17.1**

The average capital employed increased due to the higher equity and higher pension provisions at the end of 2019. With comparable EBIT, therefore, the ROCE fell to 15.4% (previous year: 17.1%).

In terms of the total assets adjusted for cash and cash equivalents, the equity ratio was 35% after 36% in the previous year. Financial liabilities increased by €138 million or 16.1% set against the beginning of the year to €992 million. As of the end of the reporting period, cash and cash equivalents totaled €920 million after €724 million at the end of the previous year. An additional €20 million was held in commercial paper as the liquidity reserve (previous year: €100 million). Net financial liabilities for the 2019 reporting year totaled €-52 million after €-30 million at the beginning of the year. The share of net financial liabilities in relation to adjusted total assets was 0.8% in the fiscal year, compared with 0.5% at the start of the year.

Economic report
Rheinmetall Group business performance

Capital structure € million

	Dec. 31, 2019	%	Dec. 31, 2018	%
Equity	**2,272**	**35**	**2,173**	**36**
Current financial debts	112	2	151	3
Non-current financial debts	880	14	704	12
Total financial debts	**992**	**15**	**854**	**14**
Near-cash assets	20	-	100	2
Cash and cash equivalents/financial resources	920	14	724	12
Net financial debts (-)/Net liquidity (+)	**(52)**	**1**	**(30)**	**0**
Total assets adjusted for cash and cash equivalents	**6,496**	**100**	**6,035**	**100**

Value added

The Rheinmetall Group generated value added of €2,212 million in fiscal 2019, outperforming the previous year's figure of €2,110 million. The Group's total operating performance was €6,912 million, compared with €6,616 million in the previous year. The ratio of value added to the Group's total operating performance remains unchanged at 32%. Value added per employee increased from €94 thousand to €95 thousand. At 76%, most of the value added benefited the employees in fiscal 2019. A total of 6% related to the Treasury. Interest payable to lenders was 2% in the year under review. The shareholders of Rheinmetall AG received 5% of the value added, or €103 million. The Rheinmetall Group retained €251 million compared with €263 million in the previous year.

Source and use of value added € million

	2019	%	2018	%
Source				
Group's total operating performance	6,912	100	6,616	100
Input	(4,421)		(4,188)	
Amortization and depreciation	(280)		(318)	
Value added	**2,212**	32	**2,110**	32
Use				
Employees	1,678	76	1,574	75
Treasury	134	6	142	7
Lenders/banks	46	2	39	2
Shareholders	103	5	90	4
Companies	251	11	263	12
Value added	**2,212**	**100**	**2,110**	**100**

The Group's total operating performance comprises all income, i.e. total operating performance, other operating income, income from equity holdings, interest income and other financial income. Input includes all expenses except personnel expenses, interest and taxes.

KEY FACTS RHEINMETALL AUTOMOTIVE

2,736

SALES € MILLION

184

OPERATING RESULT € MILLION

143

CAPITAL EXPENDITURE € MILLION

12,393

EMPLOYEES

447

ORDER BACKLOG € MILLION

7.7

R&D INTENSITY %

Economic report
Business performance of Rheinmetall Automotive

Weaker automotive industry influences sales

Weaker business in the international automotive industry in 2019 compared with the previous year clearly manifested itself in the key economic data for the sector. While the global manufacture of light vehicles fell by 5.6% according to figures from IHS Markit published in February 2020, Rheinmetall Automotive's sales fell by 6.6% to €2,736 million. After adjustment for positive currency effects, the decline equates to 7.4%.

Sales € million

	2019	2018
Rheinmetall Automotive	**2,736**	**2,930**
Mechatronics	1,525	1,664
Hardparts	937	988
Aftermarket	361	367
Others/consolidation	(87)	(90)

All three sector divisions suffered a decline in sales compared with the previous year. Due to the weak performance of the international automotive industry, the ongoing decline in demand for diesel products for the passenger car market was not offset, as in the previous year, by other product groups such as applications for trucks and gasoline drives. As a result, new product launches were postponed or took place on a much smaller scale than anticipated. Sales in the Mechatronics division fell in 2019 by 8.4% to €1,525 million, with the biggest decline in the Automotive Emission Systems and Solenoid Valves product areas. At €937 million, sales in the Hardparts division were 5.2% lower than in the previous year. In Small Bore Pistons, this decline was mainly attributable to the North American and Brazilian markets; in Bearings, the European sales market suffered a decline. Sales in the Aftermarket division fell by just 1.7% to €361 million, which meant that the division performed well in its various global markets.

The varying sales trends in the different divisions in fiscal 2019 did not result in any major changes to the proportionate shares. Although the share of sales in the Mechatronics division fell by one percentage point to 56%, Mechatronics still generated the most sales. Second place is occupied once again by the Hardparts division, generating around one third of sales in the sector. The Aftermarket division generated 13% of sales (previous year: 12%).

The regional distribution of sales for fiscal 2019 remained virtually unchanged year-on-year. The share of sales with customers in Germany was 19% (previous year: 20%) and, accordingly, the share generated with customers was 81% (previous year: 80%). Of business abroad, the proportion attributable to customers in Western and Eastern Europe remained unchanged at 43%. Sales generated with buyers in North and South America represented 20% of all sales, so roughly the same level as in the previous year (19%). This included business with customers in the USMCA economic region, comprising the US, Mexico and Canada, which, as in the previous year, had a share of 16%. Deliveries to customers based in Asia accounted for a higher proportion of sales at 18% (previous year: 17%), of which 8% (previous year: 7%) was attributable to customers in China. The share of sales represented by customers in other countries once again amounted to 1%.

Our joint ventures operated in China and Germany are accounted for using the equity method and are therefore not included in consolidated sales. Sales of these companies totaled €1,266 million in fiscal 2019, which corresponds to year-on-year growth of 6.1%, or 5.3% after adjustment for currency effects.

Operating earnings margin of 6.7%

The operating earnings of Rheinmetall Automotive (EBIT before special items) amounted to €184 million in the year under review, after a record high of €262 million in the previous year. The operating margin fell as a result by 2.2 percentage points to 6.7% (previous year: 8.9%).

Operating result € million

	2019	2018
Rheinmetall Automotive	**184**	**262**
Mechatronics	118	171
Hardparts	28	65
Aftermarket	35	36
Others/consolidation	3	(10)

The operating earnings of all the three divisions were lower than in the previous year. While the Aftermarket division was only slightly short of the previous year's level, Mechatronics and Hardparts suffered significant declines. This was essentially due to sales-related profit contribution losses, which reduced costs countered only to a limited extent. Quality issues and upfront expenditure for new orders also had a negative impact on operating earnings.

The Others/Consolidation area reported an improved result of €3 million (previous year: €-10 million). In addition to Rheinmetall Automotive AG, other small companies influenced the result. The overall improvement in earnings was essentially due to the discontinuation of provisions for legal and environmental risks, which negatively impacted earnings last year, and the successful reversal of provisions for legal risks in the year under review.

Capital expenditure

In fiscal 2019, Rheinmetall Automotive reduced investment volume – following the deduction of received customer payments – to €143 million (previous year: €161 million). The €17 million reduction was mainly attributable to the Mechatronics division (€-11 million). Development costs of €17 million were capitalized in the previous fiscal year (previous year: €12 million). A total of €11 million related to rights of use in accordance with IFRS 16. The investment ratio as the ratio of capital expenditure to sales fell slightly to 5.2% (previous year: 5.5%).

Investments[1] € million

	2019	2018
Rheinmetall Automotive	**143**	**161**
Mechatronics	92	103
Hardparts	41	51
Aftermarket	7	6
Others/consolidation	3	1

[1] Total capital expenditure less payments received from customers of €36 million (previous year: €31 million).

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Business performance of Rheinmetall Automotive

At 64%, the share of the Mechatronics division in the total capital expenditure of the sector remained unchanged compared with the previous year. The share of the Hardparts division fell by two percentage points to 29%. In 2019, 5% of capital expenditure measures was attributable to the Aftermarket division (previous year: 3%). The share of the other sector companies in total capital expenditure was 2% (previous year: 1%).

Capital expenditure was distributed almost equally between Germany and the international market, at 51% and 49% respectively. With a share of 20% (previous year: 14%), the region that received the biggest share of total capital expenditure outside Germany in 2019 was Asia, with increased investment especially in China and India. Meanwhile, capital expenditure at the Western and Eastern European locations fell sharply to 12% (previous year: 20%), with the plants in Spain, Italy and the Czech Republic most badly affected. In the year under review, the share of capital expenditure for North America was 13%, the same level as in the previous year. Capital expenditure at the Brazilian site represented 4% of total capital expenditure, slightly higher than in the previous year (previous year: 3%).

Employees

Due to weak performance in the automotive industry, the sector had taken a restrictive approach to employee numbers since the beginning of 2019. As of December 31, 2019, Rheinmetall Automotive employed 11,405 employees worldwide, which represents a 2.6% reduction.

Employees Capacities

	2019	2018
Rheinmetall Automotive	**11,405**	**11,710**
Mechatronics	4,723	4,741
Hardparts	5,664	5,944
Aftermarket	833	833
Others/consolidation	185	191

In 2019, as in the previous year, 60% of the workforce was employed at Rheinmetall Automotive companies outside Germany. In absolute terms, 247 fewer people were employed at our locations outside Germany in the year under review compared with the previous year; in Germany, the number of employees fell by 57.

In addition to adjustments relating to permanent employees, the sector responded to the decline in sales by reducing the number of contract staff. With a reduction of 422 contract employees to 749 as of December 31, 2019, the adjustment was much greater than that relating to permanent staff. The share of contract staff in the overall workforce fell from 9.1% at the end of 2018 to 6.2% in the year under review.

Research and development

The automotive industry is continuing its global transformation and has to adapt to not only new mobility requirements, but also to society's greater awareness of climate issues. As a result, the established drive technologies for vehicles, passenger cars and commercial vehicles equipped with the tried-and-tested, inexpensive combustion engine are coming under ever greater pressure, with electromobility becoming increasingly important. It is forecast that between 20% and 30% of passenger cars produced by the middle of the next decade will be powered by electric batteries. For this field of technology, it should also be noted that legislative requirements in the different regions – in addition to the utility value – are particularly relevant to the purchasing decisions of end customers. Nevertheless, the combustion engine will remain highly relevant in drive technology for decades to come, both in the passenger car segment and, especially, in commercial vehicles. Along with the development of products for new electromobility technologies, optimization of combustion engine systems and components will therefore continue to be very important.

In the central area of research and development, the focus was on electromobility and, in particular, the activities launched over the past few years to develop electric drive and energy storage systems. The focal points of development included the creation of an ETU (electric traction unit) and a 48 V battery system, including the electronic and software modules required for control and regulation purposes. These elements were installed in a demonstration vehicle and in the EMove demonstrator unveiled last year on the basis of 400 V units. In addition, the company's own startup Amprio GmbH is focusing on the development of the pedelec e-drive system. In addition to the aforementioned focus on ePowertrain systems, Rheinmetall Automotive has also started development work in the fields of connectivity and advanced driver assistance systems. This involves extensive collaboration with Rheinmetall Defence, for example in the areas of optoelectronic sensors, remote controls and data loggers.

Research and development € million

	2019	2018
Rheinmetall Automotive	**210**	**193**
Mechatronics	176	161
Hardparts	34	32
Aftermarket	–	–
Others/consolidation	–	1

Rheinmetall Automotive increased spending on research and development activities in fiscal 2019. After deduction of research and development revenue of €39 million (previous year: €36 million), self-financed expenses came to €171 million, of which €4 million related to research projects in the field of e-mobility (previous year: €3 million). The R&D ratio as a ratio of expenses to sales increased sharply by 1.1 percentage points to 7.7% (previous year: 6.6%). As of December 31, 2019, a total of 1,275 employees were employed in the research and development departments of the Automotive companies (previous year: 1,279).This means that around one in nine employees was entrusted with research and development tasks.

Employees in research and development Capacities

	2019	2018
Rheinmetall Automotive	**1,275**	**1,279**
Mechatronics	988	993
Hardparts	268	274
Aftermarket	12	7
Others/consolidation	7	5

Economic report
Business performance of Rheinmetall Automotive

Mechatronics division

Key figures

		2019	2018
Sales	€ million	1,525	1,664
Operating result	€ million	118	171
Operating margin	in %	7.7	10.3
Capital expenditure	€ million	92	103
Employees (Dec. 31)	Capacity	4,723	4,741

Sales – The Mechatronics division was affected by the global downturn in the automotive industry. The production volumes of light vehicles fell in all the relevant sales markets. Sales in fiscal 2019 fell by 8.4% compared with the previous year to €1,525 million. Adjusted for currency effects, the reduction amounted to 9.0%. Running counter to market trends, however, sales in USMCA and Asia increased. This was due to the launch of new products designed to reduce emissions and fuel consumption such as the electrical vapor pump in the US and various pump types in China. In India, the stricter Bharat Stage VI (BS VI) emission standard is having a positive effect, allowing Mechatronics to increase sales with a range of different products.

The product areas in the division experienced different trends. Sales at the same level as the previous year were achieved in Commercial Diesel Systems with products designed to reduce emissions. Business with modular components – including exhaust gas recirculation valves – and sales of exhaust gas flaps were crucial to ensuring this stability. The product areas serving the light vehicles market saw stagnating/declining sales. Thanks to throttle valves and electrical actuators, Actuators saw sales increase slightly. Pump Technology generated lower sales than in the previous year. Although sales increased thanks to high-quality technological products such as electrical vacuum pumps and the launch of the electrical vapor pump, the decline in sales was not fully compensated with conventional pumps. Business also slumped in the Automotive Emission Systems and Solenoid Valves product areas.

Operating earnings – Operating earnings in the Mechatronics division in fiscal 2019 amounted to €118 million (previous year: €171 million). This decline was due mainly to lower sales in the year under review. On top of this were personnel cost increases through tariff increases and the increase in the number of development employees brought in to support the technological shift toward electromobility. As a countermeasure, the number of contract staff in production-related and non-production-related areas was reduced. The division's operating margin fell from 10.3% in fiscal 2018 to 7.7% in 2019.

Capital expenditure – Companies in the Mechatronics division invested a total of €92 million in 2019, €11 million less than in the previous year. The investment ratio fell to 6.0% (previous year: 6.2%). Capital expenditure was necessary in particular for the industrialization of new products, expansion of production facilities at the growing locations in Asia and USMCA and as part of development projects. One focus of capital expenditure in 2019 was China. Here, the growth experienced in the Mechatronics division over the past few years is expected to continue, which is why we are making targeted investments in the expansion of our capacities. At Pierburg China Ltd., new facilities for different truck applications and, in the Light Vehicle area, for coolant valves, throttle valves and divert-air valves were installed. In addition, the industrialization of the world's first project undertaken by the Mechatronics division in the field of variable valve drives has begun. The variable valve drive project is being promoted in a production network with the German sites in Niederrhein and Hartha.

Production is scheduled to start in 2020. For our fully consolidated joint venture Pierburg Mikuni Pump Technology (Shanghai) Corp., investments were made in projects focusing on variable-control oil pumps.

Another focus of capital expenditure was our production location in India, where the stricter BS VI emission standard will apply country-wide from 2020 onward. Mechatronics has launched a number of projects over the past few years in preparation for this, focusing primarily on reducing the emission of pollutants with exhaust gas recirculation valves and exhaust gas flaps for use in passenger cars and trucks. The necessary industrial production capacities were put in place for these projects.

Employees – At the end of 2019, the division employed a total of 4,723 people (previous year: 4,741). In particular, personnel numbers increased at companies outside Europe in India, China and the US, in response to the strong growth experienced in these regions. Research and development activities in Europe were also strengthened. The number of personnel was reduced at the production locations in Europe.

Research and development – Development in the Mechatronics division was focused on application development for new projects, customer support with current products, development of existing product families and increased shares of predevelopment work for the development of new projects in electric and hybrid drive systems.

Especially in modern engine types with fully or partially electric drives, the electrification of auxiliary units is unavoidable. As part of developments in this area, electrically powered coolant pumps offer a broad range of applications: They can be used for cooling not only conventional combustion engines but also fuel cell stacks in fuel-cell-powered vehicles. And since they operate independently of the engine's mechanical drive system, they can also be installed in hybrid and all-electric applications. Offering electric coolant pumps in the small-, medium- and high-output range, Pierburg covers the whole range of potential applications.

The smallest product variant at the lower end of the output range is the water recirculation pump, which has an electrical output of 15–20 W and is equipped with a single-phase EC motor and a Hall sensor for commutation. For use in electric vehicles, where the noise emissions from the pumps were kept at a very low level, Pierburg has developed a three-phase sensorless commutated water recirculation pump, which entered series production in 2018. The large series pumps CWP 35, 50, 65, 150, 250 and 400 operate in the 35–400 W output range. They are equipped with a sensorless three-phase EC motor and are used primarily for cooling auxiliary units and also, for example, for indirect charge air cooling in turbocharged engines. For higher output ranges, the supplier offers the CWA 450 and CWA 950. Both pumps operate with a sensorless three-phase EC motor in an output range 450 W and 950 W. While the CWA 450 is supplied from the 12-V on-board power supply, the CWA 950 is designed for the 48-V on-board power supply. These pumps are used today as the primary cooler for the combustion engine and for cooling fuel cell stacks in fuel-cell drives.

In vehicles equipped with a conventional combustion engine, the climate compressor is generally driven by a belt pulley and V-belt; in electric vehicles, however, these mechanical components are not required and the climate compressor is powered instead by an electric motor integrated in the vehicle's high-voltage network.

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The division has developed an electric climate compressor (eCC), the result of its many years of experience in the field of mechatronic components. This new unit is highly compact, which means that it can be installed in the standard installation space, and serves the standard HV2 and HV3 voltage levels. The three modules – mechanical compressor unit, electric motor and power electronics – are modularly integrated. Particular attention was paid during development to ensuring that the unit is lightweight and highly efficient. This ensures economical use of the only limited electrical energy available from the high-voltage storage system in the vehicle.

The division has also developed an electronically controlled expansion valve for the coolant circuit. This new valve is normally mounted on an evaporator or chiller and controls the coolant flow; these heat exchangers are suitable for use in the interior air-conditioning system, for cooling the battery packages or for the electric drive components. Thanks to its highly compact design, this newly developed valve can be fully integrated in heat exchangers.

Another application of valves is the retention of fuel vapor in EVAP systems, which are now a standard component of modern combustion engines. The fuel tanks system in modern hybrid vehicles is sealed to the outside, which can result in overpressure or underpressure; in certain situations, however, this pressure needs to be compensated. Two new valves were developed for this purpose: The fuel tank isolation valve (FTIV) and fuel vapor valve (FVV) are both based on a modular construction system that allows the valves to be equipped with all the functions that customers require.

Fuel cell technology is becoming increasingly important again for many vehicle manufacturers. Following the large amounts of money invested in the development of this technology back in the 1990s and its inability to penetrate the market, the ongoing trend toward electrification seems to herald a renaissance of fuel cell technology. It combines huge ranges with short “refueling” times, which makes it an important addition to purely battery-electric vehicles. Some vehicle manufacturers have already launched fuel-cell vehicles, while other OEMs in Asia and Europe have announced that this technology will be entering series production over the coming years.

Fuel cell systems are highly complex and, like combustion engines, require sophisticated thermal management and a supply of air and hydrogen. The Mechatronics division is leveraging its expertise in pumps and valves for combustion engines to develop special products for fuel-cell vehicles. In addition to a leak-free control valve (or MPV = multipurpose valve), which is suitable for the special requirements of fuel cells, two other products occupying a very special place on the market were also developed: a coolant pump and hydrogen recirculation blower (HRB). Both are designed for low- and high-voltage onboard power supplies with 400 V and 800 V.

With the development of an actuator for the automatic operation of side vehicle doors (CDA = compact door actuator), the Mechatronics division has expanded its production development activities beyond powertrain applications. The advantages of side doors that open and close automatically are clear – and not only because they make life easier for passengers. When the actuator is integrated in the vehicle’s safety concept and surroundings monitoring system, this helps to increase safety for pedestrians and cyclists. Torque monitoring also stops people getting their hands or legs trapped in the door. The system stops the door from being damaged and can also support the opening of heavy vehicle doors. From a technical point of view, it also means that a door retaining strap is no longer required. The actuator developed by Pierburg allows the side doors to be integrated in a safety system with surroundings monitoring sensors. The CDA is scheduled to enter series production in 2022. We anticipate that automatic vehicle doors will become more widespread in the autonomous vehicles of the future.

Hardparts division

Key figures

		2019	2018
Sales	€ million	937	988
Operating result	€ million	28	65
Operating margin	in %	3.0	6.5
Capital expenditure	€ million	41	51
Employees (Dec. 31)	Capacity	5,664	5,944

Sales – In 2019, sales in the Hardparts division fell by 5.2% compared with the previous year to €937 million. While the Large Bore Pistons business unit continued to improve with growth of 3.0%, the sales generated in the other consolidated business units were below the levels of the previous year. The Small Bore Pistons business unit saw sales fall by 4.5%, with this decline especially pronounced in North America and Brazil. Sales in the Bearings business unit were 9.4% down on the previous year. While the companies in North America enjoyed slight growth, which was supported by the strength of the US dollar, India and, above all, Europe suffered a significant, market-related drop in sales.

Operating earnings – The Hardparts division achieved operating earnings of €28 million in fiscal 2019, compared with €65 million in the previous year. This was attributable to the market-related drop in sales suffered by the joint ventures in China and Europe, which, with their pro rata income, were included in the divisional result in accordance with the equity method. This affects above all the entire Castings business unit and the Chinese joint ventures of the Small Bore Pistons business unit. Due to the difficult market for passenger cars in Europe and, above all, China, the total at-equity result of the joint ventures – €26 million – was significantly lower than the previous year's €33 million. The Large Bore Pistons business unit successfully translated sales growth into improved earnings, while the Bearings business unit suffered a fall in earnings due to the decline in sales and associated profit contribution loss. In the Small Bore Pistons business unit, the impact on earnings caused by the declining market trend was further exacerbated by the operational difficulties suffered by the companies in Brazil and the Czech Republic. The divisional result also includes expenses for the development of new product areas, which are intended to reduce dependence on passenger car combustion engines. The division's operating margin reduced year-on-year by 3.5 percentage points to 3.0%.

Capital expenditure – Capital expenditure in the Hardparts division in 2019 was reduced by 18% compared with the previous year to €41 million, most of this attributable to the Small Bore Pistons business unit. The division invested mainly in the modernization of its production facilities for new steel pistons at the Small Bore Pistons locations in the Czech Republic and Mexico.

Employees – As of the end of 2019, the number of employees in the division totaled 5,664, so 280 fewer than at the end of the previous year. The biggest slump was suffered by the Small Bore Pistons business unit, in particular the companies in the US, Brazil, Mexico and the Czech Republic. The number of employees in the Bearings business unit – and especially in Germany – as of the 2019 reporting date was lower than in the previous year due to the market situation.

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Research and development – The development activities of the Hardparts division encompassed the (further) development of components and systems for automotive and non-automotive applications.

Significant product developments for automotive applications included piston systems for passenger cars and commercial vehicles. As an important contribution to optimizing the piston group in combustion-engine passenger cars, the Hardparts division has developed a new piston generation – LiteKS 5 – for high-performance gasoline engines that bring about further improvements in the friction behavior and, in turn, help to reduce fuel consumption. This fifth and even more refined product generation reduces friction within the piston system and fulfills stringent requirements regarding fuel consumption, emissions, noise and lifetime.

To meet the latest CO_2 legislation, not only friction-optimized pistons but also smooth cylinder surfaces are now in series production. In combination with piston rings, which feature a hard coating such as Diamond Like Carbon (DLC), they help to reduce friction in the engine characteristic map. The low-friction piston rings were developed in collaboration with alliance partner Riken and are almost ready to enter series production. Compared with the current series product, the optimized piston system combining the piston and ring offers further potential for cutting CO_2 emissions with low oil consumption.

For one widely used passenger car diesel engine series from a German automotive manufacturer, KS HUAYU AluTech GmbH has produced its first all-aluminum, four-cylinder diesel engine. This is a cross-variant of the engine series that has since entered series production. For the engines with a cubic capacity of two liters, the housing for the low-load variant is die-cast. Low-pressure casting is used for manufacturing a second, more powerful unit, which involves casting inorganically produced cores and uses a special cooling method to, first, create the complex geometry of the component and, second, fulfill the high mechanical requirements and parameters. Production for both orders began in fall 2018 and is scheduled to run until 2027.

KS HUAYU AluTech GmbH recently extended its core business to the fields of structural components and e-mobility. The company has been collaborating with a renowned German automotive manufacturer since 2016 on a project for a battery-powered C-segment vehicle and supplies the battery housing for the additional module. This helps to increase the battery capacity and, in turn, the range – a central criterion for electric vehicles. The vehicle entered series production in August 2018, for which the OEM invested in a whole new platform purpose-built for all-electric drives. In addition, and in collaboration with another major manufacturer, an electric motor housing made from aluminum, featuring a complex water cooling system and designed with a honeycomb structure, has also been developed. The new casting process required for this is the low-pressure sand casting core package, which was prototyped in Neckarsulm. Following this, the process and also some of the production facilities were relocated to China to the joint venture partner HASCO KSPG Nonferrous Components Co. Ltd. in Guangde. Local production in China is now in full swing with maximum capacity utilization of up to 120,000 components. In recognition of its achievement, HASCO KSPG Nonferrous Components received the Automotive Technology Innovation Award at the 11th International Automobile Congress in Shanghai.

Key products developed as part of the Hardparts division's research and development activities in the area of non-automotive applications include plain bearings for industrial applications such as wind turbines, which not only replace rolling bearings but also help to increase reliability and durability and reduce maintenance. As part of diversification efforts, the Hardparts division is using, among other things, fiber-composite technology to develop new products. To support this, the division entered into partnership with two startups specializing in spring systems made from compound materials and containing carbon-fiber structural elements. Both activities are currently in an early phase of application development and are being presented to customers.

Aftermarket division

Key figures

		2019	2018
Sales	€ million	361	367
Operating result	€ million	35	36
Operating margin	in %	9.8	9.7
Capital expenditure	€ million	7	6
Employees (Dec. 31)	Capacity	833	833

Sales – At €361 million, sales in the Aftermarket division in 2019 were weaker than in the previous year (1.7%). The Independent Aftermarket (IAM) sector grew in the two product areas Hardparts and Mechatronics. Sales in Original Equipment Supplier (OES) / Original Equipment (OE), however, fell due to the lower level of orders from certain customers. From a geographical perspective, the business performance in South America, Eastern Europe and the Far East was particularly positive. By contrast, business with customers in the Middle East and Africa was adversely affected by crises and trade barriers and, in Western Europe, by discontinued core products and customer consolidation.

Operating earnings – Due, among other things, to falling sales, the operating earnings for the Aftermarket division in 2019 amounted €35 million, or 1.2% down on the previous year. In the IAM business unit, the profit contributions in all product areas and in all regions and companies remained stable. The operational development of the production company in the Czech Republic was positive, while the Italian production company suffered due to weak OES/OE business and so ended 2019 with negative earnings. At 9.8%, the division's operating margin was once again at a very high level.

Capital expenditure – At €7 million in 2019, investment in the Aftermarket division was higher than in the previous year. Investments were made in the expansion of logistical capacity in Brazil, the extension of the lease in accordance with IFRS 16 in Genas, France, and the procurement of machinery and equipment in the production plants.

Employees – As of December 31, 2019, and as of the end of the previous year, 833 employees worked in the companies belonging to the Aftermarket division. In particular, the management company in Germany reported an increase in the number of employees due to the establishment of central structures in IAM business, while the increase in the number of employees at the company in Brazil was attributed to sales. Reduced capacity was countered by short-time work in the production plant in Italy and a significant reduction of the vacation and time credits of employees worldwide.

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Joint ventures with Chinese partners

Sales – Rheinmetall Automotive runs a total of five joint ventures with Chinese partners. Sales increased in 2019 compared with the previous year by 6.1% (or 5.3% after adjustment for currency effects) to €1,266 million. However, sales trends in the companies were not uniform. The four companies based in China recorded aggregated sales growth of 16% (or 15% after adjustment for currency effects). Measured against the figures concerning the production of passenger cars and light-duty commercial vehicles in 2019 in China published by IHS Markit in February 2020, which show a decline of 8.5%, this was an extremely positive trend overall. The German joint venture KS HUAYU AluTech Group, however, suffered a significant decline in sales compared with the previous year's value.

With its small-bore pistons, Kolbenschmidt Huayu Pistons Co., Ltd. generated sales that were slightly higher than in the previous year (in the local currency). The same applied to the sales generated by HASCO KSPG (Shanghai) Nonferrous Components Co., Ltd. (formerly Kolbenschmidt Pierburg Shanghai Nonferrous Components Co., Ltd.), which produces not only engine blocks and cylinder heads but also structural parts and components for electromobility. In addition, the company generated its first-ever sales from orders placed by a major international telecommunications group for the delivery of cast aluminum components required for expanding the 5G mobile communications network in China. The share of sales of these components was still below 10% in 2019, although this is expected to rise significantly from 2020 onward. At more than 300%, the biggest growth was recorded by Pierburg Huayu Pump Technology Co., Ltd., which, with a share of around 73%, can be attributed to organic growth and, with around 27%, to the acquisition in 2019 of the pump business of a HASCO Group company. For the first time in its history, Pierburg Yinlun Emission Technology (Shanghai) Co., Ltd. generated only low sales in 2019.

In 2019, the KS HUAYU AluTech Group generated sales of €256 million, after €321 million in the previous year (-20%). In addition to the impact on sales caused by the prevailing weakness of the market in Europe, the decline in project business from the sale of tools had an especially strong impact on customers.

Key figures € million

	Joint Ventures in China		KS HUAYU AluTech Group Germany	
100%-Basis	**2019**	**2018**	**2019**	**2018**
Sales	1,010	872	256	321
EBIT	72	69	0	10
EBIT-Margin (in % of sales)	7.2	7.9	0.1	3.2
Net income	51	44	(2)	11
Net income (in % of sales)	5.0	5.1	(0.7)	3.4

Net income – The total net income of the four joint ventures in China amounted to €51 million, so higher than in the previous year. HASCO KSPG (Shanghai) Nonferrous Components Co., Ltd. suffered a decline in sales, while Kolbenschmidt Huayu Pistons Co., Ltd. saw a slight increase and Pierburg Huayu Pump Technology Co., Ltd. a significant increase in sales. Pierburg Yinlun Emission Technology (Shanghai) Co., Ltd. saw slightly improved – but still negative – sales compared with the previous year.

In 2019, the KS HUAYU AluTech Group generated a net income of €-2 million (previous year: €11 million). This reflects above all the decline in sales.

KEY FACTS RHEINMETALL DEFENCE

3,522
SALES € MILLION

343
OPERATING RESULT € MILLION

166
CAPITAL EXPENDITURE € MILLION

13,080
EMPLOYEES

10.4
ORDER BACKLOG € BILLION

4.1
R&D INTENSITY %

Economic report
Business performance of Rheinmetall Defence

Rheinmetall Defence achieves sales growth of 9.4%

At €3,522 million, sales in the Defence sector exceeded the previous year's figure by €301 million, or 9.4%. Taking into account exchange rate changes and M&A activities, organic growth was 7.6%. This rise in sales was achieved through, among other factors, the launch of the major Land 400 Phase 2 project for the Australian armed forces and the shipment of unarmored transport vehicles to the German armed forces. In addition, the start-up of the major project Future Soldier System with a German customer contributed to a significant increase in sales in the Electronic Solutions division. The Weapon and Ammunition division, in contrast, suffered a year-on-year drop in sales of 3.5%, or €37 million, due primarily to export restrictions in the processing of international orders.

In addition to the German market (40.6%; previous year: 34.6%), other high-sales regions included the Middle East and Asia (16.9%; previous year: 20.0%), Europe (excluding Germany) (19.7%; previous year: 18.5%), Australia/Oceania (13.0%; previous year: 14.8%) and North America (2.6%; previous year: 4.6%). Other regions accounted for 7.2% of sales (previous year: 7.5%).

Sales € million

	2019	2018
Rheinmetall Defence	**3,522**	**3,221**
Vehicle Systems	1,787	1,568
Weapon and Ammunition	1,018	1,056
Electronic Solutions	948	839
Others/consolidation	(231)	(242)

Order intake remains very high

Rheinmetall Defence acquired orders of €5,186 million in the period under review (previous year: €5,565 million). This equates to a decline of €379 million – or 6.8% – compared with the previous year. The previous year's figure, however, included the order of around €2.1 billion for the major Land 400 Phase 2 project for the Australian armed forces. Order intake in fiscal 2019 was largely influenced by the acquisition of the major Mechanised Infantry Vehicle (MIV) project, for €1.4 billion, for the delivery of Boxer vehicles to the British procurement authority. The book-to-bill ratio was 1.5 in 2019 (previous year: 1.7). The individual divisions of the Defence sector likewise demonstrated their future growth potential with a respective book-to-bill ratio of over 1.

Incoming orders € million

	2019	2018
Rheinmetall Defence	**5,186**	**5,565**
Vehicle Systems	3,326	3,616
Weapon and Ammunition	1,204	1,559
Electronic Solutions	1,001	1,060
Others/consolidation	(344)	(670)

Order backlog of €10.4 billion

The order backlog as of December 31, 2019, was €10.4 billion. Compared with the previous year's figure of €8.6 billion, this represents an increase of €1.8 billion (or 21.2%). The largest single orders in the order backlog are the Land 400 Phase 2 acquired in 2018 and the Mechanised Infantry Vehicles modernization program with the British customer. Furthermore, the orders within the context of the NATO spearhead function of the German armed forces (Very High Joint Readiness Task Force) to increase the combat capability of 41 Puma infantry fighting vehicles and for the shipment of unarmored transport vehicles contribute to a major share of the order backlog.

Order backlog € million

	2019	2018
Rheinmetall Defence	**10,399**	**8,577**
Vehicle Systems	6,722	5,030
Weapon and Ammunition	2,308	2,122
Electronic Solutions	2,188	2,117
Others/consolidation	(819)	(692)

Significant increase in operating earnings and margin

Operating earnings (EBIT before special items) amounted to €343 million in fiscal 2019, after the previous year's figure of €254 million. This represents an increase of 35.3%. The operating margin rose accordingly by 1.9 percentage points from 7.9% to 9.8%.

Operating result € million

	2019	2018
Rheinmetall Defence	**343**	**254**
Vehicle Systems	150	108
Weapon and Ammunition	123	121
Electronic Solutions	75	46
Others/consolidation	(6)	(22)

This significant improvement in results was achieved thanks to the positive performance of the Electronic Solutions (+62.1%) and Vehicle Systems (+39.1%) divisions, which can be attributed primarily to the sales growth and associated economies of scale. The positive effect is also due to the elimination of a special write-down, made in the previous year, on a self-financed and capitalized development project.

The year 2019 was adversely affected by non-recurring effects totaling €2 million as a result of restructuring expenses in the Weapon and Ammunition division, resulting in EBIT of €341 million in the Defence sector in the reporting period.

Investments totaling €166 million

In 2019, Rheinmetall Defence invested a total of €166 million (previous year: €101 million) in property, plants and equipment, intangible assets and rights of use from leases in accordance with IFRS 16. The investment ratio as a ratio of capital expenditure to sales was 4.7%, which is 1.5 percentage points up on the previous year (previous year: 3.2%).

Economic report
Business performance of Rheinmetall Defence

A total of €23 million (previous year: €4 million) of the capital expenditure volume related to capitalized development costs from important technological projects and €54 million to rights of use in accordance with IFRS 16 (previous year: €15 million). Investments in property amounting to €82 million (previous year: €78 million) focused primarily on the establishment and expansion of production capacities and the modernization of production facilities.

Investments € million

	2019	2018
Rheinmetall Defence	**166**	**101**
Vehicle Systems	90	23
Weapon and Ammunition	59	54
Electronic Solutions	16	24
Others/consolidation	1	–

Employees

The Defence sector employed 12,100 people as of December 31, 2019. The comparable figure for the previous year was 10,948 employees. A total of 452 employees among the new personnel are the result of company acquisitions. While the Vehicle Systems division saw its workforce increase by 25.6% compared with the previous year, the number of employees in the Electronic Solutions and Weapon and Ammunition divisions increased by 5.5% and 3.0% respectively, which means that employee capacities in Rheinmetall Defence as a whole have increased by 10.5%.

Employees Capacities

	2019	2018
Rheinmetall Defence	**12,100**	**10,948**
Vehicle Systems	4,091	3,258
Weapon and Ammunition	4,893	4,753
Electronic Solutions	3,013	2,856
Others/consolidation	104	81

Research and development

Rheinmetall Defence specializes in the development and production of components and systems for protecting people, vehicles, aircraft, ships and assets and, in its role as an equipment supplier to the German armed forces, NATO and other responsible nations, helps to protect armed forces involved in military operations. The Defence sector is committed to capability-oriented innovation and is continuously setting new technological standards: from vehicle, protection and weapon systems, through infantry equipment and air defence, to the networking of function sequences and in the areas of simulation and training. It systematically gears its research and development activities to the main areas of national capability stipulated by the German armed forces and to mission requirements profiles of international armed forces facing the growing challenges and complex threats of the 21st century. In addition to multinational deployments for stabilization and crisis management, the focus is once again increasingly on the tasks of the German armed forces in the area of national and alliance defence. Modern equipment that uses cutting-edge technology and is adequate to the task can lead to vital improvements in ability to lead, stamina, mobility, effectiveness and ability to survive in the deployment scenarios faced by soldiers.

Research and development € million

	2019	2018
Rheinmetall Defence	**145**	**143**
Vehicle Systems	35	13
Weapon and Ammunition	82	74
Electronic Solutions	28	56

In fiscal 2019, Rheinmetall Defence invested €145 million (previous year: €143 million) in research and development projects. The research and development ratio as the ratio of expenses to sales fell by 0.3 percentage points to 4.1% (previous year: 4.4%). Of the development expenses, €47 million (previous year: €68 million) was passed on to customers.

As of January 31, 2019, a total of 2,828 employees worked in the research and development departments of the Defence companies (previous year: 2,314).

Employees in research and development Capacities

	2019	2018
Rheinmetall Defence	**2,828**	**2,314**
Vehicle Systems	982	614
Weapon and Ammunition	678	623
Electronic Solutions	1,168	1,077

Vehicle Systems division

Key figures

		2019	2018
Sales	€ million	1,787	1,568
Order intake	€ million	3,326	3,616
Order backlog (Dec. 31)	€ million	6,722	5,030
Operating result	€ million	150	108
Operating margin	in %	8.4	6.9
Capital expenditure	€ million	90	23
Employees (Dec. 31)	Capacity	4,091	3,258

Sales – In 2019, the Vehicle Systems division generated sales of €1,787 million, which represents an increase compared with the previous year of €219 million (or 14.0%). The sales volume achieved can be largely attributed to the launch of major projects to supply 211 state-of-the-art all-wheel Boxer vehicles to the Australian customer (Land 400 Phase 2 program) and 2,300 trucks to the German armed forces. In addition, 32 Puma infantry fighting vehicles were handed over to the German armed forces, which also contributed to the once again higher sales in the division. Significant sales continued to be generated through the contract concluded in 2013 with the Australian customer for the delivery of logistical vehicles. Another major project in 2019 related to the supply of kits for manufacturing Fuchs wheeled armored vehicles to an international customer.

Economic report
Business performance of Rheinmetall Defence

Order intake – The order intake for the Vehicle Systems division in the year under review was €3,326 million, after €3,616 million in the previous year. The British armaments project Mechanised Infantry Vehicle with a total value of €2.8 billion was acquired through the syndicate company ARTEC. Around 50% of the order volume here can be attributed to Rheinmetall companies. The project includes the delivery of more than 500 Boxer wheeled armored vehicles to the British armed forces between 2022 and 2031. Another important order involves increasing the combat capability of 41 Puma infantry fighting vehicles within the context of the NATO spearhead function of the German armed forces (Very High Joint Readiness Task Force). Another important single order, this time to modernize the Hungarian army and including deliveries relating to the Leopard 2 battle tank and 2000 self-propelled gun, was also acquired.

Operating result – The Vehicle Systems division improved its operating result by €42 million from €108 million in fiscal 2018 to €150 million in the year under review. The operating margin rose as a result from 6.9% in 2018 to 8.4% in 2019, which can be largely attributed to the positive economies of scale. This development was additionally supported by higher delivery shares in higher-margin vehicle categories. Another positive effect resulted from the elimination of special write-downs on self-financed and capitalized development projects, which adversely impacted the previous year's result.

Capital expenditure – The Vehicle Systems division invested a total of €90 million in 2019, compared with €23 million in the previous year. In the area of tactical vehicles, various systems and facilities were replaced at the German locations. Existing capacities had to be expanded in order to process the sharply increased order backlog. With regard to logistics vehicles, the focus was on development activities aimed at further developing and expanding the product portfolio. Further investments related in particular to the replacement of machinery and infrastructure at the Vienna site. In addition, the rental agreements at the Vienna, Kassel and Munich sites were extended and capitalized in accordance with IFRS 16.

Employees – The Vehicle Systems division employed 4,091 people as of the end of the fiscal year (previous year: 3,258). This increase can be attributed primarily to the formation of the joint venture Rheinmetall BAE Systems Land in Great Britain, the hiring of new staff in Australia for supporting the Land 400 program and the increase in the number of employees due to project start-ups at the Unterlüss location. In addition, another 92 people have been employed at the Austria location for processing the order for unarmored transport vehicles for the German armed forces.

Research and development – NATO has been pursuing the development of a NATO generic vehicle architecture (NGVA) for military land vehicles for some years. An international standard ensures not only that different manufacturers' system components are highly compatible, but also general interoperability, for example in communications and force. Proof of this functionality was delivered in the year under review bilaterally with France in extensive tests with German and French demonstrator vehicles. In addition to the sharing of sensor data, the mutual use of unmanned platforms was demonstrated.

In a further bilateral project, the division has tested a method for the improved detection in particular of asymmetric threats over long distances. The integration capability of this technology in current and future military vehicles in addition to existing reconnaissance systems will continue to be examined.

As part of activities aimed at standardizing electrical vehicle architectures, the focus is on development of the vehicle management systems (VMS). VMS refers to a generic core architecture for wheeled and tracked vehicles and covers the entire range of vehicles from support vehicles to battle tanks. In addition to the core electrical components and their interconnection, standardization of the software in accordance with the NATO generic vehicle architecture will be seamlessly integrated in the VMS. The open architectural concept enables not only the implementation of conventional vehicle functions, but also the integration of highly specialized capabilities such as drive-by-wire, assistance functions, partial autonomy, full autonomy and remote control capability. At the same time, it is highly robust against new threats such as cyber attacks and electronic interference.

Improvised explosive devices (IEDs) pose a major threat to soldiers on operations as a means of asymmetric warfare. Rheinmetall Defence offers the route-clearance system to open transport routes and keep them open by reconnoitering and clearing explosive ordinance such as mines and remotely triggered booby traps. It is highly efficient in locating explosive devices in the ground and consequently makes it far safer to travel on frequently used routes such as when traveling in convoy. In performing this dangerous mission, the remote control Wiesel detector vehicle, which has a dual sensor with integrated ground penetrating radar and a metal detector, has the task of detecting mines, explosive devices and remotely controlled bombs on the road or segment of the route being searched. To counter the increasing threat of IEDs more effectively and to be equipped even more effectively and efficiently for future deployments, the dual sensor was further optimized in the last fiscal year using the latest available technologies. In addition, the possibility of replacing Wiesel carrier vehicle with a new, hydraulically powered wheeled vehicle with an active chassis was examined. These activities will continue over the coming years.

The trend in civilian society toward vehicle automation is also relevant to military transportation and combat vehicles. Rheinmetall has made this issue a focus of future developments. In collaboration with, among others, the German public-sector customer, “autonomy kits” are being integrated in trucks and tracked vehicles and their functions tested. One function is, for example, automatic convoy driving of multiple vehicles. This would help to reduce the amount of personnel involved and, in turn, protect soldiers.

Economic report
Business performance of Rheinmetall Defence

Weapon and Ammunition division

Key figures

		2019	2018
Sales	€ million	1,018	1,056
Order intake	€ million	1,204	1,559
Order backlog (Dec. 31)	€ million	2,308	2,122
Operating result	€ million	123	121
Operating margin	in %	12.1	11.5
Capital expenditure	€ million	59	54
Employees (Dec. 31)	Capacity	4,893	4,753

Sales – The Weapon and Ammunition division generated sales of €1,018 million in the year under review. Measured against the previous year, this represents a reduction in sales of €37 million, or 3.5%. In the year under review, export restrictions in foreign subsidiaries adversely affected the processing of international orders and led to a decline in sales. In Italy at the start of August 2019, an export license for the MENA region was suspended with immediate effect for 18 months. The South African subsidiary suffered sales fall due to not only a tragic accident in 2018, which also led to production downtime in 2019, but also outstanding or delayed export licenses. The German companies within this division enjoyed positive development nearly across the board and increased their sales compared with the previous year.

Order intake – At €1,204 million, order intake in the Weapon and Ammunition division was down €355 million on the previous year's figure of €1,559 million. This is due mainly to a large, single international order for tank and artillery ammunition and weapon systems for a customer in the MENA region in the previous year. The outstanding/delayed export licenses in South Africa were offset by a significant increase in the number of orders placed by the German public-sector customer. The biggest single order from Germany was for artillery ammunition. A large single order for in-Group deliveries to the Vehicle Systems division in connection with a large procurement project from Hungary was also acquired.

Operating earnings – The operating earnings of the Weapon and Ammunition division increased in the year under review by €2 million to €123 million (previous year: €121 million). Despite the fall in sales, the margin improved thanks to increased cost-optimization measures and, in some cases, more profitable sales of 11.5% in the previous year to 12.1% in the year under review.

Capital expenditure – A total of €59 million was invested in the Weapon and Ammunition division (previous year: €54 million). In Italy, the construction of a standalone filling system for polymer-bonded explosives (PBX) and the expansion of mixing and filling capacity, which began in 2016, were continued. The total volume of capital expenditure for this state-of-the-art PBX facility peaked in 2019. In Maryborough, Australia, work began on the construction of an artillery shell production facility following the purchase of a plot of land. In South Africa, the expansion and rationalization program spanning several years was continued with investments in production and infrastructure facilities.

Employees – The Weapon and Ammunition division employed 4,893 people as of the end of the fiscal year (previous year: 4,753). This increase of 140 employees is mainly due to M&A activities. The majority of the remaining proportion of new employees were appointed within the German companies, primarily in production.

Research and development – In light of the worsening threat situation, national and international requirements regarding state-of-the-art protection systems will continue to increase in the future. In response, the Protection Systems business unit was reorganized and realigned in fiscal 2019. IBD Deisenroth Engineering GmbH, IBD Holding GmbH, Rheinmetall Active Protection GmbH, Rheinmetall Ballistic Protection GmbH and Rheinmetall Chempro GmbH have now all merged together under the newly founded Rheinmetall Protection Systems GmbH (RPS), resulting in a unique and extremely broad product portfolio for state-of-the-art protection systems across the entire value chain. The aim of RPS is to become an internationally leading, all-in-one systems supplier developing and producing state-of-the-art active and passive systems designed to protect against current and future threats.

RPS collaborates with its partner Unified Business Technologies (UBT) in the field of active protection systems in the US. The U.S. Army has selected the active protection system StrikeShield from RPS and UBT for an extensive test and trial program. This forms the basis for the system's potential use in United States Army vehicles. The StrikeShield APS is a decentralized system that operates in real time and is effective in the immediate vicinity of the vehicle to be protected. It is designed to protect the carrier platforms against anti-tank guided missiles and rockets. RPS has also conducted a series of experiments verifying the technical effectiveness of systems designed to defend against large-caliber KE penetrators. This results in a globally unique capability combination for the protection against a diverse range of threats with excellent market prospects.

In addition, a modular, hybrid configuration of the StrikeShield APS has been developed that for the first time ever combines the company's active and passive protection technologies in a single, integrated design. This new configuration was unveiled at the AUSA 2019 annual meeting and exposition in the US.

To protect aircraft (helicopters, transport aircraft, jets) against modern air defence rockets, a new generation of aircraft decoys is needed. Through the emulation of an aircraft-like IR signature, surface-to-air missiles (SAM) and air-to-air missiles (AAM) can be successfully deceived with two-band analysis. The newly developed bi-spectral IR decoy BIRDIE has demonstrated its effectiveness in numerous tests with target seeker heads.

For NATO, the importance of defending nations and alliances has once again increased significantly over the past few years. Since improvements in the performance of the internationally deployed 120-mm smooth-bore technology are possible only to a limited extent, Rheinmetall has developed a 130-mm-caliber weapon demonstrator. The aim is for this to become the main armament on all NATO battle tanks. In addition to many years of experience, development tools from the field of artificial intelligence were also employed in the design. Significant performance improvements compared with current weapons systems were demonstrated in a series of experiments. A 130-mm smooth-bore gun demonstrator was showcased at AUSA 2019.

High-energy lasers are to be deployed in the future as a supplementary weapons system. Rheinmetall has successfully developed and tested a laser weapons station with a 20-kW laser source. The exceptional performance parameters include its high-accuracy, mechanical aiming system, unlimited aiming in the horizontal plane (azimuth) and an aiming angle of more than 270° in the vertical plane (elevation). At the heart of the 20-kW laser source are narrow-band fiber laser modules with excellent beam quality. In the coupling unit, the individual beams from the fiber laser modules are combined via high-precision dielectric grids to create a single beam. With these two central modules, Rheinmetall now has all the relevant modules for a modular, scalable and cross-military-branch laser weapon system that also offers potential for higher laser output classes.

Economic report
Business performance of Rheinmetall Defence

Electronic Solutions division

Key figures

		2019	2018
Sales	€ million	948	839
Order intake	€ million	1,001	1,060
Order backlog (Dec. 31)	€ million	2,188	2,117
Operating result	€ million	75	46
Operating margin	in %	7.9	5.5
Capital expenditure	€ million	16	24
Employees (Dec. 31)	Capacity	3,013	2,856

Sales – The Electronic Solutions division increased its sales in 2019 compared with the previous year by €109 million (or 13%) to €948 million. This increase was largely influenced by the processing of a major project for the German customer to supply 68 platoon systems for the Future Soldier System. Sales from the Electronic Solutions division's involvement in the major Land 400 Phase 2 project for Australia as well as the commissions as part of the German VJTF (Very High Readiness Joint Task Force) program also contributed to the increased sales. Further significant sales were generated through the supply and modernization of Skyguard air defence systems for various international customers.

Order intake – The Electronic Solutions division reported incoming orders of €1,001 million in fiscal 2019, compared with €1,060 million in 2018. Key incoming orders related to commissions in the context of VJTF for IdZ-ES and the Electronic Solutions division's involvement in the VJTF PUMA program. An order for the manufacture and delivery of fire control systems for the modernization of the Leopard 2 battle tanks operated by a European customer was also received in the year under review. In addition, a major order for the expansion of Skyguard systems for a customer in the MENA region in the area of military air defence was acquired in the year under review.

Operating result – At €75 million, the operating result achieved by the Electronic Solutions division in fiscal 2019 was €29 million up on the previous year's figure of €46 million. This represents an increase of 62%. The operating margin rose by 2.4 percentage points from 5.5% to 7.9%. The growth in earnings cam be primarily attributed to improved sales performance, including economies of scale and the turnaround in our Norwegian subsidiary.

Capital expenditure – The total capital expenditure volume of the Electronic Solutions division amounted to €16 million in the year under review (previous year: €24 million). In addition to the development and continuation of new technological products and systems, the focus was on continuing modernization and expansion measures. At the Bremen location, the development, testing and production facilities for simulation technology underwent extensive modernization. To facilitate the processing of the large projects, additional space was created through conversion work and the construction of a three-story, mobile office area. Further investments at the Bremen location related to the modernization of the IT equipment. As in previous years, the focus of investment at the Rome site was on the further development of airspace radar technology to expand the product range.

Employees – The Electronic Solutions division employed 3,013 people as of the end of the fiscal year (previous year: 2,856). This represents an increase of 5.5%, or 157 employees. This increase in the number of employees was due largely to the increased personnel requirements for processing the large projects acquired, with skills in the fields of system architecture and software in particular urgently required.

Research and development – The focus of the research and development activities performed in Integrated Electronic Systems included the further development and expansion of the core activities for the provision of services, technologies and tools for creating integrated environments. The focus here was on military-branch-specific and cross-military-branch training, concept development and their testing in experiments. This mainly involves the use of live virtual constructive simulation (LVC) methods. In the case of LVC, the scalable, tactical training systems encompass everything from constructive simulators for commander and staff training through to virtual, connected, tactical real-time simulation systems. As part of development of a new, connected battle tank system (main ground combat system, or MGCS), work has started on implementing the Concept Development and Experimentation (CD&E) simulation environment, which will be used over the next few years for experiment-based concept development together with the national public-sector customer.

Work is also continuing on the processing of preliminary studies into the future architecture of the complex overall MGCS system, with which the German army is intending to replace the current Leopard 2 battle tank and its French counterpart Leclerc from around 2035. In parallel with this, the constructive simulation system OSIRIS was evaluated in terms of its ability to act as a command and decision-making support tool in the context of the connected battlefield of the future; artificial intelligence is also expected to play a role here. In addition, higher-level investigations were conducted into advanced mission planning and the control of multiple unmanned systems (Multi UxV) for future manned–unmanned teaming (MUM-T).

In Europe, collaborations were entered into with another eight countries in the Generic Open Soldier System Reference Architecture (GOSSRA) study project. This represents an important step toward greater interoperability when joint operations are performed with other EU participants. For this purpose, Rheinmetall has brought together Europe's leading providers of soldier systems under its management as part of a consortium. GOSSRA involves tests and investigations regarding the development of an open reference architecture as a basis for the EU-wide standardization of future soldier systems, encompassing the electronics, voice and data communication, software solutions, human–machine interfaces, sensors and effectors.

Research and development work in the Air Defence and Radar Systems business unit continued to focus on the further development and automation of the 35-mm air defence weapons, the development of the company's own active electronically scanning antenna search radars (AESA) as well as the design of the new multi-sensor unit (MSU) and Common C2 command system. These technologies are important elements of defence systems for detecting and, if necessary, combating fighter jets, drones and ballistic rockets. Once complete, the MSU will be an integral part of the Skynex system concept and feature radar and electro-optical systems as well as a wide range of other active and passive sensors. The Skynex system is based on the concept of separating airspace monitoring from the effectors, with the resulting modularity – depending on the mission – allowing the required equipment to be connected to the command network. The use of the new AESA technology in combination with high-performance algorithms in the command system, which are being developed in collaboration with a team from the Fraunhofer Institute, is designed to further increase the performance of the air defence system against swarming and saturation. The Common C2 command system fuses the two existing air defence command systems for the business unit.

Economic report
Financing

Principles and aims of financial management

Rheinmetall's financial management is centrally organized and aims to make a positive contribution to the Group's enterprise value and profitability. The most important task here is to ensure access at all times to liquidity for serving the Group's payment obligations. Other key tasks include the efficient implementation of financial measures and optimization of liquidity, capital structure and contractual conditions.

Global cash management enables excess liquidity at Group companies to be pooled at Rheinmetall AG and made available to other Group companies where required. Access to the money and capital markets and the agreement of external credit facilities with banks as well as the optimization of existing internal financing resources represent the most important goal of ensuring financial flexibility over the long term. Liquidity requirements and terms are determined by means of stress simulations of the rolling monthly twelve-month liquidity outlook and a three-year company plan. It is extremely important here for Rheinmetall to always have sufficient reserves at its disposal, even under worst-case scenarios.

The central documentation, evaluation and control of financial risks help to mitigate risks, which means that the profitability of the ongoing business operations and the assets of Rheinmetall remain unaffected as far as possible. This focuses mainly on currency, interest rate, price, counterparty and country risks. Furthermore, contractual structures are implemented in order to absorb to the greatest possible extent the impact of any potentially negative effects. The remaining risks are mitigated with the aid of primary and derivative financial instruments.

One of the most important principles of finance management is the financial independence of the Rheinmetall Group from individual banks and financial services providers. For every service involved in processing operational business, a broadly diversified portfolio of financial partners and service providers is in place to reduce the risk of cluster risks. In addition to the avoidance of dependencies, this approach – in conjunction with creditworthiness-linked counterparty limits – also helps to mitigate credit risks.

Financial transactions are triggered exclusively for serving requirements from operational business. As such, transactions – not linked to an underlying business transaction – are considered speculative and must not be used. To ensure appropriation and also for reasons of compliance with legal and other internal guidelines, Rheinmetall pursues the principle of dual control and ensures that implementation, processing and checking are strictly separated in the front office, middle office and back office. In addition, ensuring that data is secure and that transactions are documented so that they can be traced are among the most important fundamental principles of the Group.

Financing in the Rheinmetall Group

Rheinmetall is financed from a mix of existing internal liquidity as well as short- and long-term financing sources in order to ensure that liquidity requirements can be served flexibly, instantly and at any time, regardless of where and to what extent they arise. Rheinmetall's aim here is to diversify its financing instruments in terms of sources, maturities and lenders and to optimize interest on debt capital.

The most important financing sources include promissory notes with original maturities of five to ten years with a volume of €403 million and the long-term development loans from the European Investment Bank (EIB) of €250 million. While the EIB loan is to be repaid with a bullet repayment in 2023, the total volume of promissory note loans comprises several individual tranches with staged maturities between 2021 and 2029.

Maturities are concentrated in 2024, at €136 million. Real estate and additional development loans amounting to €63 million are also available. Rheinmetall also achieves the necessary financing flexibility through the holding of bilaterally committed credit facilities totaling €3.3 billion, which are offset by drawings for guarantees amounting to €1.1 billion (or 41%) and for cash amounting to €58 million (or 12%). In addition, an unlimited commercial paper program and a syndicated credit facility amounting to €500 million and running until September 2020 are also in place. As of December 31, 2019, neither facility had been utilized. Rheinmetall also makes regular use of its asset-backed securities (ABS) program, which has been in place since 2004 and allows subsidiaries in both Group sectors in five European countries to sell trade receivables from deliveries and services without recourse. The volume of receivables sold under the ABS program was €130 million as of the end of the fiscal year. The sale of receivables also passes any potential customer default risk to the acquirer of the receivables.

Financing instruments € million

	Term	Nominal	Financing source
Promissory notes	2021–2029	403	International financial institutions
Development loans Research and development	2017–2023	250	European Investment Bank (EIB)
Commercial paper (CP)	Unlimited	500	Money market investors
Syndicated loan	2022		13 banks (back-up line for the commercial paper program)
Real-estate financing and development loans	2020–2026	63	Banks
Bilateral credit facilities (Cash and guarantee credit)	2020	3,252	Banks and insurance companies
Asset-backed securities program	2021	130	Money market investors and banks

Financing activities in 2019

In 2019, new promissory notes with a volume of €156 million and maturing up to 2029 were issued to national and international investors. These papers were used, on the one hand, for refinancing promissory notes with a volume of €53 million and due in 2019 and, on the other, with a volume of €103 million of the long-term liquidity protection in an attractive interest environment. Overall, Rheinmetall achieved a lower interest rate on average in 2019 for the entire portfolio of outstanding promissory notes and increased the maturity spectrum. In addition, the use of a digital marketing platform for the first time helped to expand the investor circle and, in turn, achieve further diversification. The existing mix of promissory note, bank and development loans in conjunction with the short-term financing options of the commercial paper market and the syndicated loan give Rheinmetall the security and flexibility regarding liquidity sources it is targeting over the coming years. With regard to the financing of liabilities arising from the occupational pension scheme, Rheinmetall continued its strategy of gradually building up trust assets to serve obligations in Germany. In 2019, the contractual trust arrangement was allocated another tranche of €15 million for pension obligations and €5 million for partial retirement obligations. The total volume of allocations is now €120 million.

Rheinmetall's rating

The rating agency Moody's has been assessing the Rheinmetall Group's credit rating since 2000. Since Rheinmetall's rating was upgraded in April 2018 back to "to Baa3," the Rheinmetall rating remains unchanged at "investment grade." Crucial to this rating is Rheinmetall's good performance in the rating criteria, the concentration on two sectors subject to different economic cycles and a conservative financial policy.

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Risks and opportunities

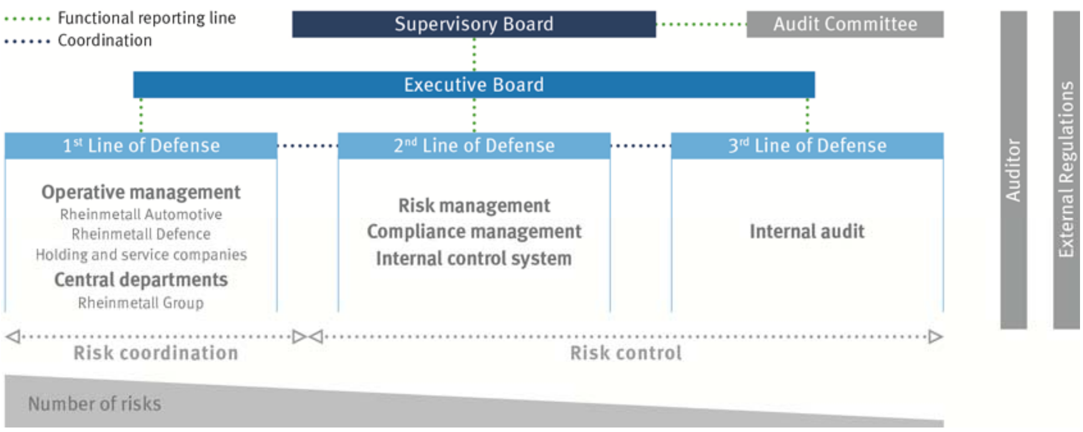
Entrepreneurial behavior – Leverage opportunities, reduce risks

In light of rapid market changes, increasing uncertainty, the greater complexity of framework conditions that vary significantly from one country to the next and major technological progress, business decisions are increasingly dependent on the ability to reliably evaluate potential risks. As an internationally active technology group in the fields of defence and automotive and with a heterogeneous product portfolio, Rheinmetall is exposed to a wide variety of risks that vary depending on the business unit, industry and region. Our corporate policy is aimed at generating good returns yields over the long term, looking at any opportunities that come our way and leveraging and expanding success potential while at the same time avoiding, minimizing or compensating for the associated risks. The aim is to maintain our corporate flexibility and financial security, systematically enhance the company's value and, in turn, safeguard the continued, long-term existence of the Rheinmetall Group.

The Rheinmetall Group's risk management system

As part of its principles of corporate governance, Rheinmetall AG is committed to a responsible, fair, reliable and transparent corporate policy that is geared toward expanding and leveraging entrepreneurial potential, achieving medium-term financial targets and increasing the company value systematically and over the long term. The standardized risk management system that was introduced throughout the Group is based on risk policy principles stipulated by the Executive Board of Rheinmetall AG, which are geared toward financial resources and strategic and operational planning. It is designed to systematically identify developments early on that could jeopardize the continued existence of the Group and control risks that could endanger the company's success. It comprises the ad hoc, operational and strategic risk management pillars and pursues the "three lines of defence" approach.

Three lines of defence model



The first line of defence lies with the management of the operating activities, which is responsible for recording, assessing and managing the risks that arise there. The second line of defence comprises the risk management, the compliance management and the internal control system. Internal Audit is the third line of defence and acts as the independent control organ of the Executive Board of Rheinmetall AG.

As of January 1, 2019, a fundamentally overhauled guideline for the Rheinmetall Group's risk management system entered force. This covers not only the regulatory framework conditions, the 15 risk type categories, roles and responsibilities, but also the handling and documentation of identified risks and thresholds.

The risk management system helps to ensure that the corporate targets can be met. It provides high-quality information for Group management, clearly defines responsibilities for identifying and controlling risks, ensures effective risk analysis, control and monitoring thanks to clearly defined risk fields and types and closer dovetailing with other corporate governance systems.

The risk management process in the Rheinmetall Group is based on the IDW PS 981 standard and takes into account the legal requirements regarding the monitoring duty of the Supervisory Board and the diligence and organizational duties of the Executive Board. The risk management process comprises the following elements:

Risk identification – The regular and systematic analysis of internal and external risk-containing developments with respect to defined targets;

Risk assessment – Systematic risk assessment by means of standardized assessment procedures, taking into account the extent of loss and probability of occurrence;

Risk control – Measures designed to prevent, reduce, transfer and/or accept risks;

Risk reporting – Timely risk reports prepared so that they are suitable for the respective target group.

Identified risks are evaluated in terms of their net value with regard to their extent of damage and probability of occurrence by means of empirical values, expert knowhow and function-specific risk analysis, on the basis of a scenario that is as realistic as possible. This means that established countermeasures and checks are taken into account in the evaluation of the potential extent of damage. This results in an aggregated assessment of the risk types and risk fields as well as an evaluated risk portfolio of the Rheinmetall Group. All information used in the assessment and aggregation of risk types and fields is documented as part of strategic risk management in special risk management software.

Ad hoc risks entailing a "high" minimum damage extent and "medium" probability of occurrence can be identified by any employee during the year between the operational and strategic risk managements reporting cycles and communicated as part of a defined process. If it is not possible to immediately control the ad hoc risk, it can be taken into account as part of operational and, if necessary, strategic risk management.

In the analysis and assessment of individual risks in terms of the extent of damage, which must be performed quarterly, operational risk management focuses exclusively on the "performance" risk dimension. The thresholds for reporting these individual risks are a potential extent of damage of at least a €5 billion impact on EBIT (category 2: "medium") and a probability of occurrence of more than 30% (category 3: possible). The period under review relates to the ongoing fiscal year and the two following years.

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The sectors prepare operational risk reports for Group Controlling every quarter, while the operational risk situation is reported every month within the sectors. Any relevant individual issues and important, higher-level incidents/issues must be discussed in the committee meetings at the level of the divisions, sectors and Rheinmetall Group as a whole. If necessary, individual risks from operational risk management can be outlined in the strategic risk management reports as examples and/or for illustrative purposes.

To identify, analyze and assess potential risks, the previous year's risk inventory is revised once a year as part of strategic risk management. This contains all the most important risk types potentially impacting the corporate targets and sub-targets, probabilities of occurrence, the potential level of damage, responsibilities and suitable countermeasures. The extent of damage, which is considered over a period of three years, is evaluated according to a range of quantitative and qualitative parameters. The risk dimensions Performance, Market | Customer | Reputation and Legal are used as a basis here, although not every risk can necessarily be assigned to all three dimensions. If multiple risk dimensions are considered in the evaluation of the extent of damage and different risk impacts are determined, the dimension that was evaluated more highly shall apply. Measures aimed at controlling the risks that were identified and evaluated over a three-year period must be formulated and their implementation systematically monitored.

On this basis, formal reporting takes place to the Executive Board and the heads of the sectors and divisions (including in their capacities as heads of the relevant legal entities). This form of risk reporting is based on bundled information on risk types, risk fields and the corresponding countermeasures and, in contrast to ad hoc and operational risk management, not explicitly on individual risks. Reporting from the various entities is concluded with the review of the risk portfolio by management and the subsequent release by the relevant CFO.

Suitable preventive, validation and corrective actions lower the probability of risks occurring or limit the extent of damage. The risk management measures introduced are monitored on an ongoing basis and, where necessary, adjusted in line with a new risk assessment.

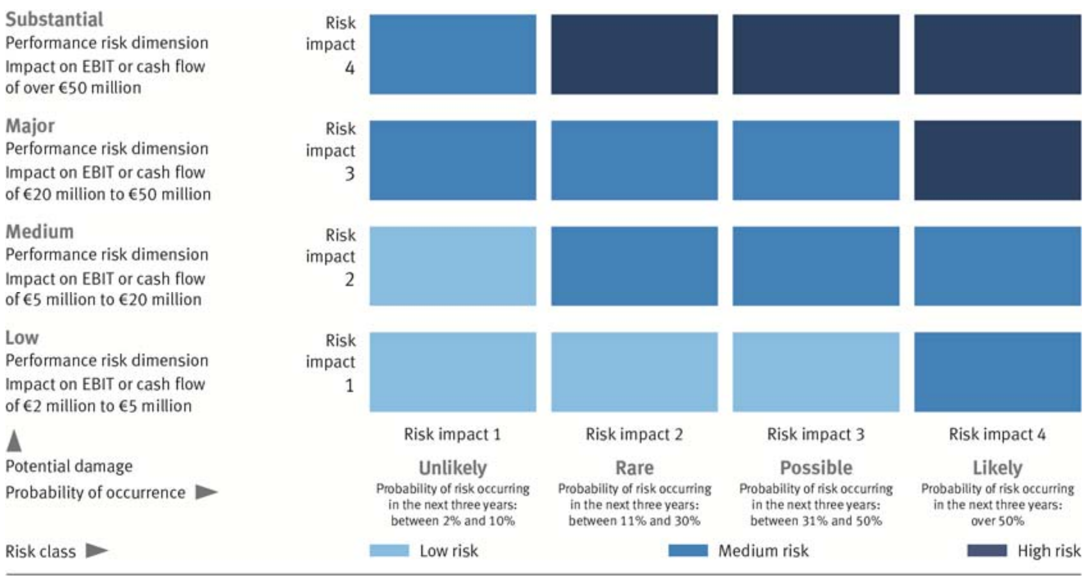
This ensures that the Executive Board and managers are regularly kept up to date by Group Controlling with the development of the overall risk situation in the Rheinmetall Group, the status of and significant changes to important ventures that must be reported as well as the status of countermeasures that have already been introduced. If necessary, additional measures are taken in order to further limit and reduce identified potential risks. Sudden or unexpected risks with significant consequences are reported to the Executive Board on an ad hoc basis. The Supervisory Board is advised of individual risks that entail net damage exceeding €5 million and that have a more than 50% probability of occurring.

Significant corporate risks

Risk fields

Risk field	Risk class	Affected sector | Group
Customer and market	High risk	Automotive
Competition	Medium risk	Group
Technology and development	Medium risk	Group
Production and project implementation	Medium risk	Group
Suppliers and procurement	Medium risk	Group
Human Resources	Low risk	Group
Finances	Medium risk	Group
Taxes	Medium risk	Group
Legal	Medium risk	Group
Compliance	Medium risk	Group
Public perception and Corporate Social Responsibility	Medium risk	Group
Corporate and information security	Medium risk	Defence
Information technology	High risk	Group
Mergers and acquisitions	Medium risk	Group
Joint ventures and shareholdings	Medium risk	Group

Risk classification matrix



Economic report
Risks and opportunities

Customer and market

Customer satisfaction is the decisive criterion for our performance. We maintain close customer relations and, even as early as the offer phase, endeavor to address the needs and requirements of our customers to the greatest possible extent. Thanks to technical innovation and the ever-expanding breadth of our product portfolio, we can use our various sales channels to position further products with customers. Opportunities also arise through our generally long-term business relations and our global presence. At irregular intervals, we conduct customer satisfaction analyses so that we can identify and implement improvement potential.

Customer risks can arise from the dependency on key buyers with whom a not-insignificant share of sales is generated. They could potentially utilize their bargaining power and increase the pressure on the margins. Declines in demand or the loss of these customers can negatively impact Rheinmetall's business and performance. When competition is particularly intense, it might also be the case that we can no longer assert our target margins in order negotiations.

In addition, it might not be possible to make sufficiently speedy investments in anticipation of major changes in customer demand or in the originally expected market premises, or such changes could lead to poor investments. Delayed investment, for example, entails the risk of noncompliance with delivery agreements concluded with customers.

When new business areas are opened up, misjudgments regarding customer requirements, resource deployment, price/margin targets as well as demand, market and competition developments are also possible.

The development of the Rheinmetall Group is closely linked with macroeconomic trends and the economic cycles in the regions and countries in which we operate. It is not possible to completely avoid risks that arise due to economic cycles. A deterioration in statutory, regulatory and/or general economic conditions in the sales regions can adversely impact the sales and earnings situation of the Rheinmetall Group. Geopolitical or economic crises can affect regional markets or individual industries. The consistent alignment of business towards the major economic areas in Europe, the US and Asia reduces dependence on individual customer countries, thereby distributing the risk. The diversified product portfolio of the divisions and consistent internationalization of the Automotive and Defence sectors help to ensure that temporary economic fluctuations can be offset in part by more favorable developments in other regions and markets.

In times of advancing globalization and growing competition and market transparency, market risks are becoming more prevalent. New trends such as digitalization, artificial intelligence and the electrification of vehicles require disruptive technologies and business models and lead to new customer requirements that were not anticipated or to which the response was inadequate. Global challenges relating to climate change, interstate conflicts, migration and resource scarcity can trigger changes in customer behavior. This can lead to changes in the portfolio and to fluctuations in prices, quantities and margins. Focusing on technologically demanding market segments, product innovations, process improvements, production and capacity adjustments and strict cost management all contribute to strengthening competitiveness in each of the company's industries and securing and building on the profitability of the Rheinmetall Group. In view of the technological progress in our industries we continue to strive to develop new markets and customer groups in the mobility and security segments. Thanks to our broad international presence, we can respond to market and demand fluctuations and balance out developments in individual regions.

Competition

Rheinmetall's risk profile can also be negatively impacted by changes in the competition structure. Consolidation trends force competitors to merge, and new competitors can emerge through technological innovations. In some countries, the dependency on imports needs to be reduced by setting up local industry. Furthermore, where competition is fierce, we cannot rule out the possibility of being unable to achieve our margin targets. By systematically monitoring the competitive environment, Rheinmetall is in a position to respond to these changes early on. International partnerships and systematic localization concepts are part of the Group's strategy and, together with technological market entry barriers, serve to safeguard business.

Technology and development

Innovative strength is a key success factor, which we consider to be a vital driver of profitable growth. The future earnings situation of the Rheinmetall Group also depends on the ability to identify technological trends in good time, correctly assess their impact on operational business and promptly develop new, marketable applications, products and systems and launch them on the market. The sometimes long development lead times, continuously refined technologies and intense competition are key factors contributing to uncertainty regarding the economic success of current or future products.

Misjudgments regarding future market developments or the development of products, systems or services that are not taken up by the market as expected as well as missed development deadlines, fundamental changes in customer demand that were not foreseen or responded to adequately, increased startup costs for new products or delays in launching innovations on the market can lead to a deterioration in our competitive and economic situation. However, intensive market and competitor monitoring and analyses, the market presence and customer proximity associated with international distribution structures as well as regular discussions with customers and suppliers make it possible for us to identify trends on the sales markets in good time and to align product strategies consistently towards new requirements.

Feasibility studies, profitability analyses, modern project management aimed at reviewing the criteria for technical and economic success, the involvement of customers in the definition, design, development and testing of new products and safeguarding our technological position through patents reduces potential R&D-specific risks such as misdevelopments and budget overruns.

Thanks to a balanced mix of short-, medium- and long-term projects in a well-filled research and development pipeline, we are making advances in new markets and technological fields and, in doing so, further safeguarding our technology positions. In an internal project study conducted in the year under review, the conditions for establishing a Rheinmetall Technology Center were reviewed in order to advance the development of the five defined technology clusters across the Group through technology scouting and technology management.

Despite compliance with the processes described and the use of state-of-the-art project management, monitoring and controlling measures, developing and launching new products and changes to the existing product portfolio harbor cost risks. These exist not only in the actual design and development phase, but also during market launch, where startup costs may be higher than expected or unscheduled delays may arise. Risks can also arise following market launch due to the potential need for technical improvements, which come to light only following use in real-life situations or through continuous operation.

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Risks and opportunities

Production and project implementation

We counter potential production risks by applying high technical and safety standards. Compliance with production specifications is ensured through, for example, internal policies, quality handbooks, procedural instructions and our quality management systems. Our quality management systems have been certified in accordance with the internationally recognized ISO 9001 and ISO/TS 16949 standards for many years now. In addition, methods including Six Sigma, lean management and failure mode and effects analysis (FMEA) are used to prevent quality risks.

Risks also arise from capacity bottlenecks and overcapacity, production downtime, excessive scrap levels, a high level of working capital and excessive reliance on individual production sites. These risks can be mitigated, however, through careful planning and continuous monitoring of the production processes in conjunction with flexible working hour models. Continuous improvement in production – for example, by simplifying processes or increasing the level of automation – can help to further increase production efficiency.

The availability of production plants is ensured through preventative maintenance with ongoing checks and constant modernization as well as through targeted investment. Production can, however, be impacted by natural disasters, disruptions in the infrastructure, delivery stops or technical failure. For potential damage and associated interruptions to operations or production downtime and for other conceivable loss occurrences and liability risks, insurance cover has been taken out as financially reasonable to ensure that the financial consequences of potential risks are contained or completely ruled out. Although the existing insurance cover is regularly reviewed in terms of covered risks and insured sums and adjusted if necessary, it may prove insufficient in individual cases.

We review investment decisions carefully over several stages. Investments that exceed a defined limit are presented to the Executive Board for approval after undergoing a review. Nevertheless, unforeseen changes in general conditions can lead to higher investment costs or cause delays to facilities being commissioned.

The scope and complexity of projects can entail risks in planning, calculating, implementing and processing. These include not only uncertainty in calculations, but also unexpected technical and/or logistical problems, difficulties surrounding the fulfillment of product specifications, underestimations of the level of complexity, project-specific additions and related cost increases, capacity and supply bottlenecks as well as quality problems with business partners or suppliers, unforeseeable developments during assembly and deferred dates of acceptance and settlement. These risks can be minimized, though not excluded altogether, through the technical expertise and longstanding project experience of the employees, professional project management, verification levels for each project stage, comprehensive quality management measures and the appropriate formulation of contracts.

Suppliers and procurement

The task of the purchasing organization, which is controlled by the Purchasing Council, is to improve Rheinmetall's market position with respect to suppliers and achieve better purchasing conditions. This ranges from lower prices to more favorable, standardized payment and delivery conditions. In addition, the Purchasing Council ensures through regular meetings that the purchasing organization is aligned with the requirements, the purchasing employees are properly trained and that both the organization and processes are described in sufficient detail.

Risks can arise in connection with the purchasing of raw materials, parts and components in the form of unexpected supply shortages, delays or bottlenecks in delivery, quality problems or price increases. This is countered through ongoing monitoring of the procurement markets, structured procurement concepts and the avoidance of dependence on individual suppliers. The careful selection of efficient suppliers, annual supplier reviews, quality and reliability checks on suppliers, alternative suppliers and subcontractors, medium- and long-term supply contracts and appropriate safety stocks also reduce potential risk. Stronger internationalization of our supplier circle can leader to more favorable purchasing conditions. These expanded purchasing activities could also help us to identify new suppliers possessing, for example, specialized product knowledge, which, in turn, could allow us to improve our competitive situation. Appropriate market observation and cooperation with the development departments can also help to counter legal bans on substances/materials. Cost escalation clauses are also agreed in contracts where possible, to minimize negative effects from increases in purchase prices to a large degree.

An inadequate energy supply for companies of the Rheinmetall Group under cost-efficient conditions constitutes a risk for competitive production at the sites. It is not possible to ensure complete hedging of fluctuations in the price of energy sources or to guarantee that increases in energy prices will be passed on to customers. Rising energy costs are addressed by bundling procurement volumes and through coordinated invitations to tender, long contract durations and optimization of the electricity price via the European Energy Exchange in Leipzig. Germany's energy turnaround is expected to lead to the expansion of electricity grids and a significant increase in the share of renewable energies. We believe that constantly rising electricity prices and the growing EEG levy represent a risk – a development that can jeopardize the ability of energy-intensive industrial companies, like some companies in the Automotive sector, to compete in the international marketplace.

Human Resources

The achievement of our ambitious, growth-oriented corporate targets and the long-term economic success of the Rheinmetall Group, as an innovative technology company, depend to a large extent on qualified and committed employees. We mitigate potential personnel risks through, for example, a range of HR measures and by focusing on competence management. Measures here include strengthening Rheinmetall's profile as a fair and attractive employer and performing tailored recruiting and employer branding campaigns for communicating our strengths to the outside world, in particular to the younger generation. Another element is the continuous, structured training and further qualification of our employees on the basis of our competence model. The success of these measures is reflected in the high number of applications from qualified people, the low fluctuation over the past few years and a relatively long average tenure within the company.

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Risks and opportunities

Acquiring qualified and skilled employees and keeping high-performers and talented people within the company pose a constant challenge that we meet through an open and values-based corporate culture, management principles that are embedded in our daily work, exciting areas of responsibility, state-of-the-art working conditions, performance-related remuneration models, company benefits and a diverse range of career opportunities. Furthermore, we offer a variety of working time arrangements at our German sites designed to promote a healthy work–life balance.

In view of an aging workforce and the potential resulting skills shortage, age structure analyses – in addition to key function analyses – are conducted at regular intervals as part of Generation Management; the results of the analyses are taken into account in staff and succession planning and training activities. We counteract the demographic change in particular through funding programs for young people.

Rheinmetall Automotive is faced with tough competition from other companies in attracting qualified employees. New mobility concepts and, above all, new drive concepts for cars, mainly hybridization and all-electric drive systems, will change the requirements for the available expertise in research and development as well as production. This applies equally to automotive manufacturers and their suppliers. Our companies are already discovering that it is becoming more difficult to attract engineers with specialist knowledge in the fields of software and electrical engineering throughout the world. Generally, this situation will get worse as the pressure to innovate in the industry as a whole will increase.

Finances

Rheinmetall reduces risks arising from changes in market prices, such as exchange rates, interest rates or raw materials, as far as possible through appropriate contractual agreements or mitigates these risks using financial instruments.

Price variation clauses in customer and supplier contracts are also used in principle in order to avoid commodity price risks as far as possible. Derivatives are additionally used if price variation clauses can be used only to a limited extent or cannot be used at all. This is regularly the case in the areas of industrial metals and energy. The management of all market price risks is carried out in regular committee meetings in which the hedging decisions are documented and where only standard instruments with counterparties with a defined minimum credit rating (investment grade) are used to hedge them.

Rheinmetall's global business operations mean that it is also exposed to currency risks that can potentially have an adverse effect on operational business. The financial risk management strategy pursued by Rheinmetall aims to ensure that it is involved early on in contract negotiations to prevent currency risks from occurring at all by formulating contract currencies or introducing cost escalation clauses. The currency risks are identified and assessed as part of regular reporting. Simulation calculations are performed to determine any potential impact on earnings and derive hedging strategies reflecting the different business structures of the corporate sectors.

The liquidity requirements determined as part of medium-term corporate planning and the liquidity outlook are stress-tested in simulations and compared against the financing resources available. This ensures that potential financing gaps can be identified early on. These simulations also include worst-case scenarios such as payment defaults, reductions in credit facilities or unexpected working capital requirements. When determining the necessary financial scope, Rheinmetall takes great care to ensure that adequate reserves are held at all times.

The liquidity risk describes the risk that payment obligations cannot be met, cannot be met on time or can be met only with excessive financing costs. To ensure that the Rheinmetall Group is solvent at all times, a rolling, twelve-month liquidity forecast is drawn up in which the cash transactions of the Group companies are recorded and assessed and then aggregated at Group level.

Changes in the area on interest rates on the money and capital markets lead to interest rate risks, which occur in two forms. On the one hand, variable-interest financial instruments are subject to a cash flow risk, as future interest payments can fluctuate in terms of their amount. In the case of fixed-interest financial instruments, on the other hand, interest rate changes result in fluctuations in fair values and thus to valuation effects that are of relevance to earnings. The effects of these two forms do not constitute a significant risk for Rheinmetall, as the interest rates of the long-term debt instruments are largely fixed either in the contracts themselves or through appropriate offsetting derivatives.

Fluctuations in fair value where the underlying balance sheet time is recognized at amortized cost do not lead to any notable burden in relation to the result or the equity. The cash flow risk from variable interest on money market programs is largely offset by corresponding opposite cash positions in the Group.

Regulatory or political interventions can impact the processing of international payment transactions. This would mean that Rheinmetall would be able to fulfill its payment obligations toward suppliers only to a limited extent or not receive any payment from its export business, or receive any such a payment late or only in part. The risks associated with restricted money transfer should be classified as not significant and managed on a case-by-case basis.

Credit risks arise from financial transactions such as deposits, financing commitments and other financial receivables such as positive fair values arising from hedging transactions, as a result of the relevant counterparty's possible insolvency or inability to pay. To manage these risks, limits are set that are based on the credit rating of the counterparty. Furthermore, financial transactions are conducted exclusively with partners that have an investment-grade rating from a recognized rating agency or comparable rating from other agencies. Regarding the allocation of business, it is still ensured that, in addition to diversification of the counterparties themselves, diversification is pursued at country level. In connection with long-term orders, especially in the Defence sector, these counterparty risks are identified on a case-by-case basis and managed accordingly by means of prepayments, credit insurance, guarantees or letters of credit or even contractual regulations. In both sectors, the credit risks from the operating business can generally be assessed as low on account of the customer structure. To reduce risks associated with default payments, different service providers with a flawless credit rating are commissioned to perform the payments, which, in turn, ensures that the transaction risk is highly diversified.

Taxes

Tax risks can result from changes in the legal or tax structure of the Rheinmetall Group or from assessment periods which are still open. The differing assessment of circumstances during audits can lead to claims on the part of the tax authorities. There is also the risk that the tax burden for the Rheinmetall Group could increase as a result of changes to tax legislation or court decisions.

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Legal

Legal risks can arise in relation to competitors, business partners or customers and as a result of changes to the legal framework in the relevant markets. Not only is the Group supported by detailed advice from its own specialist legal experts, but it also, depending on the case, consults external experts. Furthermore, potential losses, damage and liability resulting from ordinary operations are, wherever possible, appropriately covered by insurance policies or accounting provisions.

Our goal is to avoid litigation within the limits of what is economically reasonable. However, it is naturally difficult to predict the outcome of pending legal and administrative proceedings in the majority of cases. Costs can arise on the basis of adverse court or official decisions or the conclusion of settlements that are not covered or not fully covered by provisions or insurance policies and thus exceed the provisions that have been made. However, after a thorough review, we do not believe this will occur.

Regulatory and legislative changes at national or European level may involve risks that could negatively affect our earnings situation. This applies, for example, to new laws and other amended legal frameworks (e.g. relating to export controls). Embargoes, economic sanctions or other forms of trade restriction could be imposed on countries in which we operate by the European Union, the US or other countries or organizations.

Legal risks arising from the violation of legal regulations are avoided or reduced as far as possible within the context of the compliance management system.

Compliance

Compliance cases can cause many different types of damage and can have serious consequences such as the discontinuation of business relationships, exclusion from orders, negative assessments on capital markets, the imposition of fines, the absorption of profits, claims for damages and civil or criminal proceedings. There is also the risk of significant and lasting damage to the Group’s reputation. Customers, shareholders, employees and also the general public could lose trust in our company. In itself, the examination and clarification of alleged cases can result in considerable internal and external costs.

Compliance risks can occur in every area of the company. The compliance organization is therefore designed to ensure proper modes of conduct and behavior on the part of a company and its employees and to make sure that potential or actual infringements of external or internal regulations are responded to appropriately. This is supposed to prevent any liability risks, risks of a penalty or a fine and reputation risks, in addition to other financial disadvantages, loss or damage that the company may incur as a result of misconduct or violations of the law. The regular execution of a Group-wide compliance risk assessment (top-down and bottom-up) helps to identify systemic and company-specific compliance risks. Measures to introduce or improve international or local structures, guidelines, processes, IT systems and training content are derived from the results.

However, despite extensive and multi-level inspection and control mechanisms, the possibility of risks arising from unlawful activities of individual parties cannot be ruled out. Alleged cases are investigated actively. In investigative proceedings we cooperate with the relevant authorities. Proven misconduct results in consequences for those involved as well as adjustments in the organization. However, the financial impact of compliance cases on the Group’s results is very difficult to estimate. Depending on the case and the circumstances, a considerable range is to be assumed.

The introduction in 2018 of the EU General Data Protection Regulation (GDPR) required EU-based companies to meet a whole range of obligations concerning data protection. Violations of the GDPR are subject to significant sanctions, including the imposition of fines totaling up to 4% of the Group's total global sales. To counter these risks, we established a Group-wide data security management system (DSMS) designed to ensure a data protection level that is structured, secure and, as far as possible, standardized. It defines a range of functions and responsibilities and undergoes continuous improvement as part of a "Plan–Do–Check–Act" cycle. The effectiveness of the DSMS is monitored on an ongoing basis. Where legally prescribed, data protection officers are appointed in these companies. Our employees receive regular instruction and training in matters relating to data protection. The content of data protection training is adapted for individual departments in line with the specific requirements in their spheres of work. For new employees, this training is part of the induction process.

Public perception and Corporate Social Responsibility

In a time in which markets are interconnected and the flow of information is becoming increasingly globalized, communication is becoming ever more important to the company's success. Shareholders, customers, lenders, employees, the media and the public at large are informed regularly, transparently and quickly about our social and financial status, our key processes and changes as well as the latest news and developments. Negative media reporting or reactions – including on social media – can harm our reputation, with any negative impact amplified by poor crisis communication. In the event that our financial communication is insufficient or delayed, this can result in fines or even legal action.

If we fail to meet to the required extent the requirements of customers, investors and lenders in the areas of environmental and social responsibility and governance, this can have a negative impact on our business and earnings: Customers could potentially refuse to award contracts to us; private and institutional investors might refuse to include us in their portfolio; financial institutes might refuse to issue loans. We counter these risks through transparent CSR reporting and the continuous (where possible) improvement of our customer/CSR ratings from internationally renowned agencies such as MSCI and ISS-oekom.

The protection of human rights is an integral part of our social responsibility and anchored in our Group guidelines such as the Code of Conduct, Supplier Code of Conduct and our principles of social responsibility. Rheinmetall seeks to prevent the negative consequences of its business activities and supply chain impacting its ability to uphold human rights. It is a matter of course for us to identify human-rights-related risks associated with our business activities and sphere of influence through, for example, adequate due diligence processes and to mitigate these risks as far as possible through suitable measures.

With locations in 32 countries, we are subject during our everyday business to a wide range of legal and regulatory requirements, any of which can be updated and possibly, in turn, made stricter. This applies in particular to provisions relating to not only the environment, chemicals and hazardous substances, but also health protection. Unscheduled investments may be required so that we can adapt to any such new requirements. A whole range of different licenses and approvals are also required for our locations and factories and their provisions have to be met. The violation of social and environmental standards could potentially harm the reputation of Rheinmetall and entail all manner of stipulations as well as obligations to make good and pay compensation. We actively counter these risks in various ways including through integrated management systems and certifications to various international standards (ISO 14001, ISO 50001, ISO 45001). We evaluate measures that go above and beyond compliance with legal requirements on a cost–benefit basis.

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A large amount of land owned by the Rheinmetall Group has been subject to industrial usage for decades. For this reason, it cannot be ruled out that pollution has also been generated during this time as a result of production that Rheinmetall is not yet aware of. Sufficient provisions have been recognized for necessary measures to safeguard against or clean up identified pollution. It is possible that the relevant authorities may issue regulations that require costly clean-up measures. We counter potential environmental risks by implementing statutory environmental standards, certified environmental management systems, professional and safe storage of hazardous substances and environmentally friendly disposal of waste and hazardous substances. At our different locations, special organizational units ensure that the relevant legislation and regulations are observed and that further technical options for mitigating environmental risks are identified. The tightening of environmental protection provisions and environmental standards could lead to additional unplanned costs and liability risks over which Rheinmetall would have no influence.

Corporate and information security

A location-specific combination of personnel and organizational measures involving various structural and mechanical property protection and electronic monitoring systems is designed to prevent unauthorized persons from accessing the company premises and/or buildings / building sections and potentially endangering employees, business partners and visitors or even causing them harm.

Like any other multinational company, Rheinmetall is at constant risk of cyber attacks and risks resulting from industrial espionage or sabotage. It cannot be guaranteed that the personnel, organizational, electronic, structural and technical precautionary/security measures that we implement to protect confidential commercial information, data and material as well as our own intellectual property are sufficient and successful under all circumstances. Serious incidents can have a negative impact on our reputation, competitiveness or business situation, which is why it is important for us to raise awareness among our employees about the careful handling of all business-relevant information. Furthermore, we work with our IT department to analyze not only a range of threat scenarios but also new sources and forms of cyber attacks in order to identify patterns of attack and further optimize our protection systems.

As a company that receives orders from the public sector, we sometimes gain access to a range of confidential information and material that are rated as “classified.” The specific requirements regarding the personnel and material security measures vary depending on the degree of confidentiality. Material confidentiality relates to the technical and organizational precautions taken in the company to protect classified information. This involves measures relating to, for example, the creation, labeling, processing, duplication, management, storage, transportation and forwarding of classified information as well as to the security of IT systems. Only persons who have undergone state security screening to prove their dependability and been issued with authorization to handle classified information are permitted access to classified information.

Potential risks associated with business trips and business stays abroad (e.g. health risks and security risks through criminality or terrorism) are countered primarily through preventive measures. The latest information concerning the security situation in the destination countries is thoroughly evaluated and appraised, potentially resulting in travel warnings or even travel bans. To provide our employees with not only detailed security, safety and medical advice but also all the support they need before, during and after business trips, we work together with the International SOS organization, which runs a global network supporting business travelers and expatriates in the event of illness, accidents, civil unrest or other incidents occurring abroad.

Information technology

Information and data are exposed to a range of constantly growing threats with regard to availability, confidentiality and integrity.

Risks arise through not only the organizational and IT networking of locations and complex systems, but also the growing need for remote access for customers and employees. In addition, the use of new forms of technology (e.g. cloud technology, software-defined networks) entails new risks. The use of licensed or self-created software can also harbor risks if the license agreements, which are subject to constant amendment, are not observed.

Disruptions to or the failure of application-critical IT systems, IT applications and infrastructure components can severely compromise the management of business and production processes and cause serious harm to the business. External influences or incorrect programming and operation or even manipulation can also expose data to the risk of being falsified, destroyed, spied on or stolen. Blackmail attempts through the installation of ransomware are currently being widely reported. We, too, were affected by this in the year under review.

Potential risks relating to information technology are limited through modern IT infrastructure standards, IT security rules, IT process harmonization, IT security training and adequate precautions to protect against the loss of data, unauthorized access to data or misuse of data. Regular investment and security updates ensure that the software and hardware installed uses state-of-the-art technology. Appropriate back-up and recovery procedures are also implemented, along with virus scanners and firewalls to avert risks.

We are also continuing to strengthen our processes and technologies for monitoring our networks and systems so that we can identify anomalies or attacks early on. The technical configuration, functional security structures and efficient operation of the IT architecture are reviewed on a regular basis with competent service providers certified to ISO 27001 and continuously improved.

The damage caused by attacks on encryption software shows that 100% security cannot be guaranteed because, especially when it comes to cyber crime, the attack patterns change all the time. This means that precautions taken to secure IT systems and the transfer of information must remain a key focus and be continuously adapted in line with the ever-changing threat situation.

Mergers and acquisitions

Acquisitions remain an important element of the Group's ongoing internationalization and growth strategy in order to improve and expand its market positioning, supplement existing business and penetrate new segments. Potential companies are, in accordance with strategic requirements and guidelines, subjected to an analysis of opportunities and risks through standardized processes such as extensive due diligence procedures and are assessed on the basis of yield/risk considerations. When necessary, we involve external experts and consultants in the transaction processes. Furthermore, we ensure that contracts are designed in a way that is commensurate with the risk, in particular by obtaining warranties of specific properties or guarantees and by agreeing purchase price mechanisms and liability clauses or taking out appropriate insurance policies. Despite a careful approach, it is always possible that some acquisitions do not ultimately come to fruition – for example, due to regulatory obstacles.

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Following approval proceedings carried out over several stages, the Executive Board and, where the transaction volume exceeds defined value thresholds, the Supervisory Board of Rheinmetall AG decides on the acquisition project. Acquisitions always harbor business risks because they inherently entail a range of imponderables arising from the integration of new employees, technologies, products and processes. The integration process could, for example, prove to be more difficult, time-consuming and cost-intensive than originally expected. We have put in place the structures and processes required for ensuring the smooth integration of companies and work, for example, according to a standardized post-merger concept. Our many years of experience with the successful integration of companies also serve us well.

It may also be the case that the acquired company does not fare quite as well following integration as was originally hoped or that the targets, synergy potential and cost-savings that the acquisition was expected to bring about are not, or only partially, achieved. In addition, risks can arise in connection with the activities of newly acquired companies that were either not previously known or not considered significant. Acquisitions can also negatively impact the debt ratio and financing structure and lead to an increase in assets and divestments, including goodwill. Difficulties may result primarily from impairments of goodwill due to unforeseen business developments. Furthermore, such transactions may well result in considerable acquisition, administration and integration expenses.

Joint ventures and shareholdings

In addition to improved access to growth markets and new technologies, joint ventures and shareholdings help to leverage synergy effects and improve cost structures so that we can confront the competitive situation more effectively. Financial obligations or additional financing requirements may arise from the acquisition of a shareholding or from its business activities. Joint ventures and shareholdings always harbor risks because it is impossible for us to counter any potential negative impact on our business by exerting sufficient influence over corporate governance processes or business decisions. Joint ventures also harbor risks associated with the integration of employees, technologies, products and processes. Likewise, strategic alliances can entail risks because, in certain areas, we might find ourselves in competition with the same companies with which we are also collaborating. Any necessary portfolio or structural measures could result in additional financing requirements.

Opportunity management in the Rheinmetall Group

Our business policy is geared towards maintaining and expanding our current business liberties and financial flexibility. The goal is to ensure the long-term and economically successful existence of Rheinmetall for the benefit of all stakeholders. Opportunities that present themselves must be identified early and systematically and the accompanying potential for success must be exploited in order to be able to continuing growing sustainably in dynamic markets. To this end, market, industry and technology trends are continually monitored, including as part of integrated strategy and planning processes, and target markets are analyzed intensively and assessed in terms of their strategic and economic significance for the Rheinmetall Group’s areas of business.

The operating units are responsible for the identification and initial assessment of opportunities and the potential for success. They are supported in this by various functions at Group level, such as Corporate Strategy & Development.

Opportunities for the current business operations are managed among other things in regular review sessions between the Executive Board and the heads of the divisions and central departments. Based on an examination of structured assessments of market, industry and competition data, discussions focus on economic, market, industry and sales developments as well as the competitive situation and technological trends. The next step involves defining strategic initiatives and operational measures that are aimed at realizing the potential opportunities that have been identified. This can entail a reallocation of budgets that are provided for exploiting opportunities. In addition, the opportunities that arise are logged and evaluated as part of the forecast prepared three times a year.

Opportunities and potential for success deemed strategically important for the medium and long term are included in the three-year medium-term corporate planning on the one hand and, on the other, discussed at strategy meetings for periods beyond this horizon, where they are assessed and prioritized in terms of their significance for the future development of the business and assigned a budget if necessary.

Risks in the Automotive sector

Any change with regard to customers – e.g. relocation of production sites, termination of customer relationships, sales and mergers of companies, insolvencies, declines in demand and changes in customer requirements – can lead to fluctuations in prices, quantities and margins, which can result in a decline in operating activities and/or reduce the value of investments. Vehicle manufacturers are engaged in fierce international competition, which means that they are exposed to tough innovative and, especially, cost reduction constraints, which they attempt to pass on to their suppliers. Companies in the Automotive sector are combating the impact of this development by investing in new products, deploying modern manufacturing processes, cost-saving technologies and new materials and realizing potential savings in corporate functions.

Declines in automotive demand worldwide and in certain countries are countered by the expansion of our international presence and by marketing products outside the automotive industry. Advantageous economic parameters for new locations and the expansion of existing production capacities are exploited. Additionally, the diversified customer structure allows fluctuations in the production figures of individual automotive manufacturers to be balanced out. Thanks to the broad product range and low reliance on individual customers, it is possible to cushion price risks, weak demand and insolvency risks. Despite all measures taken in relation to sales, production and the product portfolio to ensure capacity is utilized at the sites, the need to adjust capacity even to the extent of closing certain sites may arise.

Furthermore, Rheinmetall Automotive’s risk profile may be influenced by structural market risks such as the emergence of new suppliers, product substitution, delivery bans and protectionist trade barriers such as punitive tariffs as well as consolidation trends on sales markets. For example, in the case of combustion engines diesel drive systems are a topic of intense debate due to their high level of nitrous gas and particulate emissions in passenger car applications. At the end of May 2018, Hamburg became the first German city where the environmental authorities imposed a restriction on diesel vehicles that do not meet the modern Euro 6 emission standard. Over the course of 2019, other German cities introduced similar diesel vehicle bans. At the beginning of 2020, Stuttgart extended this restriction to diesel cars with the emission class Euro 5; this came on the back of the introduction at the turn of the year 2018/2019 of a restriction on the entry of diesel vehicles with the emission class 4 or lower in the city-center low-emission zone. Upheaval is expected in the automotive and automotive supply industries due, among other things, to new drive concepts. Hybridization and electromobility require new vehicle components, making it necessary to redefine the classic technology and supply chain relationships between manufacturers and suppliers.

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Bottlenecks in supply and sharp fluctuations in prices for energy and raw materials involve significant risks. Price risks for raw materials, particularly aluminum, copper and nickel, are countered with cost escalation clauses in contracts on the sales side. When procuring raw materials that are traded on the stock market, the sector's central Commodities Office manages the timing of purchases and the volume purchased in consultation with the operating units, making use of financial hedging instruments.

The potential insolvency of suppliers represents a further risk on the procurement side. This risk is countered by carefully selecting subcontractors, spreading the risk by distributing the purchase volume across further suppliers and supporting suppliers in emergency situations if necessary.

Appropriate insurance cover is in place for warranty, product liability and recall risks, which is reviewed periodically and adjusted where necessary.

Rheinmetall Automotive is faced with tough competition from other companies in attracting qualified employees. New mobility concepts and, above all, new drive concepts for cars, mainly hybridization and all-electric drive systems, will change the requirements for the available expertise in research and development as well as production. This applies equally to automotive manufacturers and their suppliers. Our companies are already discovering that it is becoming more difficult to attract engineers with specialist knowledge of electrical engineering throughout the world. Generally, this situation may get worse, as the pressure to innovate in the industry as a whole will increase and extend to include production workers in countries with low unemployment levels.

In the automotive industry, manufacturers and suppliers are closely linked in working together to develop and produce vehicles. When selecting or even preselecting suppliers, the evaluation of whether the respective sustainability standards, which include, among other things respect for employment and social standards as well as internationally recognized human rights, are complied with in the delivery chain is increasingly significant for automotive manufacturers. A large number of manufacturers, including virtually all well-known European and North American manufacturers, oblige their suppliers to submit annual self-assessment questions, which enable them to rate performance and progress regarding sustainability. There is a risk that Rheinmetall Automotive does not sufficiently comply with OEM requirements and therefore cannot be considered when contracts are awarded.

Rheinmetall Automotive has had a comprehensive set of compliance-related rules in the form of guidelines plus company directives and operating instructions that ensure staff comply with legislation at all times and prevent violation of applicable legislation and guarantee staff act appropriately and correctly in their day-to-day business. However, despite multi-level inspection and control mechanisms, the possibility of risks arising from unlawful activities of individual parties cannot be ruled out. Provisions are created for any possible compliance cases.

In 2019, the IT infrastructure in the Automotive sector at the plants in Brazil, Mexico and the US suffered a malware attack that caused significant disruption to routine processes at these plants. The technical and organizational emergency, protection and preventive measures in place across the Group – in particular, modern backup and recovery procedures in conjunction with the speedy involvement of external specialists – ensured that customers still took delivery of their orders in accordance with their purchase plans. In the future, too, the technical design and functional security structures will be reviewed at defined intervals and continuously improved together with highly skilled, ISO 27001-certified service partners.

Opportunities in the Automotive sector

Although business in the international automotive industry was extremely sluggish in 2019 measured by the number of passenger cars and light-duty commercial vehicles produced (5.6% fewer vehicles were manufactured than in the previous year), experts are cautiously optimistic about the future. After a relatively flat 2020, IHS Markit forecast in February 2020 an average annual growth of 2.5% for the next two years. Rheinmetall Automotive does not expect business in the international automotive industry to recover at any time in 2020. Our expectations concerning trends in automotive production over the following years too are cautious, although we do see opportunities for us in the areas outlined below.

Opportunities through the optimization of conventional drive systems – The combustion engine will remain the dominant drive system for individual mobility in the short to medium term. However, the engines used will have to comply with increasingly stringent international regulations regarding the emission of pollutants, especially climate-damaging carbon dioxide. As a result of the introduction of the new worldwide harmonized light vehicles test procedure (WLTP) in Europe and regional adjustments in other countries and regions throughout the world, vehicle manufacturers have to develop ever more complex solutions and, in turn, additional and more sophisticated components.

Development engineers influence consumption and emissions in diesel and gasoline engines both directly, through technical measures relating to mixture control and gas exchange, and through applications that will indirectly help to minimize friction losses and utilize auxiliary units according to individual needs. Rheinmetall Automotive already offers a wide range of innovative and competitive components and systems in both areas. These include divert-air valves, wastegate actuators and pressure control valves for exhaust gas turbochargers as well as specially coated pistons, plain bearings and engine blocks and variable oil, coolant and vacuum pumps. Building on this high level of technological expertise, Rheinmetall Automotive will further exploit its capacity for innovation.

In parallel with the transition toward electromobility, lightweight construction methods will play an increasingly important role in the future. Through the acquisition of a strategic stake in Carbon Truck & Trailer, a startup specializing in the development and production of innovative supporting components made from carbon-fiber-reinforced plastic, Rheinmetall Automotive is aiming to support the partner in the industrialization of the manufacturing process. This, in turn, opens up the strategic opportunity to also develop additional lightweight construction applications as well as integrated modules and systems through the use of further processes and products from Rheinmetall.

Opportunities through new drive concepts – The role of the combustion engine will change. The proportion of vehicles that rely solely on a combustion engine will decline in the medium to long term, while the use of hybrid vehicles as a bridge technology to electromobility and electric vehicles will increase.

As a specialist in the field of drive systems we see far more opportunities than risks in any extended portfolio. For example, we have already developed cast components for battery trays in electric vehicles and complex cooled aluminum housings for electric drives and have received the first series orders from well-known automotive manufacturers. An e-traction engine, which is characterized by high levels of efficiency and low levels of energy loss combined with minimized size, is under development. This drive system will offer numerous applications, since speed and torque are highly scalable. Added to this are all-electric auxiliary units such as electric vacuum pumps that ensure comfort and safety, for example during braking, even when the combustion engine is switched off or there is no combustion engine. The efficient use of energy is a key capability, especially in electrically powered vehicles.

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This also requires effective thermal management, which is why Rheinmetall Automotive has extended its portfolio to include system components for conditioning the passenger compartment or vehicle components in the form of electric coolant switch and control valves. Furthermore, it will become necessary in the future to develop systems designed to extend the range of electric vehicles, which could be operated with heat pump components and for which orders for prototypes have already been received from a number of customers. Another key starting point for future vehicle concepts is light construction, which we are addressing with aluminum structural components and chassis components.

In addition to products for battery-electric vehicles, Rheinmetall Automotive is also developing components for alternative drive concepts such as fuel cells. This includes a special recirculation blower for any remaining hydrogen within the fuel cell, special coolant pumps for voltage levels of 400 V and 800 V and a range of electric valves. In 2019, Pierburg won an order for fuel cell components from a renowned German vehicle manufacturer. The company will be supplying the electric cathode valves that the premium manufacturer will be installing in its fuel-cell vehicles.

Opportunities through diversification – Policies on pollutants and greenhouse gases set targets not only for passenger cars and light-duty commercial vehicles, but also for heavy-duty commercial vehicles. This is why highly robust, sophisticated and innovative drive systems also have to be introduced for heavy-duty commercial vehicles. For these vehicles, Rheinmetall Automotive leverages its extensive specialist knowledge developed in connection with advanced drive technologies for passenger cars. We also have long-standing close relations with manufacturers of heavy-duty commercial vehicles, which we have developed as a key pistons supplier in this segment.

We were therefore also able to supply products from the Mechatronics division to these customers and manufacturers of heavy construction site vehicles and agricultural machinery, such as exhaust gas recirculation valves, exhaust gas recirculation cooling modules and exhaust gas mass sensors, and to win related contracts. We also used our specialist technological expertise from the Hardparts division for products outside the automotive industry, for example in order to develop large-bore pistons and plain bearings specifically for electricity generation, heavy construction site vehicles, mining equipment, locomotives, shipbuilding and agricultural machinery.

Thanks to our experience as a specialist in the automotive industry for the stability of cast parts in a wide variety of temperature ranges and their general weathering resistance, we received a major order from an international company in the field of mobile communications for the manufacture of die-cast aluminum housings for the 5G network. As such, Rheinmetall Automotive has established itself as a highly competent cast parts supplier for the expansion of the global 5G network. For the Automotive sector, this order represents an important step toward a brand-new and, above all, fast-growing and highly promising industry.

Geographical opportunities – Rheinmetall Automotive intends to continue optimizing its business activities from a geographical viewpoint in the future, according to the needs of the automotive markets. When business in the international automotive industry finally recovers, the emerging economies of India and China in particular are expected to harbor the biggest growth potential for automotive manufacturers and their suppliers due, on the one hand, to rising demand for passenger vehicles and light- and heavy-duty commercial vehicles and, on the other, to the introduction of increasingly strict requirements to reduce emissions of pollutants and carbon dioxide.

Our aim is to pursue the prudent expansion of our existing production capacities in China and India and to deploy our expertise from the major automotive markets in USMCA and Western Europe. Furthermore, we want to play an active role in the further expansion of electromobility in China and establish ourselves as a serious player in this trend-setting technology. In India, we intend to increase our market share with the aid of our production facilities in Pune and Supa.

Risks in the Defence sector

Defence's business areas are not directly dependent on the state of the economy. Rheinmetall Defence's customers are national and international authorities. Risks lie in the dependence on spending patterns for public budgets in Germany and foreign customer nations. This can lead to shifts and cuts in state budgets, which can also affect defence. Political, economic, commercial, regulatory and export control influences and changes in the armaments technology requirements of customer nations, along with budget restrictions resulting from strained budgetary situations, or general financing problems on the part of customers, can result in risks in the form of delays in the awarding of contracts, time extensions or even the cancellation of orders. Risks also arise from increasing transatlantic competition. Moreover, there is tough international competition on export markets to which the Group has access. Higher pre-financing due to worsening conditions for prepayments and possible financial investments in projects also constitute risks.

Unforeseen difficulties with the implementation of projects can also lead to unplanned charges. As well as uncertainty in calculations, these include altered economic and technical terms and conditions following the conclusion of a contract, unplanned changes or additional customer requirements, unexpected technical difficulties or faults, problems with business partners or suppliers and deferred dates of acceptance and settlement. By means of professional project management and comprehensive quality management measures, as well as the appropriate formulation of contracts, it is possible to limit these risks, but not to exclude them altogether.

The expansion of international business activities harbors the risk that, in some regions of the world, due to the industry-specific practices in place in the countries in question, delays may arise in order processing or risks arising from the payment practices of customers or business partners that are customary in these regions may increase.

Risks are limited as far as possible by means of compliance checks on business partners in line with the business partner guideline, professional project management, comprehensive project controlling and suitable formulation of contracts. However, despite ongoing monitoring, delayed payments or even payment defaults on the part of contractual parties may unexpectedly arise.

The business activities of Rheinmetall Defence have a strong international focus. 59.3% of sales are transacted with customers outside Germany. New laws or changes to general legal and regulatory conditions, in procedural matters with existing export control regulations or in the national and international licensing practice for military equipment exports can hinder the development of our Defence business and thus negatively impact the earnings situation at the Rheinmetall Group.

Risks for the business of the Defence sector also lie in the impacts of the export control policy of the German government and also of other countries. As a result of these restrictions, which have arisen especially in the past year, Rheinmetall Defence is barred from pursuing business activities in significant sales markets. Cooperation with other companies in the European Union, especially France, is complicated considerably by the restrictive approach of the German government to export issues. As a global player, it is not just German export control regulations that we have to comply with. The law of other nations also has to be respected, especially that of the US. This can result in additional risks.

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Opportunities in the Defence sector

Opportunities thanks to the modernization of armed forces – In most western industrialized nations, there is an ongoing need for extensive modernization of military equipment, especially in terms of armed forces technology. Current threats and foreseeable potential risks in foreign military deployments mean that ongoing investment is still needed in improving equipment and protecting soldiers.

The companies in this corporate sector specialize in the development and production of components and systems for the protection of people, vehicles, aircraft, ships and assets. They are a strong partner to the German armed forces, their allies and friendly armies, along with civil national security forces, and protect the forces involved in foreign operations.

Opportunities for the business units of the Vehicle Systems, Weapon and Ammunition, and Electronic Solutions divisions result from the changing military requirements of the German armed forces and other armed forces around the world. The range of products and capabilities of Rheinmetall Defence is tailored to central defence technology requirements resulting internationally from the ongoing need for substantial modernization of armed forces and new military deployment scenarios. Reference projects commissioned by the German armed forces, such as the series contract for the Boxer protected transport vehicle, the Puma infantry fighting vehicle and the Gladius infantry project, are key factors in winning further orders abroad.

Opportunities resulting from political developments – Foreign deployments of UN and NATO troops, crisis intervention, peace keeping missions as well as the increasing importance of defending nations and alliances: Owing to constant changes in national and international security and defence policy, brought about, for example, by the geopolitical realignment of economically strong nations, political upheaval, new hot spots and escalating conflicts, the armed forces of the 21st century are facing new challenges in national security as well as in the planning, implementation and securing of military deployments abroad.

Huge threats to external and internal security arise from unstable nations and dictatorial regimes as well as terrorists and radical activists. Effective protection systems are of central importance in the deployment scenarios of today and the future, in order to offer a maximum level of safety to soldiers. The Defence sector may benefit from ad hoc procurements triggered by the deployment of forces in crisis regions.

Opportunities from German and European programs – Armed forces that are ready for operations and capable of reacting require sufficient resources and equipment, both in terms of personnel and material, that is correctly structured and adequate for the task. In Germany, defence expenditure as a percentage of gross domestic product has fallen to around half since 1990 (1990: 2.7%; 2019 estimated: 1.36%). Numerous hotspots, expectations that Germany will play a more active role in foreign and security policy as well as demands arising from national and alliance defence have, however, led in the meantime to a change of thinking and a reversal of the trend. In its Strategic Level Report, which it presented in February 2019, the federal government pledged to increase the defence budget to 1.5% of GDP by 2024. In absolute figures, this means almost doubling defence spending from €33 billion to €60 billion within a decade.

We also see opportunities in European customer nations in the next few years. The importance of the European market will continue to increase due to the comparatively low unit figures for national markets and increased production and development costs. By expanding their budgets, the Europeans are following the goal trend to increase military and security spending. According to a NATO press release published in June 2019, defence spending in its member states (excluding the US and Canada) increased by 5% in the period 2014–2019 (values for 2018 and 2019 estimated). The main reasons for this are the growing risks in the relationship with Russia and the pressure that the US is exerting on its European partners in NATO to take on more military responsibility of their own. This is accelerating the development of a common defence and security policy. If only to fulfill the target of two-percent of GDP, the EU member states that also belong to NATO would have to invest another €90 billion annually – in other words, increase their expenditure by around 45% compared with 2017.

Additional strategic opportunities for Rheinmetall Defence are thus also arising from the specific European initiatives to establish permanent structured cooperation in defence and in armaments projects, known as the Pesco Initiative (Permanent Structured Cooperation), which aims to increase interoperability between the member states in order to enhance the operational capability of multinational organizations by dovetailing defence structures and systems. This cooperation is particularly important for the projects agreed between Germany and France to develop joint military hardware for their land forces, in which we will have a significant part to play.

Furthermore, Rheinmetall Defence is well positioned to benefit from major European military vehicle programs. We anticipate demand for around 250 tracked vehicles in Germany and for more than 600 in Europe. For wheeled vehicles, we estimate that demand in Germany runs to 700 to 800 Fuchs and Boxer vehicles and in Europe to more than 900 Boxers.

In June 2018, the European Commission published its proposal for a regulation on the “Establishment of a European Defence Fund” (EDF Regulation), which is part of the European Defence Action Plan (EDAP). In April 2019, the European Parliament provisionally adopted an initial draft bill on the European Defence Fund, which, in light of the Brexit negotiations, did not include the budget. According to the industry news service griephan in September 2019, a sum of up to €13 billion (€4.1 billion for funding research and €8.9 billion for skills development) is envisaged for the European Defence Fund for the period 2021–2027, subject to the outcome of negotiations over the multi-annual financial framework. Since Brexit will see the departure of Great Britain – a net contributor – from the EU, the Finnish presidency presented at the start of December 2019 a negotiation box that envisages just €6 billion for the European Defence Fund in light of a reduced overall budget for the multi-annual financial framework 2021–2027. However, the negotiating team from the European Parliament quickly described the Finnish proposal as inadequate for fulfilling the obligations entered into by the European Union.

Opportunities through further internationalization – Despite a recent continuous rise in defence budgets, including those of countries that have traditionally been key Rheinmetall customers, Defence’s strategic priority lies in tapping into new growth markets. We believe Asia and Australia, but also individual countries in Western and Eastern Europe, represent particularly attractive growth opportunities.

Opportunities through consolidation – Other growth opportunities may arise for us as a result of the expected ongoing consolidation process in the European defence market. These may occur as a result of targeted acquisitions of products and/or technology or on the basis of company acquisitions allowing more rapid regional market access.

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Internal accounting-related control and risk management system

The internal control and risk management system related to the accounting process at the Rheinmetall Group includes all principles, procedures and measures which ensure, by both organizational and technical means, that all business processes and transactions are recorded in the accounting system promptly, accurately and consistently. In addition to defined control mechanisms (e.g. manual coordination processes and technical coordination processes for systems), this includes the separation of administrative, executive, settlement and approval functions together with guidelines and operating instructions. Changes to the economic, legal and regulatory environment of the Rheinmetall Group are analyzed to determine whether adjustments to the accounting-related control and risk management system are necessary.

Accounting guidelines – Our IFRS accounting guidelines cover all IFRS regulations that are of relevance to Rheinmetall AG. They explain the IFRS regulations and specify accounting procedures. The guidelines must be observed by all companies included in the consolidated financial statements, thereby ensuring standardized accounting. The IFRS accounting guidelines are reviewed at least once a year and amended where necessary. Companies are informed about specific changes to guidelines. The content of the guidelines is the responsibility of the main Accounting department of Rheinmetall AG.

Accounting processes in companies included in the consolidated financial statements – It is the responsibility of the management of the respective companies to prepare the financial statements of companies included in the consolidated financial statements. The accounts and financial statements are prepared using SAP-based accounting systems (SAP-FI). Procedures are implemented in the accounting process to ensure the correctness of the accounts and financial statements. The management of each Group company monitors compliance with IFRS accounting guidelines and other guidelines and operating instructions in force across the Group. The management must confirm the correctness of the financial statements in a corresponding declaration.

Consolidation and Group accounting process – The main Accounting department of Rheinmetall AG is responsible for central management of the Group accounting process. It stipulates the schedule for the consolidated financial statements and monitors compliance with deadlines.

The consolidated financial statements of Rheinmetall AG are drawn up with the aid of the consolidation software SAP SEM-BCS. A standardized, binding chart of accounts is incorporated into this system, which covers virtually all the information required for the IFRS consolidated financial statements of Rheinmetall AG. The individual companies record the financial statements prepared in accordance with IFRS accounting guidelines in the consolidation software. After this IFRS single-entity financial statement data is recorded, it then undergoes an automatic plausibility check and system-based validation. If error or warning messages are displayed during this process, these are to be analyzed and dealt with by the person responsible for the single-entity financial statements. Employees in the main Accounting department then perform additional automatic and manual checks. The manual and automated consolidation measures undergo system-based checks and automatic plausibility checks.

The consolidated financial statements are also audited on the basis of standardized reports using comparisons of target and actual performance, trend and deviation analyses and detailed evaluations. A check is carried out every quarter to ensure the completeness of the scope of consolidation.

Auditing and monitoring – As a central department that is independent in terms of instructions in line with a guideline promulgated by the Executive Board, Internal Audit examines workflows, structures and policies for their correctness, security and economic efficiency on the basis of an audit plan adopted by the Executive Board. The audit plan establishes the focal areas for the risk-oriented audit activities and the scope of the audits to be performed. These are then implemented by Rheinmetall employees or auditing companies as mandated by Rheinmetall AG. If necessary, the Executive Board will also commission Internal Audit to conduct special audits. Risks identified and weaknesses discovered during audits are promptly eliminated by those responsible in each case. The central department Internal Audit monitors implementation of the necessary improvement measures. The Executive Board and Audit Committee of the Supervisory Board are regularly informed of the results of the audit and of the implementation status of improvement measures.

The auditors examine the consolidated financial statements and the combined management report to determine whether they comply with applicable accounting regulations and other relevant provisions. They check the IFRS accounting guidelines and make these available to the auditors of companies included in the consolidated financial statements. The auditors of these companies check whether the IFRS accounting guidelines have been applied in full to the financial statements prepared for consolidation purposes and establish the correctness of the annual financial statements prepared in accordance with applicable accounting principles. The audits performed by these auditors also include an assessment of the effectiveness of the accounting-related internal control system based on spot checks in subdivisions.

Assessment of the general risk situation

Potential risks for companies in the Rheinmetall Group include, on the one hand, factors that cannot be influenced, such as the national and international economy and the general economic situation, and, on the other, risks that can be influenced directly, which are generally operational risks.

The aforementioned risks are not necessarily the only risks to which the Rheinmetall Group is exposed. Risks that have not yet been identified or that are still deemed insignificant can materialize under altered circumstances, hinder business activities and adversely impact the assets, financial situation and earnings of the Group. As part of its audit of the consolidated annual financial statements, the auditor, PricewaterhouseCoopers GmbH Wirtschaftsprüfungsgesellschaft, examined the early risk identification system of the Rheinmetall Group to ensure that it complies with the provisions of the Stock Corporation Act and confirmed that it fulfills all legal requirements in accordance with section 91(2) of the German Stock Corporation Act and is suitable for identifying developments that could jeopardize the continued existence of the Group at an early stage.

In accordance with the basis outlined for the assessment of risk factors and taking into account the overall risk situation, major asset, financial and earnings risks jeopardizing the Rheinmetall Group on a long-term basis were not identifiable during the past fiscal year. The overall risk situation in the Rheinmetall Group did not change substantially in fiscal 2019 compared with the previous year.

The assessment of the overall risk situation is the product of consolidated consideration of all individual material risks. We are confident that the risks presented are limited and manageable. In our opinion, no risks exist from today’s perspective on an individual basis, in combination with other risks or as a collectivity that may significantly jeopardize the continued existence of Rheinmetall AG and the Rheinmetall Group as a going concern in the foreseeable future.

Economic report
Rheinmetall AG

Result of operations

The single-entity financial statements of Rheinmetall AG for fiscal 2019 have been prepared in accordance with the accounting regulations of the German Commercial Code and the additional provisions of the German Stock Corporation Act.

In addition to the results of subsidiaries, the earnings situation of Rheinmetall AG is determined to a large extent by expenses and income in central Group financing.

Income statement of Rheinmetall AG in accordance with HGB (condensed version) € million

	2019	2018
Investment income	228	133
Net interest	8	-4
Sales	74	70
Other operational income	100	132
Personnel expenses	41	40
Other expenses	150	154
EBT	220	137
Taxes on income and revenue	(30)	(40)
Net profit for the year	190	97
Changes in retained earnings	85	6
Net earnings	105	91

Net investment income of €228 million was generated in fiscal 2019 (previous year: €133 million). The Defence sector accounted for €151 million of this (previous year: €23 million). The Automotive sector reported net investment income of €82 million (previous year: €110 million).

Thanks to the improved liquidity situation and the growth of the Group-internal cash pool, net interest income increased by €12 million from €-4 million to €8 million.

Higher allocations saw sales increase from €70 million in fiscal 2018 to €74 million in the year under review. Due to business as a holding company, personnel costs amounted to €41 million (previous year: €40 million). The balance from other operating income and expenses fell from €-22 million to €-50 million. In the previous year, write-ups and depreciation on shares in affiliated companies amounted to €29 million.

Earnings before taxes amounted to €220 million (previous year: €137 million). Tax expenses amounted to €30 million in the year under review (previous year: €40 million). Following deduction of taxes, net income of €190 million remained for fiscal 2019 (previous year: €97 million). After appropriations to retained earnings, net earnings of €105 million (previous year: €91 million) were reported.

Proposed dividend

At the Annual General Meeting on May 5, 2020, the Executive Board and the Supervisory Board of Rheinmetall AG will propose that the net earnings be used to pay a dividend of €2.40 per share (previous year: €2.10 per share), whereby the treasury shares held by Rheinmetall AG (December 31, 2019: 475,608; previous year: 577,056) are not entitled to a dividend.

Net assets and financial position

The asset situation of Rheinmetall AG is largely defined by its holding function, i.e. by the management of investments and the financing of Group activities. This is reflected above all in the amount of the investments held and in the receivables due from and liabilities owed to Group companies. The total assets of Rheinmetall AG increased by €530 million to €3,452 million. Financial assets include shares in affiliated companies in the amount of €1,475 million (previous year: €1,310 million). This represents 43% of total assets (previous year: 45%). Receivables from and liabilities to affiliated companies amounted to €1,066 million (previous year: €870 million) and €1,671 million (previous year: €1,332 million). The proportion of receivables in the total assets amounts to 31% (previous year: 30%), while the proportion of liabilities in the total assets amounts to 48% (previous year: 46%). Total assets as of December 31, 2019, are financed by equity of €1,013 million (previous year: €905 million). The equity ratio declined from 31% to 29% in the year under review. In equity, the dividend payment for 2018 of €90 million was offset by the net income generated for the year of €190 million. In addition, the equity increased by €9 million as a result of the reduction in treasury shares.

Balance sheet of Rheinmetall AG in accordance with the HGB (condensed version) € million

	Dec. 31, 2019	Dec. 31, 2018
Fixed assets		
Intangible assets, property, plant and equipment	46	43
Financial assets	1,482	1,317
	1,527	1,360
Current assets		
Receivables from affiliated companies	1,066	870
Other receivables, other assets	210	211
Cash in hand	649	481
	1,925	1,562
Total assets	3,452	2,922

	Dec. 31, 2019	Dec. 31, 2018
Equity	1,013	905
Provisions	94	101
Liabilities		
Liabilities due to banks	653	551
Liabilities to affiliated companies	1,671	1,332
Other liabilities	21	33
	2,345	1,916
Total liabilities	3,452	2,922

Economic report
Report on expected developments

IMF anticipates slight growth despite uncertainties

In their World Economic Outlook published in January 2020, the experts at the International Monetary Fund (IMF) predicted a slight increase in global economic growth compared with the previous year. Accordingly, the global economy in 2020 is expected to grow by 3.3% (previous year: 2.9%). However, this forecast did not yet take into account the possible consequences and negative effects of the worldwide spread of the coronavirus. At the end of February 2020, the IMF lowered its growth forecast for the global economy by 0.1 percentage points to 3.2 % due to the increasing spread of the coronavirus, but noted that a huge amount of uncertainty was involved. In particular, the rapprochement between the US and China in the trade dispute is having a positive impact on the global economy. Another stabilizing factor is the increased probability of an “orderly” Brexit. In addition, central banks around the world are pursuing a more relaxed monetary policy designed to support the global economy. The US, Turkey, Russia and Brazil recently decided to lower interest rates.

The fact that the growth rate is nevertheless weaker than in the IMF's autumn forecast is due primarily to the ever-changing news from emerging markets such as India. According to the IMF analysis, political unrest would pose a threat to the continued development of the world's second most populous country. Nonetheless, the developing and emerging economies are expected to grow by 4.4%. The mature economies, however, are once again experiencing slower growth (+1.6%) due primarily to a reduction in the forecast figures for the US and Japan. The growth rate in the US is expected to fall to 2.0% (2.3% in 2019) and in Japan to 0.7% (1.0% in the year under review). The eurozone, however, is stabilizing and saw a slight increase in the growth rate of 0.1 percentage points. After 0.5% in 2019, Germany’s economic performance in the current fiscal year is expected to improve to 1.1%. Other indicators, too, point toward a more stable trend in Europe’s largest economy. The Ifo’s business climate index improved toward the end of the year. In its analysis, the Federal Ministry for Economic Affairs states that the outlook for industrial activity has improved somewhat. The fact that the forecasts for 2020 are highly varied is demonstrated by the result of the business survey conducted by the German Institute for Economic Research. Almost one third of the companies surveyed expect to see fewer incoming orders in 2020.

The chief economist for the IMF Gita Gopinath believes that the biggest economic risks in 2020 will arise from new tensions in global trade along with geopolitical conflicts such as those between the US and Iran. The level of social unrest – in Chile, for example – has increased all over the world. This is why it is important that politicians do not act in a manner that could make these situations worse.

The impact of the coronavirus on the global economy and, in turn, economic development is currently very hard to forecast and so will remain a major uncertainty factor when it comes to economic growth over the next few months. According to a statement made by the President of the Mannheim Center of European Economic Research (ZEW), Professor Achim Wambach, on February 18, 2020, the feared negative consequences of the epidemic are leading to a significant lowering of the ZEW’s expectations regarding economic growth in Germany. Expectations regarding the development of export-intensive sectors have been lowered especially sharply. The German Federal Bank, too, regards the coronavirus epidemic in China as a new threat to the already ailing German economy and its export business. The automotive industry, which is especially important to Germany and experiencing a period of major upheaval through transformation and disruption, is strongly intertwined with the global economy and so highly vulnerable to interruptions in the supply chain.

Passenger car production volume falls again in 2020

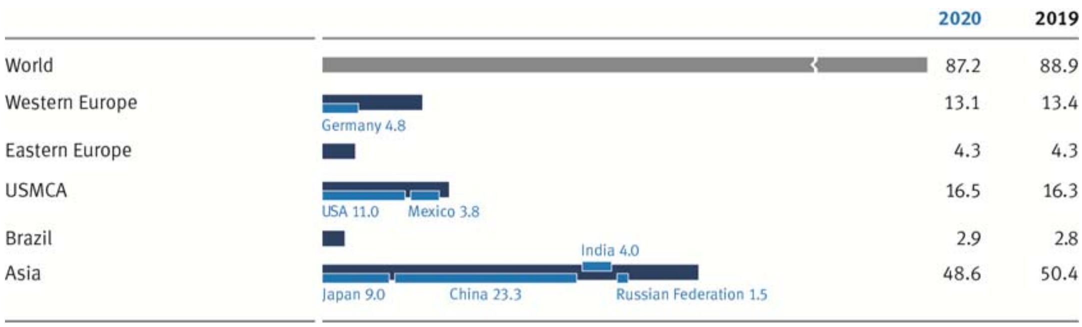
Following the sharp decline in 2019, the experts from IHS Markit – as per their current forecasts from February 2020 – expect the global production volume for passenger cars and light-duty commercial vehicles (up to 6.0 t) to fall once again by 1.9% to 87.2 million units produced.

However, these forecast figures also do not yet take into full account the new risks associated with the spread of the coronavirus. With this in mind, the forecast from February 2020 see the US (+4.0%), Spain (+7.2%) and Italy (+10.3%) as growing markets.

Neither in USMCA (+1.1%) nor Western Europe (-1.8%) is it possible to identify any consistent trend. While production volume is expected to fall slightly in Mexico (-0.6%), the analysts from IHS Markit anticipate a steep decline for Canada (-11.3%). An even steeper decline (-18.6%) is expected for vehicle production in France. However, IHS Markit expects only a slight decline in the biggest European market, Germany: Here, the number of passenger cars and light-duty commercial vehicles produced is expected to fall by 0.7% according to current forecasts.

For Asia, the experts from IHS Markit are predicting a decrease of 3.5%. Following the sharp decline in 2019 (-8.2%), no recovery is expected in Asia's biggest vehicle market in 2020 either: In China, production figures are once again expected to be significantly lower than in the previous year (-4.5%). The production volume in India and Japan is also expected to fall significantly by -3.7% and -2.8% respectively. Positive figures are expected from Brazil, where production is expected to increase by 3.9%.

Production of passenger cars and light-duty commercial vehicles up to 6.0 t in selected countries million



Source: IHS Markit, February 2020

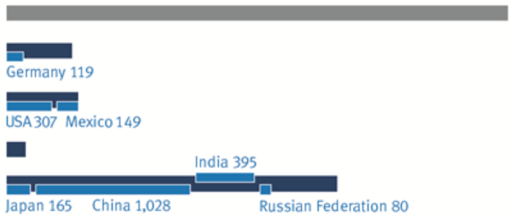
On taking office, the new President of the VDA stated that, against a background of digitalization, changes in our mobility behavior and, in particular, the huge challenges associated with climate protection, the industry will be faced with major upheaval over the coming years. This requires strength to bring about the necessary changes and the courage to innovate in the field of alternative drive types. The automotive industry has always demonstrated both these characteristics in the past.

Global truck production falls slightly again

On the basis of the forecasts of the analysts at IHS Markit from January 2020, global truck production is expected to fall again in 2020. The experts predict the production of heavy-duty commercial vehicles weighing more than 6.0 t to fall by 6.7%. This can be attributed to political and economic uncertainty on the one hand and, on the other, the reduction of overcapacity built up over the strong preceding years. A clear change in production figures is expected above all in USMCA (-20.1%), with a sharp decline forecast in the US (-17.0%) and Mexico (-25.9%). On the Asian markets (-4.5%), too, the experts do not anticipate any growth in 2020. The biggest fall in production is expected in China with -10.5%, while Japan is expected to see a reduction of 2.4%, the same as in the previous year. Nonetheless, a few markets are expect to enjoy some growth: According to IHS Markit forecasts, higher production figures in 2020 are expected in Russia (+11.1%) and Indonesia (+12.8%). Following a strong 2019 in the South American economic area, 2020 is also expected to bring solid growth of 3.9%; especially in Brazil (+4.2%).

Economic report
Report on expected developments

Production of engines for heavy-duty commercial vehicles over 6.0 t in selected countries '000



	2020	2019
World	2,948	3,161
Western Europe	432	443
USMCA	473	592
Brazil	125	120
Asia	1,880	1,969

Source: IHS Markit, January 2020

Rheinmetall Automotive stands for mobile diversity and technological openness

With the announcement of the EU's Green Deal plans, the regulatory trend toward the reduction of emissions across all areas of mobility is gaining further momentum. To ensure compliance with the requirements from Brussels, the automotive industry in 2020 will be focusing more than ever on electromobility. This technology continues to face a variety of challenges, however, such as high costs, low ranges and an inadequate charging infrastructure. Nonetheless, Rheinmetall Automotive has established a range technological preconditions early on so that it is prepared for the expected trend toward more hybrid and electric vehicles.

At the International Motor Show in 2019, for example, Rheinmetall showcased a 48-V drive for small (commercial) vehicles. Our product portfolio also encompasses systems for thermal management in electric vehicles and systems for state-of-the-art fuel cell drives. With the development of components in the Beyond Powertrain area, Rheinmetall is helping to meet demand for modern urban and lifestyle mobility solutions. These encompass new drive concepts for first-/last-mile transportation and the pedelec drive Amprio, a 48-V bicycle drive with a control unit and batteries.

The diversity of drive types shows that Rheinmetall Automotive is committed to the principle of technological openness. Our subsidiary Pierburg develops a range of components for fuel-cell-based mobility. The company is currently developing an innovative generation of electrical valve systems for a renowned German vehicle manufacturer. The cathode valves are used for regulating the fresh and exhaust air mass flows as well as for the extremely tight shut-off of the fuel cell stacks. The vehicles are scheduled to enter production in 2022.

We continue to innovate in the field of combustion engines, too. The LiteKS 5 lightweight piston design concept was specially developed to series maturity for gasoline engines. Other technical innovations include new polymer bearing materials specially designed for the stricter mixed friction conditions associated with hybridization and the greater use of low-viscosity oils. In addition, a new, maintenance-free plain bearings reduces adhesion effects and the resulting noise.

Rheinmetall Automotive has also won its first ever major order from the mobile communications industry. Together with our Chinese partner HASCO, we are supplying cast aluminum housings for cell towers to assist with the expansion of China's 5G network. The order is expected to be have an annual volume of €150 million. For the Automotive sector, this represents an important step toward a pioneering and, above all, fast-growing and highly promising industry. Our increased activity in the mobile communications sector will also help us to offset any fluctuations in the international automotive industry more effectively.

Countries continue to invest in state-of-the-art defence systems

The analysts at IHS Markit expect to see an increase in global defence expenditure in 2020 too, with spending to increase from €1,827.4 billion to €1,854.8 billion. At NATO level, the US's appeal for greater financial participation is having an effect. Jens Stoltenberg, the Secretary General of NATO, sees a positive trend throughout the alliance. Chancellor Angela Merkel has emphasized Germany's responsibility to the future of NATO: Even more so than during the Cold War, or at least as strong as during the Cold War, it is in our own best interests today to preserve NATO. This goes hand in hand with the Chancellor's promise to spend 2% of its economic output on defence by the early 2030s.

In addition to the NATO-related projects, a number of projects have been launched at EU level to strengthen European collaboration. In line with the 2017 pact on the financing, development and deployment of armed forces (PESCO), the EU wants to take more responsibility for defence and become less dependent on the US. At its meeting in November 2019, the EU defence ministers agreed to thirteen projects, including the establishment of a center for defending against cyber attacks. This increases the number of active, EU-supported projects to 47.

It remains to be seen how Great Britain will position itself in the future after Brexit. German federal defence minister Annegret Kramp-Karrenbauer expects that Great Britain will maintain its traditionally good and close relations with the US. In 2020, the NATO maneuver Defender 2020 will be a major focus of the German armed forces, with around 37,000 international soldiers involved in the biggest redeployment of troops from the US for 25 years.

Defence budgets of selected countries USD billion

	2020	2019
World	1,854.8	1,827.4
USA	738.8	740.3
China	230.8	218.4
India	65.6	61.9
UK	61.8	60.6
France	53.0	51.7
Russian Federation	49.3	49.4
Saudi Arabia	48.5	54.0
Germany	48.2	47.0
Australia	33.3	31.7
United Arab Emirates (UAE)	22.8	22.1
Canada	16.9	16.6
Poland	12.5	11.5
Netherlands	11.7	11.4
Algeria	10.9	11.0
Norway	6.5	6.4
South Africa	3.6	3.6

Source: IHS Markit, January 2020

Economic report
Report on expected developments

The German defence budget for 2020 has increased to €45.1 billion, which is equivalent to a NATO quota of 1.42%. “This means that we are continuing our trend and can continue to strengthen our armed forces,” said German federal defence minister Annegret Kramp-Karrenbauer at the first reading of the budget in the Bundestag. But she added that any solid increase in 2020 is not enough by itself and that it has to be an ongoing process. At the end of December 2019, the Parliamentary Commissioner for the Armed Forces, Dr. Hans-Peter Bartels, emphasized the importance of modernization: The problem, he stated, encompasses everything from the protective vests to the rocket defence systems. “The German armed forces needs to be fully and properly equipped – this is something we hear every time we visit our troops.”

Rheinmetall will continue to make substantial contributions to modernizing the German armed forces. Rheinmetall MAN Military Vehicles recently won an order of €382 million (gross) to supply 1,000 logistics vehicles. These are scheduled to be ready for the German armed forces as part of the Very High Readiness Joint Task Force (VJTF) program in 2023.

Rheinmetall Defence in demand as a partner

As a leading European systems supplier for defence technology, Rheinmetall Defence acts as a technological expert in security-related matters not only for the German armed forces, but also for a range of international customers. The strong readiness of NATO and EU member states to invest represents a huge opportunity. The PESCO projects are testament to a shared European commitment to security and defence policy. At the same time, this increase the consolidation pressure within Europe. The 2% target in the NATO member states, which defines the level of defence spending as a proportion of GDP, is another contributing factor here.

Executive Board statement on expected development in fiscal 2020

Rheinmetall remains on growth course – Due to the comparative lack of clarity regarding the development of global automotive product over the next few months, which is currently declining due to the global economic risks associated with the spread of the coronavirus, the Rheinmetall Group, too, is subject to greater forecast uncertainty regarding sales and earnings performance. Thanks to the ongoing dynamic growth of our defence business, we currently expect the Rheinmetall Group to continue on its path of growth. Annual sales in the Rheinmetall Group are expected to grow organically and before currency effects in fiscal 2020 by 1% to 3%. This expectation is based exclusively on the stable growth prospects for our Defence sector. In contrast, we expect to see lower sales in our Automotive sector due to the downward trend for the third year in a row in the global automotive market and on the basis of the most recent expert forecasts regarding trends in global automotive production in 2020.

In addition to the risks associated with weaker macroeconomic development in eurozone countries, the impact of more stringent CO_2 regulations in the EU and the currently unpredictable repercussions of Brexit, the current situation in the automotive industry is characterized by volatility risks due to trade conflicts that have not yet been resolved. In addition are the as-yet-unpredictable risks arising from the economic impact of the coronavirus in China. Against a background of these uncertainties regarding production trends in all the major automotive markets, we agree with the expert forecasts and also expect to see global automotive production to decline over the course of 2020. In February 2020, the experts from IHS-Markit forecast that the annual production of light vehicles (up to 6.0 t) would amount to only around 87.2 million units worldwide. This represents yet another decrease in production compared against the previous year, this time of 1.9%. It should be noted here that this forecast did not take full account of the currently incalculable impact of any potential production downtime – downtime that might be impossible to make up again – as a result of the coronavirus.

Sales – 2020 forecast

		Forecast 2020		2019
Rheinmetall Group	Year-on-year growth in %	1 to 3	€ billion	6.3
Automotive	Year-on-year growth in %	-2 to -3	€ billion	2.7
Defence	Year-on-year growth in %	5 to 7	€ billion	3.5

Sales performance in the Automotive sector is strongly influenced by production trends in the automotive markets in Europe, North America and Asia, in particular in the world's biggest automotive market in China. On the basis of current market expectations, we anticipate that sales in the Automotive sector – compared with the previous year's figure and before currency effects – in the current fiscal year to fall by 2% to 3%. This forecast is based on the assumption, however, that the spread of the coronavirus will not lead to a significant disruption of supply chains and the associated longer production downtimes in the automotive plants we supply. We will evaluate the associated risks at short, regular intervals and counter the falling production volume expected in the firstquarter of 2020 at our Chinese locations with strict cost and cash management.

For our Defence sector, however, we are expecting – assuming continuing, restrictive export approvals for key European locations – to see sales growth before currency effects of between 5% and 7%. This growth forecast is essentially based on the expected program and delivery schedules from existing orders in the Defence sector for the current fiscal year.

Group operating margin of around 7% expected – For the Automotive sector, Rheinmetall expects an operating margin of around 5% in fiscal 2020 based on the currently expected decline in global automotive production and the resulting sales forecast for the sector. Rheinmetall expects a further improvement in operating earnings in the Defence sector in 2020 and an operating margin of between 9% and 10%. Taking into account holding costs, the Rheinmetall Group's operating margin amounts to around 7%.

Operating result – 2020 forecast

		Forecast 2020		2019
Rheinmetall-Konzern	%	around 7	%	8.1
Automotive	%	around 5	%	6.7
Defence	%	9-10	%	9.8

Positive net income of €130 million to €150 million for the Rheinmetall AG management holding is expected in fiscal 2020 (2019: €190 million).

Group EBT – On the basis of the forecast decline in Group EBIT and deterioration in the net interest result, we expect pre-tax earnings (EBT) to be significantly lower than in the previous year (2019: €477 million).

Return on capital employed (ROCE) – On the basis of the planned business performance, we expect an increase in capital employed in fiscal 2020, with the result that, against the forecast reduction in Group EBIT, we expect a reduction in the return on capital employed, which is expected to be around 13% (2019: 15.4%).

Non-financial aspects of business activities

The general public's interest in corporate governance, compliance, sustainability, environmental protection and conservation as well as corporate responsibility is growing. Inquiries to the company from all sections of society are increasing. The expectations for transparency and the requirements for comparability are rising. Investors are looking for sustainable investments. Employees want a secure job, but more and more frequently would also like to balance their professional goals better with their family life and private interests. Environmentally friendly products are attracting ever more consumers. Legislators, authorities and even non-state interest groups demand that increasingly strict regulations and limit values are complied with. People living next to locations used for industrial purposes fear that their quality of life is being adversely impacted. Municipalities, associations and charities in turn value the support that companies give their social, cultural and sports activities.

Management approach

We have consistently demonstrated our responsibility toward our employees and products and toward the environment and society – every single day of the past 135 years. The international operations and production of the companies of the Rheinmetall Group mean that they are involved in the general economic, ecological and social conditions of various countries and regions. Rheinmetall is committed to fair competition and behavior that not only shows integrity but is also socially and ethically responsible. Sustainable management has always been an integral component of our business and production processes and helps to secure the long-term future of our company. In addition to continuity, economic growth and compliance with the fundamental principles of good corporate governance, the careful use of natural resources is part of our self-image and the corporate culture here in the Rheinmetall Group.

If we know the needs, interests, attitudes, concerns and opinions of our key stakeholders, we can focus our commercial decisions more effectively in line with their expectations. We therefore attach great importance to open and transparent discussion and regular dialog. With 193 companies in 32 countries, we have a very prominent presence in our markets and enjoy continual and lively dialog with various stakeholders, which include customers and business partners, shareholders and investors, employees, suppliers, the media, representatives of the worlds of science and research, society, politicians and authorities as well as associations and organizations. This allows us to establish and develop a trustful relationship as well as to receive inspiration and specific proposals at an early stage. As part of our holistic approach, we use a variety of external and internal formats and channels for communicating with our stakeholders.

Business model

Our world is changing rapidly in every respect – technologically, economically, politically and culturally. We lead lives that are more global, more connected, more digital than ever before and are constantly faced with new challenges that have to be overcome. For us at Rheinmetall, however, one thing is clear: Mobility and security are – and shall remain – basic human needs.

As an important international automotive supplier, the Automotive sector helps to ensure that people all over the world can reduce their environmental impact when traveling from A to B. Through solutions designed to reduce emissions and for alternative drives, we are helping to shape the mobility of tomorrow.

With its product and capability spectrum, Rheinmetall Defence offers innovative, state-of-the-art and threat-appropriate security technology for military and civilian applications alike. We protect those who protect us all – against current and future threats.

The Rheinmetall Group's business model is described in detail on pages 24 to 31.

Non-financial aspects of business activities
Technology and innovation

Management approach

Our corporate responsibility is apparent in our products. Innovative strength and technological competence are key measures of competitiveness in the rapidly changing world of business. Tradition and innovation – the Rheinmetall technology group can draw on more than 130 years of specialist knowledge, system expertise and industry experience in the Automotive and Defence sectors. Our consistent focus on technology is a prerequisite for not only picking up on the developments of our time, but also for actively helping to shape technological change and, as a result, achieving long-term business success in a diverse range of technologically demanding markets.

Technology and product developments open up growth opportunities

As a longstanding technology and innovation partner to our customers, we have a detailed understanding of their requirements. Rheinmetall invests large sums year after year in research and development in order to increase its technological expertise, expand its technological and market positions and secure the basis for the company's future success with a diversified product portfolio. Market, industry and technological trends are systematically observed before being analyzed and assessed in terms of their strategic and economic significance. Thanks to close collaboration between Sales, Development, Production, Service and Marketing as well as intensive project work in partnership with our customers, new requirements of products, systems, processes and applications are quickly identified and acted upon with the shortest possible development periods. Product lines are continuously improved and expanded, while new or associated business areas are gradually developed further thanks to innovative products, future-oriented systems and customized services.

In the medium to long term we also intend to support our company's growth with products that are not directly derived from the existing portfolio or that promote the transfer of technologies between our Automotive and Defence sectors. Over the next few years, we will also increase our focus among other things on the five technology clusters: automation, digitalization, sensor technology, e-mobility and artificial intelligence.

Our own application-related research and development work is supplemented by studies into the latest scientific findings from basic research programs. Another key pillar of our research work is collaboration with industrial partners, renowned research institutes and skilled experts who support the transfer of knowledge from research into practice. The junior professorship endowed by Rheinmetall Automotive at RWTH Aachen also conducts research into virtual engine development and the development of hybrid drives. Furthermore, Rheinmetall Automotive promotes young scientific staff at an international level with three professorships at the prestigious Tongji University in Shanghai, China.

We provide more information on our specific research and development activities in the past fiscal year and the expenses associated therewith in our comments on business performance.

Risks

We provide information on avoiding or reducing technology and development risks on page 81.

Non-financial aspects of business activities
Environmental protection and conservation

Management approach environmental protection and conservation

Business activities and, in particular, production processes are associated with the consumption of natural resources. From our perspective, environmental protection and conservation play a major role in ensuring we have a sustainable future that is worth living. The careful use of natural resources is part of the Rheinmetall Group views itself. Using raw materials and energy economically and avoiding environmental damage in business and production processes are also among the key foundations on which the Group companies' business activities are based, as is dealing with residual materials and emissions responsibly. It is of key importance here that environmental protection – in keeping with a holistic approach – is considered an integral part of our management system in the Rheinmetall companies.

Environmental protection

Accordingly, our employees' sense of responsibility towards the environment is encouraged at every level of the value-added chain. We make every effort to further minimize its environmental load with the best available, economically viable technology. The careful use of natural resources is supported through the use of modern technology and contemporary process technologies which help to prevent emissions and waste. Handling materials, energy, water and waste in a considered manner not only protects the environment, but also reduces costs at the same time. We continue to strive to use resources even more efficiently and to prevent the accumulation of hazardous substances. Safe and modern facilities at certified production sites ensure resource-conserving and low-emission production processes as far as possible. Country-specific regulations and the requirements of international standards for quality (ISO 9001, IATF 16949 and AQAP 21102210), environmental protection (ISO 14001) and energy management systems (ISO 50001) are observed and processes are certified accordingly. Regular audits ensure transparency in terms of the status quo and provide objective confirmation of high quality standards. In Rheinmetall Automotive, 32 companies/sites are certified in accordance with ISO 14001 and seven are certified in accordance with ISO 50001. In the Defence sector, 23 companies/sites are currently certified in accordance with ISO 14001 and 17 companies/sites are certified in accordance with ISO 50001. In the year under review, the share of sales generated by the ISO 14001-certified companies in the total sales of the Rheinmetall Group was 72.4% and that generated by the ISO 50001-certified companies was 84.4%.

Conservation – Encouraging biodiversity

Our responsibility also includes preserving the diversity of natural habitats, especially for future generations. We are convinced that industrial use does not have to conflict with active conservation. On the contrary. Rheinmetall Defence has tested its products on heathland near Unterlüss in Lower Saxony for over a hundred years. The company's own 55-square-kilometer site encompasses 3,400 hectares of forest and 800 hectares of heathland. A total of 420 hectares are used for eco-friendly agriculture. 90% of the area is managed in keeping with the typical original character of the landscape and the fauna and flora maintained for hunting in accordance with the strict rules for integrated conservation. Active landscaping creates individual habitats for the unique animal and plant life. The result is an unusually rich array of flora, which in turn attracts a rare diversity of insects and birds and also provides a habitat for large wild animal populations.

Our South African subsidiary Rheinmetall Denel Munition is also engaged in protecting nature and species at risk of extinction at three of its four production sites. Similar to in Unterlüss, large, demarcated safety areas far from residential areas enable rare animals to expand their habitats unimpeded. We develop partnerships locally to preserve these conservation areas along with their great biodiversity and rare species.

Non-financial aspects of business activities
Employees

Management approach

A customer-focused corporate culture, based on the values of respect, trust and openness, in which the performance and commitment of each individual is appreciated and is free from prejudice and discrimination is one of the requirements for being attractive as an employer. Rheinmetall's success depends to a great extent on the ideas, expertise, enthusiasm and commitment of its employees. Companies in the Rheinmetall Group are faced with increasingly tough competition from other companies to gain qualified personnel. Acquiring skilled employees for these companies is therefore a key task in our contemporary HR work. In addition to transparent structures and processes, performance-based remuneration and progressive benefits, we attach importance to diversity and equal opportunities and, in particular, to a wide spectrum of career opportunities in the Automotive and Defence sectors, interdisciplinary career paths, deployment opportunities in the international Group companies and tailored training opportunities for individual professional and personal development.

Recruiting and employer branding

In addition to traditional and modern means of recruitment, Rheinmetall also relies on its own training and development of junior employees and is also in close contact with universities, colleges and research institutes in order to get to know suitable science, technology and business graduates at an early stage. The centrally organized recruiting center is responsible for the internal and external recruiting of managers and employees (with the exception of contract workers) at Rheinmetall's 41 sites throughout Germany and thus responsible for end-to-end applicant management. 56,858 applications were registered on our TalentLink application platform in the year under review (previous year: 50,158). In 2019, 2,028 positions (previous year: 2,027) were vacant at the Rheinmetall companies, of which 1,268 (previous year: 1,157) were then filled. In the past fiscal year, we recorded a total of 3,803 people joining and 2,532 people leaving the Rheinmetall Group as a whole (previous year: 3,381 and 2,103 respectively).

The attractive employer profile and target-group-specific appearances at university fairs, graduate conferences, recruitment events, on social media portals and online job sites continue to bear fruit. The trendence study once again calculated the attractiveness of German companies as employers in 2019. Rheinmetall was again rated as one of the 100 most attractive employers in the "Engineering Students Edition," coming in 41st place (previous year: 45th). In the Universum rankings (Germany Top 100 Ideal Employers) in the field of engineering professionals, we improved our standing once again in 2019, reaching 23rd place in the year under review after being ranked 27th the year before.

The Rheinmetall Group's jobs portal was restructured to be more user-friendly in 2019 and, at the end of December 2019, the now more clearly structured careers platform featured announcements from 16 countries worldwide in Europe, North and South America, Africa, Asia and Australia. Potential applicants can now also read brief descriptions of the different companies.

Further training as an investment in the future

In the face of tough international competition, the development of employees, talented management trainees and experienced specialist and managerial staff in line with current and future requirements is a key factor in the successful achievement of the Rheinmetall Group's ambitious growth targets. A range of training opportunities – including personalized opportunities – allow Rheinmetall employees to improve their performance in their field of work and expand their technical, methodical and personal knowledge and skills beyond the requirements of their current position.

Non-financial aspects of business activities
Employees

Specific demand for staff development measures is determined at regular intervals on the basis of the Rheinmetall competence model, broken down according to employees paid in line with collective pay scales, managers and employees not covered by collective wage agreements, either in accordance with a collective agreement for qualification or as part of potential analyses or the "Management by Objectives" program. Training objectives can also be derived from strategic objectives (e.g. from the increased internationalization of the Group).

Managers must be adequately prepared for strategic and operational tasks and must be able to adapt quickly to new challenges and respond flexibly to changes. This is not just about professional qualifications, but also calls for first-class leadership qualities and management skills. The Rheinmetall Academy focuses on entrepreneurship and leadership in the development of managers; it successively prepares employees at various stages in their careers for assuming leadership or specialist roles. Along with external seminars and events, in-house training and qualification events were offered in the year under review in the areas of strategy, leadership, innovation, negotiation and change management. These training courses, programs and workshops geared towards various hierarchical levels and functions constitute a platform for employees to exchange overall knowledge, ideas, experience and opinions.

In the year under review, the new HR IT system Empower was rolled out at the companies in Germany, Austria and Switzerland with the aim of digitalizing as many personnel development processes as possible. In the Grow module, around 2,300 managers and management trainees underwent a two-part potential analysis (self-assessment by the employee and an employee assessment from the perspective of their line manager). In a second phase, a structured, It-supported analysis was conducted for around 10,000 positions to identify success-critical functions within the Rheinmetall Group; the results – taking into account demographic data – will be incorporated in the follow-up planning processes for key persons. In the area of "Management by Objectives," the Perform module can now be used for centrally controlling and documenting the target agreement and performance evaluation processes. The Learn module stores the training history of around 16,000 employees. This module also includes an electronic registration and approval procedure for training measures.

In the year under review, 1,640 employees (1,353 men, 287 women) attended 130 (previous year: 107) one-day or multi-day events at the Rheinmetall Academy, compared with 1,205 (1,034 men, 171 women) in the previous year. Around 51% of the participants came from the Defence sector and around 36% from companies in the Automotive sector. The proportion of female participants was 17.5%, after 14.2% in the previous year. In 2019, Rheinmetall invested €6.4 million (previous year: €6.8 million) in specialized, interdisciplinary and management-related training programs in Germany alone. A total of 15,482 male and 2,991 female participants (18,473 people; previous year: 18,334 employees) benefited from 4,653 training activities in 2019 (previous year: 4,441) over 25,285 days (previous year: 24,829).

A strong commitment to professional training

As well as university graduates, the operational units need qualified skilled workers. We continue our strong commitment to multifaceted training comprising qualifications and practical experience, that includes the opportunity to complete a dual course of study with a technical or commercial focus. In 2019, 767 young people (previous year: 831) in Rheinmetall companies in Germany and abroad received vocational training, 420 of whom were based in Germany (previous year: 424).

In the year under review, 81% of the young people in the Rheinmetall Group received industrial technical; training and 19% received training for commercial careers. The proportion of female trainees in the Rheinmetall Group was, as in the previous year, 16%, while the proportion in Germany 19% (previous year: 19%). The apprenticeship ratio was 4% (of the workforce for the German locations (previous year: 4%) and 3% for the Rheinmetall Group as a whole (previous year: 4 %). In 2019, 328 people started their training in the Rheinmetall Group (previous year: 409), of whom 152 people (previous year: 126) were at Rheinmetall companies in Germany.

In the same year, 174 trainees (previous year: 135) took up temporary or permanent employment after successfully completing their training. Within the wide spectrum of training courses for skilled occupations on offer during the fiscal year, industrial mechanic, machining mechanic, mechatronics engineer, qualified IT specialist for application development and industrial business manager represented the most important professions for the trainees in Germany. Rheinmetall invested €13.5 million (previous year: €13.1 million) in training at the sites in Germany in 2019.

In the year under review, the Employer Branding team expanded its media presence and, in August, launched the recruiting profile @fangeinfachan on the online service Instagram. The new account provides information about exciting training opportunities and is designed above all to give potential candidates an insight into the everyday working life of trainees at Rheinmetall.

At the second Trainee Day, which was held in May 2019 under the slogan “Vision – be ready,” more than 150 trainees and dual students explored the training concepts of tomorrow. Many ideas that the teams had focused on the digitalization of learning processes, for example in the form of e-learning sessions, communication apps or the use of tablets at the workplace. An interdisciplinary project team has now been tasked with enhancing and refining the proposals and assessing their viability at different locations.

Modern remuneration systems

Appropriate, fair and standard market pay systems are a key aspect in recruiting and retaining dedicated staff at the company. Rheinmetall offers attractive contractual terms. In addition to the category of work, these are based on the content of the role and the amount of responsibility and are linked to market rates. In addition to fixed remuneration components in line with market requirements, performance-related bonuses and variable salary components are also paid.

The “Management by Objectives” concept is linked to variable salary components for managers and employees not covered by collective wage agreements. An individual variable portion of income is paid in accordance with the achievement of individually agreed targets and depending on the company’s performance. Depending on the extent to which targets are achieved, this amounts to between 0% and 200% of variable target income. The fact that these income components are based on targets provides incentives for employees to act independently and to take on challenges.

Division heads, managers and executives receive a long-term incentive in addition to this short-term component. This is geared towards long-term corporate success and includes payment of 40% of the long-term incentive amount in Rheinmetall shares, which are subject to a four-year lockup period. The number of shares granted is based on a reference share price which corresponds to the average price on the last five trading days in February of the subsequent fiscal year. A total of 60% of the long-term incentive amount is paid in cash and is also used for the immediate payment of tax on Rheinmetall shares.

Non-financial aspects of business activities
Employees

The company's success benefits employees, including staff covered by collective wage agreements in Germany, in two ways: First, employees receive an annual share of profits subject to the annual performance of the Rheinmetall Group; second, the increase in the value of the company achieved is paid out in a success-oriented component in the company pension, thus leading to improved support in old age.

Employee share purchase program

The employee share purchase program Mein Stück Rheinmetall 2.0, which was launched in March 2018 for the employees of participating companies in Germany, was continued in fiscal 2019. The system involves a monthly savings plan and the allocation of shares after a two-year holding period. The program is divided into a basic and an extended savings plan, to which Rheinmetall contributes a 30% employer allowance.

Diversity

We view the diversity of our employees as a key factor for long-term success. Diversity ensures that we remain an innovative, growing and competitive company. We aim to recognize, deploy and develop the skills and potential of our employees as effectively as possible, regardless of their gender, age, origin, disability or sexual orientation. The international nature of our business activities means that people from many different countries are employed in our company. With locations on six continents, supply relationships in 143 countries, 12,932 employees abroad (50.2%) and 73 nationalities represented at Rheinmetall in Germany, internationality and diversity have long been part of everyday life in the Rheinmetall Group and are key factors – despite any dissimilarities – in why we remain successful together in our global business activities. At the end of fiscal 2019, 859 employees at our German companies were foreign nationals (previous year: 821). The management teams are made up of German and foreign managers. Multinational teams work together on projects. In addition, 66 German employees were posted to Rheinmetall Group locations outside Germany (previous year: 63) in 2019.

The Rheinmetall Group regards the employment of women as a self-evident and important part of its diversity. A total of 21% of employees were female in the year under review (previous year: 21%). Rheinmetall Automotive employed 2,807 women (previous year: 3,000) and Rheinmetall Defence 2,420 women (previous year: 2,200). A total of 112 women worked in the Group holding company and service companies (previous year: 95).

Generally, the Defence and Automotive sectors are preferred by men, who predominantly tend to choose technical or scientific subjects for study and professional training. For these reasons, the percentage of women occupying management positions in our technology group is lower than in other industries or branches of industry. In the year under review, the Rheinmetall Group employed 2,640 managers in the first four levels below the Executive Board, 269 (10.2%) of whom were women. The ratio of women among the senior management staff of 262 people in the year under review (previous year: 268) was 6% (previous year: 5%).

Our talent management helps us to identify and develop qualified women with potential at an early stage. Women in executive management and other management roles are also to be encouraged more in the future. Suitable women are prepared for future management responsibilities via the internal support and development programs for junior staff. At the same time, the internal management development programs set the respective line managers ambitious targets for the participation of women in these programs.

Together with Diversity, Recruiting and Employer Branding, the HR managers in the Rheinmetall Group developed systematic recruiting approaches, training concepts and personnel development measures designed to ensure a fair share of women in management. In the year under review, targets for the next few years were defined for the various management and development programs. The Top Potential program aims to increase the proportion of women to 15% by 2025 (2018: 4%), the Executive Development program to 7% by 2021 (2018: 3%), the Manager Leadership program to 15% by 2020 (2018: 7%) and the Young Manager program to 15% by 2020 (2018: 11%). The proportion of women on the Talent Campus is to increase to 15% in 2021, and we are looking to achieve a level of 30% in fiscal 2020 with the induction programs for trainees. The social media campaigns prepared in the year under review, in which women offer testimonials of their work in the Rheinmetall Group, will go live in March 2020.

Inclusion

It is our aim to create a working environment that is based on the cooperation, commitment and appreciation of all employees within the company. Our open corporate culture ensures that employees with disabilities or health problems are fully integrated in working life here at Rheinmetall, where they have every opportunity to bring their talents and skills to the table and prove what they can do. Once again, the focus here is on developing existing strengths and potential. It is vital here that workstations are individually adapted to the type and degree of disability, allowing the employees concerned to achieve work of the same quality as that of colleagues without disabilities. In the year under review, the German-based Rheinmetall Group companies employed 575 severely disabled people (previous year: 555), who are represented by the Group representative body for severely disabled employees.

In accordance with the action plan developed for the German companies concerning the employment for people with disabilities, an inclusion agreement was negotiated in the year under review with the Group representative body for severely disabled employees that, among other measures, is aimed at ensuring greater accessibility at the locations themselves and during the recruiting process. New inclusion teams are tasked with ensuring that the planned changes are implemented.

Occupational safety and health management

Rheinmetall is aware of its responsibility toward its employees and strives to ensure that the working environment is safe, healthy and clean. The Group ensures occupational and health protection at the workplace within the context of the national provisions in place at its various locations. Workplaces are designed in accordance with the legally and generally recognized safety and industrial medicine regulations, thereby allowing everyone to perform their work without incident and without being subjected to undue stress and strain. Each and every employee of the Rheinmetall Group is obligated to familiarize themselves with all the relevant safety regulations and to observe these in their own working area diligently and at all times – in the interests of not only themselves, but also the company as a whole. Rheinmetall is committed to minimizing to the greatest extent possible all risks and hazards that could potentially endanger the health and safety of employees and third parties. Through continuous improvements in the workplace, suitable measures (e.g. ergonomic aids and protective equipment) and a broad range of prevention programs and health-promoting measures, Rheinmetall seeks to maintain and promote the health, performance and satisfaction of its employees. During the course of the year, employees benefit from not only medical checkups but also a range of prevention programs. The spectrum includes everything from free vaccinations and regular health checkups, through internal and external sporting opportunities and consulting services, to medically appropriate reintegration following a period of long illness. In the year under review, the rate of illness in the German Rheinmetall companies was 4.8% (previous year: 4.9%).

Non-financial aspects of business activities
Employees

Work-life balance

Career success depends, among other things, on how content an employee is outside of their working hours. Many employees want to take greater account of individual life stages and specific life situations in their working life and wish to create a more healthy balance between their professional goals and their family and private interests through more flexible working hours. For us, it is important to support our employees with a family-friendly HR policy. Options including working hour models with varying weekly working hours and a range of part-time options as well as flexitime on trust all give employees a more flexible time frame and, in turn, greater freedom. There are also agreements on remote working in some German companies of the Rheinmetall Group. In the year under review, a regulation was also introduced for the companies based at our Düsseldorf location.

Rheinmetall also offers parents financial support in helping them to find individual childcare solutions for their child or children at German sites. We also provide a family service throughout Germany to support employees in matters concerning career and children/care through advice and assistance. In 2019, 128 employees (previous year: 123) were on parental leave in the German companies (95 female employees, 33 male employees; previous year: 89 female employees, 34 male employees). In the year under review, the opportunity to be temporarily released from work, either fully or partly, in order to care for close relatives was taken by one employee.

Constructive dialog for fair working conditions

Corporate co-determination is a long-standing tradition at Rheinmetall. We respect the concerns of our employees and protect their fundamental right as part of the freedom of association to join trade unions and to be represented by them internally and externally on the basis of national laws and regulations. Working with the employee representative organizations and trade unions we strive to treat each other fairly and to achieve a trustful and constructive exchange of views to reconcile the interests of the company and the employees. While the codetermination of employees in Germany is regulated by law, in other countries it is based on the respective national laws and regulations.

Important partners include the Group's Works Council and European Works Council, which looks after employees' rights to information, consultation and advice in the case of cross-border issues. Workforce representation is based on local works councils or general works councils. They represent the rights of employees to the managers of the companies of the Rheinmetall Group. Matters, which are of relevance for a cross-company division or a corporate sector, are dealt with in the Sector Works Council or the Automotive Sub-Works Council. Topics, which can only be dealt with uniformly for all Group entities in Germany, are discussed in the Group Works Council. We keep the Economic Committees of the Group Works Council and the general works councils informed about the economic situation and the changes in the Rheinmetall Group.

In the Supervisory Board of Rheinmetall AG, which is based on joint representation, the employees are also represented by two trade union representatives, five elected employee representatives and one representative of the managerial staff. Furthermore, the Audit, Personnel, Strategy and Mediation Committees of the Supervisory Board contain the same number of employer and employee representatives.

Risks

Information about avoiding or reducing personnel risks can be found on page 83 et seq.

Non-financial aspects of business activities
Procurement and the supply chain

Management approach

Management approach The quality of our products is significantly affected by the quality of the raw materials, parts and components supplied. We expect a high quality assured by internationally recognized standards such as ISO 9001, IATF 16949 and AQAP 2110/2210 from our suppliers. Our suppliers are selected on the basis of the quality, reliability, performance, suitability and price of the products or services offered. Compliance with the exacting requirements and standards is ensured through international purchasing activities, annual supplier reviews, quality and reliability checks on suppliers, and possible alternative suppliers.

Purchasing organization

As part of the ONE Rheinmetall strategy program and Next Sourcing initiative, a purchasing partnership managed by the Rheinmetall Purchasing Council was created within the Rheinmetall Group and comprises the head of procurement for non-production material (NPM) and the heads of procurement in the six divisions. The task of the new purchasing partnership is to improve Rheinmetall's market position with respect to suppliers and to achieve better purchasing conditions. This ranges from lower prices to more favorable, standardized payment and delivery conditions.

The new, Group-wide purchasing guideline entered into force on January 1, 2019. This covers the integration of purchasing in all procurement projects and processes. The handbook for the NPM purchasing organization, which also entered into force on January 1, 2019, describes the functioning of the NPM purchasing organization and covers interaction with the purchasing areas in the divisions. To improve the internal processes, a purchasing system is also to be implemented by mid 2020 for Rheinmetall AG. This system will map the entire order-to-deliver process and support the electronic pay process.

The "Supplier Portal: SupplyOn" tool was introduced worldwide for Rheinmetall Automotive to promote close collaboration among the Automotive divisions Mechatronics, Hardparts and Aftermarket. SupplyOn is the shared supply chain collaboration platform of a growing number of globally active companies, most notably from the Automotive and Aerospace sectors, which makes business processes between customers and suppliers more transparent and more secure. Selected modules of this system are currently being used (Business Directory, Sourcing, Performance Monitor, Collaboration Folder, Web EDI and Project Management), with which purchasing processes can be effectively converted to an online format.

Transparency in the supply chain

We also wish to anchor our values and principles in our supply chains and therefore expect our business partners to share our principles regarding responsible and fair conduct to employees, customers, suppliers and the public and demonstrate this responsibility accordingly. We therefore support and explicitly encourage our business partners to take into account and to apply the principles laid down in our Supplier Code of Conduct in their own corporate policy and to view them as an advantageous basis for further business relationships. With this Supplier Code of Conduct, Rheinmetall also complies with the guiding principles for the automotive industry for improving sustainability in the supply chain, which have been developed by the Association of the German Automotive Industry (VDA) and which describe the minimum expectations regarding ethical business conduct, environmental standards, working conditions, human rights as well as harassment and discrimination. In the year under review, the central areas Procurement and Corporate Social Responsibility conducted a review of the Supplier Code of Conduct and took some initial steps to update it.

Non-financial aspects of business activities
Procurement and the supply chain

In fiscal 2019, the central Compliance Assessment & Monitoring Center of Competence extended the parameters used during business partner reviews to include CSR aspects such as human rights and the environment. In the event of any anomalies, the central area Corporate Social Responsibility is informed and then, in conjunction with the specialist department in question, checks and clarifies the issue identified.

As part of the project designed to promote transparency in the supply chain, the central areas Procurement, Corporate Social Responsibility and Compliance defined with reference to the business partner reviews the procedure for existing and new suppliers, requirements and value limits for a more in-depth supplier review; this procedure is to be applied in fiscal 2020 as a pilot project initially in the Mechatronics division, before bring rolled out phase by phase to other divisions.

Furthermore, a structural analysis of the Rheinmetall Group's suppliers and focusing on CSR aspects was performed in the year under review. Details of this are provided on page 125.

In the Hardparts division, KS Kolbenschmidt trialed the use of the econsense app during in-house supplier meetings for a quick check of sustainability-related aspects. It is planned to roll out the use of this app to the purchasing organizations in the divisions of the Rheinmetall Group.

Transparency in the automotive supply chain

The automotive industry consists of a complex network of globally active players. A distinction is made between original equipment manufacturers (OEMs), first tier suppliers and second and third tier suppliers. Manufacturers and suppliers are closely linked in working together to develop and produce vehicles. Automotive manufacturers have been working for some time to align their production ever more closely with the principles of sustainability. The issue here is anchoring economic, ecological and social objectives vertically, i.e. across all stages of the value added chain. Therefore, when selecting suppliers or even preselecting suppliers, the evaluation of whether the respective sustainability standards, which include, among other things respect for employment and social standards as well as internationally recognized human rights, are complied with in the delivery chain is increasingly significant.

The automotive manufacturers BMW Group, Daimler, Scania, Volkswagen, Volvo Group and Volvo Car Corporation as well as Ford, Honda, Jaguar, Land Rover and Toyota are members of Drive Sustainability. Under the leadership of CSR Europe, the European Business Network for Corporate Social Responsibility, this group is working on improving corporate social responsibility in the automotive supply chain. The self-assessment questionnaire that they developed and that covers 22 positions on six topic areas (Company Management, Working Conditions and Human Rights, Corporate Ethics, Environment, Supplier Management and Responsible Procurement of Raw Materials) is currently used by these OEMs, with the exception of Renault and Groupe PSA, which for their part carry out questionnaires on sustainability and compliance issues via the Ecovadis platform. The score of suppliers on ESG/CSR-related issues is increasingly taken into account when contracts are awarded.

Rheinmetall Automotive holds a first tier position in the value-added chain of automotive production, i.e. we supply the automotive manufacturers directly and not via other suppliers or system integrators. The self-assessment questionnaire mentioned above has to be submitted by the European Rheinmetall Automotive plants at regular intervals, so that the OEMs can analyze and assess the services and progress in terms of sustainability and determine the degree to which their requirements have been met.

Individual OEMs now also conduct in-depth on-site checks and audit suppliers' manufacturing facilities based on sustainability criteria from the areas of environment, social responsibility, and integrity. This includes the review of documents, talks with employees and a site visit. During the year under review, as part of the Audi sustainability rating, the Pierburg plants Harthain Germany and Celaya in Mexico qualified as a supplier for Audi and all other VW Group brands for the next five years.

The supply chain sustainability working group, formed by the Association of the German Automotive Industry and of which Rheinmetall Automotive is a member, is formulating a comprehensive, 11-category evaluation sheet for assessing the sustainability performance of companies in the automotive supply chain. The content focuses primarily on social sustainability as well as on issues relating to occupational safety, environmental protection and fire safety. This assessment can be integrated in existing corporate processes and acts as an aid in the design and implementation of corporate due diligence. The mutual recognition of the results, which the participating companies can share with each other on a web-based platform, is designed to prevent repeat audits and promote the targeted, structured further development of sustainability within the industry. The text label, which is issued by external, accredited certification companies, confirms that, in accordance with the standards of implementation, no indications of fundamental or critical violations were identified.

Supply chain in the security and defence industry

Supply chains in the defence industry are characterized by very complex structures, easily comprising up to eight stages for the needs of, for example, Rheinmetall Waffe Munition and Rheinmetall Landsysteme. The high proportion of specific materials and processes combined with a broad product range leads, as is generally the case in this industry, to a high proportion of single and sole-sourcing, also because only a few companies throughout the world completely manufacture or command the very specific products and processes. In the defence technology industry, switching to new suppliers is very costly, both from a financial and time-related perspective. The qualification of products carried out by military authorities is linked not only to the performance of the product itself but also to the manufacturing process, manufacturing location and suppliers. A change of suppliers therefore automatically results in costs for re-qualification or, for example, even new shelling campaigns. The procurement business in the area of ballistic protection has the characteristics of a project, i.e. it is characterized by intermittent production by our suppliers. This requires a high number of quality assurance measures. Furthermore, specific legislation, such as the War Weapons Control Act, the Foreign Trade and Payments Act, the International Traffic in Arms Regulations (ITAR), to cite just a few, must be taken into consideration for procurement in the Defence sector.

Risks

Information on reducing or avoiding procurement risks can be found on page 83.

Non-financial aspects of business activities
Compliance

Management approach

The reputation of Rheinmetall, the success of the business and the trust of customers, investors, employees and the general public depend not only on the quality of our products and services, but also to a large degree on good corporate governance and, in particular, on effective compliance processes. In line with our values and rules, we are committed to impeccable conduct characterized by responsibility, integrity, respect and fairness. We are an honest, loyal and reliable partner to our stakeholders.

Rheinmetall stands for clean business. We would rather not do business than breach the law. Compliance serves to safeguard our business success on a lasting basis. The members of the Executive Board and managers, executives and employees naturally have an obligation to comply at all times in their working environment with all the applicable country-specific laws, guidelines and regulations, to conduct themselves correctly in business dealings, to preserve the company's tangible and intangible assets and to avoid anything that may result in operational or financial disadvantages or damage to the image of individual companies or the Rheinmetall Group. The Executive Board takes a zero-tolerance approach to illegal and/or unethical behavior and to corrupt business practices, no matter what the circumstances.

International business activities

In the day-to-day business of an international company, the different national political and legal systems as well as cultural values, customs and societal norms of different cultural groups have to be taken into account. In addition to the applicable legislation of the countries of exportation, European Union regulations as well as anti-corruption laws such as the US Foreign Corrupt Practices Act, the UK Bribery Act and the French Sapin II Anti-Corruption Act must be strictly observed. The requirements that our companies have to fulfill are therefore many and varied. With deliveries made to 143 countries around the globe in 2019, management and employees now more than ever need guidance when it comes to national and international business and in relations with business partners, office holders, authorities and other state bodies in order to avoid potential errors and any resulting reputational, business or liability risks.

According to the 2019 Corruption Perceptions Index from Transparency International, which ranks 180 (previous year: 180) countries in terms of the degree of perceived corruption in the public sector, we generated 71.6% of our sales in countries with a very low or low corruption risk in the year under review (previous year: 70.0%).

Compliance organization

Illegal conduct can cause many different types of damage and can have serious consequences, such as the discontinuation of business relationships, exclusion from orders, negative assessments on capital markets, imposition of fines, the absorption of profits, claims for damages as well as civil or criminal proceedings. There is also the risk of significant and lasting damage to the Group's reputation and thus a detrimental effect on its market position. Compliance at Rheinmetall is therefore taken very seriously and has for a long time been an integral part of the corporate culture.

To provide its employees with guidance and allow them to conduct business with confidence, the company took a holistic approach and set up a compliance organization very early on providing standardized general conditions and clear guidelines for legal and rule-compliant, ethically correct and fair conduct in day-to-day business.

At the holding level, the four areas Prevention, Regulation Management, Investigation and Data Protection each have their own staff and are assigned to the Chief Compliance Officer (CCO), who reports directly to the Chairman of the Executive Board. Also serving as the Sector Compliance Officer, the CCO is simultaneously responsible for the Defence and Automotive sectors and in this function manages the compliance officers of the six divisions within the matrix organization. Compliance officers from the sales regions of Europe, Brazil, India, China, Japan and the USMCA region (Rheinmetall Automotive) or from the management companies of the Defence sector undertake preliminary work for the division compliance officers.

In the year under review, the area structure introduced in 2018 became more clearly defined. It now comprises Prevention, Regulation Management, Investigation and Data Protection, although Prevention has since been incorporated in the Due Diligence, Awareness and Risk task areas. The Compliance departments in the six divisions have started to mirror this area structure at an organizational level and adjust their team structures accordingly. Additionally in the year under review, not only was the integration of our foreign locations and companies strengthened through, for example, full-time positions in China, Australia and Great Britain, but Data Protection saw its workforce increase and was defined much more clearly at an organizational level.

The Chief Compliance Officer, who regularly reports to Executive Board meetings, keeps the Executive Board and Supervisory Board's Audit Committee constantly informed of the status and effectiveness of the compliance management system and of the latest developments. In serious cases, the committees are informed immediately. In addition to the Executive Board members of the Automotive and Defence sectors, the heads of the divisions will also be kept informed monthly by Corporate Compliance of current developments in the area of compliance, new rules, planned training measures or possible compliance infringements and the status of possible investigations.

Compliance management system

Compliance is taken into account as an aspect of risk in decision-making processes, not only when it comes to considerations regarding the strategic and operational alignment of the Rheinmetall Group, but also in day-to-day business. The central compliance management system, with its integrated and dynamic focus on constantly updated key risk aspects, such as corruption, anti-trust and breaches of export controls, is firmly anchored in the Group-wide management and control structures and includes all instruments, processes, guidelines, instructions and extensive measures intended to ensure that procedures in the companies of the Rheinmetall Group comply with the applicable country-specific legislation, general legal conditions, regulatory provisions and the company's own guidelines. It also creates an organizational structure that allows the applicable standards to be publicized across the divisions. If binding legal regulations in individual countries deviate from the rules set out in the compliance management system, the stricter regulation shall apply.

The compliance management system is updated at regular intervals, not only in line with the applicable legal requirements but also in the light of new findings from reporting, comparisons with other compliance systems and the assessment of external specialists (benchmarking). It is also reviewed on an ad-hoc basis if any breach of compliance regulations is suspected or discovered. Implementation of the compliance management system is monitored by monthly reports prepared by the Compliance Officer for the Corporate Compliance Office and by routine and special audits conducted by the internal audit team and the compliance organization.

Non-financial aspects of business activities
Compliance

Compliance Officers also monitor important transactions in the companies, such as mergers and acquisitions, the establishment of joint ventures, pre-employment checks and the integration of sales brokers, thereby supporting the respective departments in their work. In addition, Compliance Officers advise the people responsible in the operational units on how to take compliance into account in operational business processes.

In the area of sales support, there is a platform containing information on around 150 countries and regions. Moreover, the tender process in the Defence sector is structured to the effect that in the course of the bid/no bid decision a compliance audit using defined criteria is obligatory for projects over a certain value threshold and in some cases supported by IT tools.

A new compliance risk prevention guideline was implemented in the past fiscal year with the aim of ensuring a standardized procedure for systematic risk prevention and creating the structural and organizational preconditions required for this at all levels in the company. Procedures for the first-time performance of risk inventory recording measures to determine the compliance risk situation, derive response measures and plan regular repeat measures are defined for different applications. On this basis, a compliance risk assessment was performed for 100 operational subsidiaries; this assessment additionally contained questions relating to data protection, money laundering and Corporate Social Responsibility.

As a shared service center, the central Compliance Assessment & Monitoring center of expertise conducts not only pre-employment checks on applicants for key positions, but also all compliance due diligence checks on new and existing business partners (e.g. purchasing, cooperation, and sales partners) on a Group-wide basis. The focus lies here on determining whether the commitment is legally permissible, whether all attributable people can be identified and whether conflicts of interest are excluded, and determining the general capacity and integrity of the business partner. The local Compliance organization will continue concentrating on assessing the transaction-specific compliance risk associated with the commitment of a business partner at company level. In the year under review, the existing guideline for selecting, checking and monitoring business partners was completely revised and now includes, for example, risk-based elements. In this connection, new check criteria from the area of Corporate Social Responsibility have also been included to reflect the growing importance of sustainability. The center of expertise will be integrated in day-to-day operational business through various technical and procedural interfaces. The selection, management and supervision of sales partners, in particular, will be fundamentally improved through the implementation of a business partner database, which started at the same time. Around 870 business partners and people who applied for key positions at the Rheinmetall Group were subjected to a check in the past fiscal year (previous year: around 800 people).

The Group-wide rollout of the new Code of Conduct, which was published in 2018 and contains not only rules governing compliance and social standards but also requirements regarding the behavior of Rheinmetall employees, was continued in the year under review. An accompanying e-learning program was launched at the start of the current fiscal year.

Training and advice

To make employees at all hierarchical levels aware of compliance risks, numerous seminars and workshops are held, some of which are tailored to specific functions such as management, buyers or sales staff. Legislation and important regulations are explained and further content is provided.

Attention is also drawn to internal compliance requirements, risks and possible sanctions and, based on case studies, practical advice is given on correct conduct in specific situations during everyday work. These classroom training sessions, which also serve as a practical forum for discussions, are accompanied by interactive online programs. Each year, as part of Compliance Awareness training, employees at sites in Germany and abroad not only receive training in general compliance topics but also in the prevention of corruption, money laundering and CEO fraud, export control and antitrust and competition law. The content of the training is adjusted in accordance with the needs of the participants or supplemented with country-specific or regional peculiarities. In fiscal 2019, around 7,300 Group employees attended classroom training programs on compliance (e.g. introductory or specialist training or events on the War Weapons Control Act / Foreign Trade and Payments Act / weapons law). In addition, around 1,000 employees completed compliance training via e-learning platforms in the year under review.

Handling information

If employees have information on questionable activities that have been observed, specific breaches of regulations or business practices that may be prohibited, they can contact not only their line manager but also – and in full confidence – various internal offices as well as an independent, external ombudsman (lawyer) and so avert losses for the company. Following the examination in 2018 of all the technical requirements for the introduction of a whistleblower platform for all companies in the Rheinmetall Group, "incident management" will from 2020 be supported by a Group-wide electronic whistleblower platform. In addition, employees can contact the Compliance organization if the suspect or know of breaches of regulations or business practices. In addition to employees, external third parties can contact the ombudsman by telephone or e-mail, send an e-mail to speakup@rheinmetall.com or contact a specialist compliance officer by telephone.

Protection is guaranteed for all whistleblowers, who need not fear discrimination. Employees involved in investigations into possible breaches of compliance will be assumed to be innocent until proven otherwise. Any information that is received will be systematically analyzed. A new management guideline on how to deal with suspected cases and on the standardized processing of compliance cases aims to ensure that the handling of information is also independent, transparent and fair as well as being subject to high standards that are comparable across the Group. It also offers legal certainty when carrying out investigations, meaning that appropriate account can be taken of the interests of employees and the employer. Systematic follow-up checks are performed on the basis of this incident management guideline and appropriate measures are taken to properly clarify the facts that have been reported, if necessary with the involvement of external specialists. Confidentiality and discretion take top priority here. If necessary, we will involve the relevant authorities and cooperate with them to resolve the matter. Proven misconduct is sanctioned and entails organizational measures and, for the employees who committed the offense(s), consequences under labor law, civil law and criminal law. The 18 Incident Response Committees (a total of 22 are planned) established in the year under review to conduct rapid, interdisciplinary initial evaluations of reports help to ensure that suspected cases can be identified and clarified without delay.

Risks

Information on reducing or avoiding compliance risks is provided on page 86 et seq.

Non-financial aspects of business activities
Social responsibility

Management approach

Social acceptance is an important requirement for economic success. Many Rheinmetall companies can look back on a long tradition. They have been connected with their sites for many years and are strongly rooted in the local community – after all, this is where their customers, employees and business partners live. Rheinmetall is a living, breathing part of society and participates actively in it and not just in a financial sense. We get involved in the areas of education, sport and culture and also provide direct support for local social projects and charitable organizations. By adding value locally, we also contribute to regional development. Flourishing production sites do not only mean attractive, highly skilled jobs and training places close to home but also orders for local suppliers and service providers. Educational and cultural facilities around them also benefit, as do sports clubs and churches from the voluntary commitment of our employees. In addition, a large part of the sales generated by the companies returns to the respective economies via the employees, public sector and the shareholders. Capital expenditure in future growth is financed via the value added remaining in the Rheinmetall Group. We also make major contributions to society as an employer and client as well as with our products and the transfer of knowledge. We report on the creation and application of added value in 2019 on page 50.

Corporate citizenship

Social engagement is a long-standing tradition at Rheinmetall. It always goes beyond the plant boundaries. As the locations where we operate have very different requirements, the decision on which project to support is incumbent on the respective management teams of the companies or on the Executive Board of Rheinmetall AG. In the year under review, the Rheinmetall Group spent around €876 thousand on sponsorships and donated a total of €486 thousand.

Triple Bottom Line

In the year under review, we addressed the Triple Bottom Line concept and, under the categories Performance, People and Planet and, in turn, the six aspects Financial Capital, Manufactured Capital, Intellectual Capital, Human Capital, Social and Relationship Capital and Nature Capital, identified the most important focal issues and areas of action on the basis of which we will expand our activities in the field of sustainability in fiscal 2020. In this context, and on the basis of these six aspects and under consideration of the categories Input, Output and Outcome, we analyzed the benefits of our business activities to Rheinmetall and the public.

Major global challenges

In the year under review, Rheinmetall's potential contribution to the 17 UN Sustainable Development Goals was defined and categorized according to the following aspects: Trusted Company, Responsible Business, Employer of Choice, Environmental Stewardship and Committed Corporate Citizen. A report on this will be prepared in fiscal 2020.

The CDP (formerly Carbon Disclosure Project) is an independent, charitable organization that maintains the world's biggest database on the environmental impact of major corporations. Acting on behalf of more than 525 institutional investors, the CDP every year gathers climate data from more than 1,800 companies in more than 90 countries; this data is them disclosed to the capital market. The organization aims to establish the management of greenhouse gas emissions as a key economic success and risk factor in companies. No reporting for the Rheinmetall Group as a whole has yet taken place because the data required to meet the requirements has in some cases not been gathered Group-wide or was not to the required quality.

Respect for human rights

Within its sphere of influence, Rheinmetall respects and supports the protection of internationally recognized human rights. We publicly committed to observe human rights in our previous Code of Conduct in October 2003. The importance of human rights and our commitment to observing them are reaffirmed in our current Code of Conduct for employees of the Rheinmetall Group. In Fair2All, the principles of social responsibility agreed upon with the European Works Council, the United Nations' Universal Declaration of Human Rights is recognized in its entirety. We also appeal to all our business partners, in particular, our suppliers to follow our social principles. Our expectations of this stakeholder group are described in the Supplier Code of Conduct.

Protecting human rights in our own company and in the supply chain is a major priority of Rheinmetall. Based on the knowledge we have gained to date, we rate the risk that human rights will be violated in the employment of staff at our locations to be low since this is related to the relevant national legislation. Despite this, in the year under review, we still conducted an IT-supported survey – based on the questionnaire used by the Danish Institute of Human Rights – among the 68 biggest operational companies of the Rheinmetall Group. In the categories Employment Practices, Community Impact and Supply Chain Management, the companies were required to rate 259 indicators according to predefined parameters. To eliminate or improve the small number of problems identified in this survey, the specialist departments in question will implement the appropriate measures.

To enhance transparency in the supply chain, the supplier structure was analyzed in the year under review. The evaluation for 2019 found that 48.6% of our 42,475 suppliers (production and non-production material) are based (i.e. have their invoicing address) in Germany, 16.3 % in other EU countries, 16.1% in OECD countries (excluding Germany and the EU) and 19.0% in countries (excluding Germany and the EU) that are not members of the OECD. In a second phase, the suppliers of production material were categorized according to whether they were based in EU, OECD or non-OECD countries (in the latter two cases, excluding the EU). MVO Nederland, an expert network on corporate social responsibility supported by the Dutch Ministry of Economic Affairs, has provided a publicly accessible database for identifying CSR risks containing almost 3,000 data sources. The top 5 risk countries were identified on the basis of the parameters of the CSR Risk Check (Environment, Fair Business Practices, Labor Rights, Human Rights and Ethics). Each division names their top ten suppliers – measured by sales volume – in these countries, which are then subject to a review by the in-house Compliance Assessment Center.

We are playing an active role in discussions within the German automotive industry regarding the national human rights action plan launched by the federal government and are a founding member of the CSR / human rights working group established by the German Institute for Compliance. We will also be involved in the Corporate Responsibility consortium of the association of German security and defence industry companies, which was planned in the year under review and will start its work in spring 2020. One focal point of its work will be the evaluation of human-rights-related due diligence obligations of companies.

We also keep a close eye on developments relating to not only the human rights action plan launched by the federal government, but also human-rights-related and environmental due diligence obligations of companies in our other customer countries.

Complaints and reports of suspected or actual human rights violations can be submitted externally to the ombudsman or using the Speak Up program through a variety of communication channels within the framework of the Compliance organization. Points of contact are also already established in the companies/locations. Employees can contact executives, HR managers or the Works Council in full confidence. Compliance policies ensure that circumstances that are reported to them will be followed up on.

Non-financial aspects of business activities
Energy management

Management approach energy

We need a sufficient energy supply, which is associated with corresponding CO_2 emissions, to manufacture our products and operate our buildings and infrastructure. The reduction of energy-related payments is therefore a key component of corporate policy in the Rheinmetall Group. It is a material objective for us to reduce energy consumption and increase energy efficiency as far as possible through stringent processes in day-to-day operations within the context of that which is technically feasible and economic circumstances. Our responsibility in dealing with energy resources requires the achievement and review of specific targets for energy savings and improvements in energy efficiency, where it is technically and organizationally feasible and where it makes economic sense, in addition to the systematic determination, analysis and measurement of the energy aspects of significance for our business models.

Development of an energy management system

A central energy management system is gradually being developed in the Rheinmetall Group, starting with Germany, in which, besides the Holding site in Düsseldorf, other Rheinmetall Defence and Rheinmetall Automotive sites, which are certified in accordance with the energy management system DIN ISO 50001 or undergo energy audits in accordance with DIN EU 16427, were included.

In addition to the systematic recording, analysis and measurement of energy consumption, energy management includes the setting of energy conservation targets, the deduction and implementation of energy saving measures and the continuous monitoring of all key activities, which can help to increase energy efficiency.

In the year under review, an energy management policy was adopted outlining the main features of a standardized Group energy management system, roles and responsibilities and reporting structures and describing individual management elements for establishing and further developing a system of this kind.

As of December 31, 21 of 41 locations in Germany had been certified to ISO 50001. Full compliance with the standard was confirmed in the period under review through a series of recertification and monitoring audits. Another 11 locations underwent repeat audits to DIN EU 16247.

Energy management working group

An Energy Management working group, in which the divisions of the Automotive and Defence sectors are represented, controls energy management under the direction of the central energy manager, Rheinmetall Group. In addition to developing the energy strategy, it addresses the development, specification and testing of processes and measures for the Rheinmetall Group energy management system. Control, documentation and measurement instruments are also developed, which firstly allow energy efficiency to be compared and secondly provide objective justification for investment decisions and demonstrate their economic efficiency.

Targets for energy savings

Increases in energy efficiency can be achieved in day-to-day operations, for instance, through the use of cogeneration, cold and heat recovery, exchanging inefficient illuminants, using compressor waste heat and ensuring that ventilation systems are the correct size.

Contents not reviewed by the auditor

For the German Rheinmetall Defence locations, which have joint certification to DIN EN 50001, a target was set back in 2016 to reduce activity-based energy consumption by 10% from the then current energy consumption level by the end of 2022. By the end of 2019, an 8% decrease had already been achieved. Taking into account the measures that have already been implemented and those that are planned in 2020, we currently expect to achieve this goal ahead of time by the end of fiscal 2020. With a view to achieving CO_2 neutrality by 2040, the Energy Management working group is therefore now working on the new goal of saving energy and increasing energy efficiency across all Rheinmetall locations.

Consumption data and CO_2 emissions

		2019	2018
Energy consumption			
Total	MWh	**983,211**	**1,036,845**
Electricity (purchased from third parties)	MWh	517,477	539,706
District heating	MWh	69,854	72,688
Heating oil	MWh	32,346	33,410
Diesel	MWh	15,102	17,233
Natural gas	MWh	212,139	215,099
Coal	MWh	89,169	114,398
Liquefied petroleum gas	MWh	16,952	14,775
Renewable energies	MWh	30,172	29,536
CO_2 emissions			
Total	t CO_2	**354,919**	**410,438**
Electricity (purchased from third parties)	t CO_2	245,284	289,822
District heating	t CO_2	19,559	20,861
Heating oil	t CO_2	8,604	8,920
Diesel	t CO_2	4,017	4,601
Natural gas	t CO_2	42,640	43,235
Coal	t CO_2	30,763	39,467
Liquefied petroleum gas	t CO_2	4,052	3,531

Sources for 2019: CO_2 conversion factors: German Federal Environment Agency| Electricity 0.474 t/MWh | District heating 0.280 t/MWh | Light fuel oil 0.266 t/MWh | Diesel 0.266 t/MWh | Natural gas 0.201 t/MWh | South African high-grade coal 0.345 t/MWh | Liquefied petroleum gas 0.239 t/MWh

89 of the Rheinmetall Group's 193 companies were included in recording consumption data in 2019. The data in these tables were determined on the basis of internal processes. They come from existing management systems and are based on meter readings or invoice amounts (if available in each case) and estimates by the companies. The figures for 2018 were updated following a series of reviews. The data are requested in the operating units, collected with great care and processed. Nevertheless, errors cannot be entirely ruled out in the collection, processing or transmission. The data in these tables is not audited in the course of the audit of annual financial statements by PricewaterhouseCoopers GmbH Wirtschaftsprüfungsgesellschaft (PwC), Frankfurt am Main, Düsseldorf branch.

CO_2 neutrality by 2040

In the past fiscal year, Energy Management and Corporate Social Responsibility started to think about the framework conditions and preconditions that would need to be in place for our company to achieve CO_2-neutrality by 2040. Three key starting points were identified here: energy management (greater energy efficiency, higher share of electricity from renewable sources), mobility (business trips, plant traffic, compensation of CO_2 emissions) and real estate (energy-related upgrading of existing buildings, implementation of higher standards for new buildings, optimized building technology). This assessment is also a response to the increasing requirements of stakeholders, such as customers, who expect a reduction of CO_2 in the production process in their supply chain.

Corporate governance
Corporate governance statement

In the following chapter, the Executive Board and Supervisory Board will report on corporate governance in the Rheinmetall Group in accordance with item 3.10 of the German Corporate Governance Code. The corporate governance declaration* in accordance with sections 289f and 315d of the German Commercial Code can also be found here.

Declaration of conformity in accordance with section 161 AktG

The Supervisory Board discussed the implementation of the recommendations of the German Corporate Governance Code at the Rheinmetall Group at its meeting on August 21, 2019, and issued a declaration of conformity in accordance with section 161 of the German Stock Corporation Act, the contents of which were unchanged and which can be found – together with older versions – on the company's website in the section "Group – Corporate Governance."

"The Executive Board and Supervisory Board of Rheinmetall AG hereby declare that since it issued its last declaration of conformity dated August 22, 2018, Rheinmetall AG has complied with and will continue to comply with the recommendations of the Government Commission of the German Corporate Governance Code as amended on February 7, 2017, officially published in the electronic Federal Gazette on April 24, 2017, with one exception, namely the regulatory limit on membership of the Supervisory Board.

The Supervisory Board of Rheinmetall AG has decided not to stipulate any regulatory limit on membership of the Supervisory Board beyond the existing age limit for Supervisory Board members. It is convinced that a rigid regulatory limit on membership of the Supervisory Board, without looking at the respective individual Supervisory Board members, is not a suitable means of ensuring the further improvement and professionalization of the work of the Supervisory Board. Instead, it is hoped that a flexible composition for the Supervisory Board, including members who have belonged to the Board for different periods and have different experience, and a practical focus on a mixed age structure when searching for candidates will better serve the company's interests. Finally, the company has for some time published information on the length of time that the respective members have belonged to the Supervisory Board, thus enabling shareholders to decide for themselves whether individual Supervisory Board members are suitable for reelection.

Düsseldorf, August, 2019
Rheinmetall Aktiengesellschaft
The Supervisory Board The Executive Board"

Corporate governance

Rheinmetall has traditionally been committed to a responsible, fair and reliable corporate policy which is geared towards the use and expansion of entrepreneurial potential, achieving medium-term financial targets and increasing the value of the company on a systematic and sustainable basis. The law on stock corporations, capital market law and the right of co-determination, the company's Articles of Association and the German Corporate Governance Code, which is based on internationally recognized standards, form the basis for the organization of management and monitoring at the company, with the aim of making structures transparent and thus strengthening the trust of national and international investors, business partners, analysts, media, employees and the public in Rheinmetall AG's business policy, management and supervision and securing it in the long term.

* Contents not reviewed by the auditor

Description of the working methods of the Executive Board and Supervisory Board

With its Executive Board and Supervisory Board, Rheinmetall AG has a two-tier management and monitoring structure. Both bodies are responsible for and obligated to operate in the interests of the shareholders and the well-being of the company. They work together closely and trustfully in the interests of Rheinmetall. The Supervisory Board and its committees have adopted rules of procedure that set forth, among other things, the supply of information to the Supervisory Board by the Executive Board. The Executive Board reports in the meetings of the Supervisory Board and committees. The chairs of the Executive Board and Supervisory Board also maintain regular contact between the scheduled meetings and discuss issues relating to strategy, business development, planning, risk management and compliance within the company.

Composition of the Executive Board

In accordance with section 6 (1) of the Articles of Association, the Executive Board of the company is composed of at least two persons. The number of members is determined by the Supervisory Board. In the year under review, Armin Papperger, Helmut P. Merch, Horst Binnig and Peter Sebastian Krause were appointed as members of the Executive Board.

Terms of office of the members of the Executive Board of Rheinmetall AG

	Armin Papperger	Helmut P. Merch	Horst Binnig	Peter Sebastian Krause
Born	1963	1956	1959	1960
Nationality	German	German	German	German
Joined	1990	1982	1997	1997
1st election	January 1, 2012, to December 31, 2016	January 1, 2013, to December 31, 2017	January 1, 2014, to December 31, 2016	January 1. 2017, to December 31, 2019
Appointment to Chairman of the Executive Board	January 1, 2013			
2. election	January 1, 2017, to December 31, 2021	January 1, 2017, to December 31, 2021	January 1, 2017, to December 31, 2021	January 1, 2020, to December 31, 2024
Director of Industrial Relations	January 1, 2013, to December 31, 2016			Since January 1, 2017
Resignation of mandate			December 31, 2019	

As of December 31, 2019

The first election to the Executive Board is usually for a tenure of three years. The pensionable age for members of the Executive Board is 63. In accordance with the new remuneration system, which is described on pages 148 et seq., the retirement age is 65.

With the support of members of the Personnel Committee and the Executive Board, the Supervisory Board is responsible for long-term successor planning for the Executive Board. In addition to the provisions of the Stock Corporation Act, German Corporate Governance Code and Rules of Procedure for the Personnel Committee, the target defined by the Supervisory Board regarding the number of women on the Executive Board committee and the criteria for the composition of the Executive Board for successor planning of Executive Board positions is taken into account. Under consideration of the different requirements – depending on the Executive Board area – regarding specialist qualifications, character, skills and experience, an ideal profile is drawn up that can be used as a basis – when the need for a successor on the Executive Board becomes apparent – for checking potential internal candidates or, with the support of external consultants, searching for external candidates.

* Contents not reviewed by the auditor

Corporate governance
Corporate governance statement

The Supervisory Board is then given a recommendation for their consideration. If necessary, external consultants help the Supervisory Board / Personnel Committee to draw up the requirements profiles and select ideal candidates.

In accordance with Article 6(4) of the Articles of Association, the Executive Board of the company is composed of at least two persons. In accordance with the Rules of Procedure dated July 30, 2019, and adopted by the Executive Board, the responsibilities are defined as follows:

Responsibilities of members of the Executive Board of Rheinmetall AG

Armin Papperger	Helmut P. Merch	Horst Binnig	Peter Sebastian Krause
SECTORS			
Defence		Automotive	
AREAS			
Business Excellence	Accounting	Information Technology	HR Policies
Compliance	Controlling | Risk Management	New Technologies	HR Strategy
Corporate Social Responsibility	Finance | Treasury		Labour Relations and Labour Law
Corporate Strategy and Development	Tax		Management Development | Rheinmetall Academy
External Communications	Mergers and acquisitions		Payroll
Internal Communications	Offset Management		Projects
Internal Audit	Purchasing Non-Production Material		Recruiting
Investor Relations	Insurance		
Legal and IP			
Real Estate			
Security			

As of December 31, 2019

Until the successor of Horst Binnig as Chairman of the Executive Board of Rheinmetall Automotive AG takes up this position, the Executive Board of Rheinmetall AG resolved on December 18, 2019, that the Chairman of the Executive Board, Armin Papperger, would temporarily assume responsibility for the Automotive sector on the Executive Board of Rheinmetall AG.He has also been temporarily assigned responsibility for New Technologies, while Helmut Merch will be temporarily responsible for Information Technology.

Working methods of the Executive Board

The Executive Board is responsible for the overall management of the company. It defines long-term strategic orientation and corporate policy as well as the structure and organization of the Rheinmetall Group and allocates resources. The Executive Board manages the company on its own initiative in the interests of the company, i.e. taking into consideration the concerns of shareholders, customers, employees and other groups connected to the company (stakeholders), with the aim of creating sustainable value added and free from instructions from third parties in accordance with the relevant laws, the company's Articles of Association and the applicable Rules of Procedure and having regard for the resolutions of the Annual General Meeting. It represents the company to third parties.

* Contents not reviewed by the auditor

The Rules of Procedure for the Executive Board govern the Board's work, the allocation of duties among the respective Executive Board members, matters reserved for the Executive Board as a whole and the majority required for Executive Board resolutions. In accordance with the Rules of Procedure for the Executive Board, each member of the Executive Board manages the area of responsibility assigned to them under the business distribution plan independently and on their own responsibility, whereby the Executive Board as a whole must be informed on an ongoing basis of key processes and developments relating to business and important measures. Any matters that are of fundamental importance or that have far-reaching consequences require a resolution to be passed by the Board as a whole.

The Executive Board develops the strategic orientation of the company, agrees it with the Supervisory Board and ensures its implementation. It decides on basic issues relating to business policy and on annual and multi-annual planning. It ensures effective management of opportunities and risks as well as risk controlling at the company, implements appropriate measures to ensure that laws, provisions, official regulations and internal corporate guidelines are observed and helps to ensure that subsidiaries comply with these. Furthermore, the Executive Board bears in mind diversity when filling management positions at the company and makes sure that adequate attention is given to women.

Details of cooperation between the Executive and Supervisory Boards can be found in the company's Articles of Association and the Rules of Procedure for the Supervisory Board of Rheinmetall AG, which govern the Executive Board's information and reporting requirements as well as transactions and measures requiring approval. This applies, for example, to the acquisition and sale of shareholdings, investment planning, issuing bonds and taking out long-term loans. The Executive Board informs the Supervisory Board regularly, promptly and comprehensively regarding business performance, financial position and results of operations, planning and achievement of targets, as well as regarding compliance issues, strategy and the risk situation. On the basis of these reports, the Supervisory Board monitors the legality, correctness, appropriateness and economic efficiency of management by the Executive Board.

The Chairman of the Supervisory Board shall be informed immediately by the Executive Board of any important events or business developments that could have a significant influence on the company's financial position, results of operations and net assets.

Composition of the Supervisory Board

The statutory provisions by which the Supervisory Board of the company is elected are explained on page 134. When candidates are proposed for election to the Supervisory Board, attention is paid to their professional qualifications and personal skills as well as to legal regulations on diversity in the composition of the Board and the recommendations in the German Corporate Governance Code. As a rule, members of the Supervisory Board are elected for five years. They may be re-elected. The Supervisory Board members have the same rights and obligations, are required to perform their mandate in the best interests of the company and are not bound by any orders or instructions.

New members of the Supervisory Board familiarize themselves with the company's business activities while preparing for their mandate on the Supervisory Board. By consulting written documentation and talking to other members of the Supervisory Board and Executive Board, they can familiarize themselves with the relevant issues and learn about the working methods of the Supervisory Board and its committees.

To ensure the prevention of potential conflicts of interest, the Supervisory Board does not include any members who hold board positions or perform advisory activities for key competitors of Rheinmetall AG and its Group companies. Former Executive Board members of Rheinmetall AG are not represented on the Supervisory Board.

* Contents not reviewed by the auditor

Corporate governance
Corporate governance statement

According to the rules of the Corporate Governance Code, a person is considered to be independent above all if they have no business or personal relationship with Rheinmetall AG or its bodies, a controlling shareholder or any company associated with it that could constitute a significant or longer-term conflict of interest. According to its own assessment, the Supervisory Board has a sufficient number of independent members representing the shareholders. Even though Ulrich Grillo, Professor Dr. Susanne Hannemann and Detlef Moog formerly held management positions in the Rheinmetall Group (1993–2001, 2003–2007 and 1980–2009 respectively), the Supervisory Board considers these three Supervisory Board members to be independent due to their now many years of work outside the Group or, in the case of Detlef Moog, his retirement in 2010. Professor Dr. Andreas Georgi is also considered to be independent. He may have been a member of the Supervisory Board for more than twelve years, but since his appointment in May 2017 to the position of Chairman of the Audit Committee, he has, in the view of the members of the Supervisory Board, continued to provide highly professional support for the work of the Executive Board with his critical judgment skills and, as a sparring partner to the Executive Board, compellingly represents the interests of the shareholders through his farsightedness and sound judgment. The experience and expertise obtained through his former position as a member of the Executive Board of Dresdner Bank AG and his current position as a professor specializing in corporate management and control problems at the Ludwig-Maximilians-Universität Munich also serve him well. The professional, specialized qualifications more than outweigh any doubts concerning his independence due to the mere length of service. As such, all members of the shareholders' bench are considered to be independent. The composition of the Supervisory Board and the terms of office of its members are outlined on page 2 of this annual report.

Working methods of the Supervisory Board

The Supervisory Board performs its activities in accordance with statutory provisions, the Articles of Association of Rheinmetall AG and its Rules of Procedure. The main contents of the Rules of Procedure, which are published on the company’s website, concern the composition, tasks and responsibilities of the Supervisory Board, the convention, preparation and chairing of meetings, the rules pertaining to committees and quorum requirements. The Chairman of the Supervisory Board coordinates the work of the Supervisory Board, chairs its meetings and represents the Board externally. Each year he explains the activities of the Supervisory Board and its committees in the report of the Supervisory Board printed within the annual report and orally at the Annual General Meeting.

The Supervisory Board advises the Executive Board on the management of the company and monitors its management activities. The Chairman of the Supervisory Board is elected from among its members. Supervisory Board meetings are held in accordance with the provisions of the German Stock Corporation Act (AktG). As a general rule, four Supervisory Board meetings take place each calendar year, which are attended by members of the Executive Board unless otherwise stipulated by the Chairman of the Supervisory Board. Resolutions may be passed in writing, by telex (fax or e-mail) or by telephone. The Supervisory Board passes its resolutions by means of a simple majority of members participating in the passing of the resolution. In the event of a tied vote, the Chairman of the Supervisory Board has the casting vote.

The Supervisory Board of Rheinmetall AG reviews the efficiency of its activities at regular intervals either internally or with the support of external consultants, as required by the provisions of the German Corporate Governance Code. Here, the working methods of the Supervisory Board and its committees, the routing of information from the Executive Board to the Supervisory Board and the interaction of the two boards is discussed and evaluated. The plenary assembly debates possible improvements in an open discussion and decides on any measures.

No consultancy agreements or other service or work contracts existed between members of the Supervisory Board and Rheinmetall AG during the period under review.

* Contents not reviewed by the auditor

Structure and working methods of the Supervisory Board's committees

In compliance with legislation and commercial interests, the Supervisory Board has created five committees to perform its control and monitoring tasks efficiently. In doing so, it pursues the aim of making its work more efficient by having complex, time-consuming matters requiring extensive discussion dealt with in smaller groups and prepared for the entire Supervisory Board in the same way as proposed resolutions for decision by the Supervisory Board as a whole. In individual cases, the committees also have decision-making powers if these have been transferred by the Supervisory Board. With the exception of the Nomination Committee, which consists of three shareholder representatives, the committees are based on joint representation, with two or three shareholder representatives and two or three employee representatives in each case. Each of these committees has adopted rules of procedure that set forth their composition, duties and working methods.

Strategy Committee – The Strategy Committee deals with the strategic perspective, focus and development of the Rheinmetall Group. It discusses the principles for the Rheinmetall Group's overall strategy including the business policy and corporate orientation of the company and its corporate sectors with the Executive Board and addresses significant, specific strategic programs and measures. As of January 31, 2019, the following people were members of the Strategy Committee: Ulrich Grillo (Chair), Dr.-Ing. Dr.-Ing. E.h. Klaus Draeger, Detlef Moog, Dr. Rudolf Luz, Dagmar Muth and Markus Schaubel.

Audit Committee – It is the job of the Audit Committee to support the Supervisory Board when performing its supervisory functions. It looks in particular at the consolidated and single-entity financial statements and quarterly accounts and – in addition to the accounting process – the adequacy and effectiveness of the internal control system, internal auditing, the risk management system and the compliance management system. In addition to the qualifications and independence of the auditor, the Audit Committee checks the services performed by the auditor in terms of the quality and effectiveness of the audit and is responsible for issuing the audit engagement to the auditor, determining the focal points of the audit and agreeing the fees.

In accordance with the German Stock Corporation Act, at least one member of the Supervisory Board must also sit on the Audit Committee, acting as a financial expert in the areas of accounting and auditing. Through Professor Dr. Andreas Georgi and Professor Dr. Susanne Hannemann, two members of the Audit Committee possess specialized knowledge and experience in the application of accounting principles and internal control processes. In accordance with the German Corporate Governance Code, the Chairman of the Audit Committee is to possess extensive knowledge and experience in the application of accounting principles and internal control processes and know the details of the audit. They are also to be independent and not a former Executive Board member whose tenure ended fewer than two years prior. The Chairman of the Audit Committee, Professor Dr. Andreas Georgi, fulfills these requirements. As of January 31, 2019, the Audit Committee comprised the following members: Professor Dr. Andreas Georgi (Chairman), Ulrich Grillo, Professor Dr. Susanne Hannemann, Dr. Rudolf Luz, Roswitha Armbruster and Sven Schmidt.

Personnel Committee – Tasks that are the responsibility of this committee include selecting suitable candidates to fill Executive Board positions, making preparations for the appointment and withdrawal of Executive Board members and concluding, amending and terminating employment contracts of members of the Executive Board and other agreements with them. It is also responsible for appraising the performance of the Executive Board, regularly examining the amount, suitability and customary level of Executive Board remuneration and overseeing the structure of the Executive Board remuneration system. As of January 31, 2019, the Personnel Committee comprised the following members: Ulrich Grillo (Chairman), Professor Dr. Andreas Georgi, Dr. Rudolf Luz and Dr. Daniel Hay.

* Contents not reviewed by the auditor

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Nomination Committee – The Nomination Committee submits recommendations to the shareholder representatives on the Supervisory Board for the nomination of shareholder representative candidates for election to the Supervisory Board by the Annual General Meeting. As of January 31, 2019, the Nomination Committee comprised the following members: Ulrich Grillo (Chairman), Dr. Franz Josef Jung and Klaus-Günter Vennemann.

Mediation Committee – The Mediation Committee, which was formed in accordance with section 27(3) of the German Codetermination Act submits to the Supervisory Board a slate of candidates for Executive Board membership if these have not received the required two-third majority of Supervisory Board member votes in the first ballot. As of January 31, 2019, the Mediation Committee comprised the following members: Ulrich Grillo (Chairman), Professor Dr. Marion A. Weissenberger-Eibl, Dr. Rudolf Luz and Reinhard Müller.

The Supervisory Board is regularly informed by the chairmen of the committees in the subsequent plenary meeting of the activities of the committees and of the content and outcome of discussions held in the respective committee meetings.

Supervisory Board and Executive Board members' membership of other supervisory boards

In accordance with the recommendations of the German Corporate Governance Code (item 5.4.5 (1) dated February 7, 2017, none of the Executive Board members performed more than three mandates on supervisory boards of listed stock corporations that were not part of the Group or on supervisory boards of companies external to the Group with comparable requirements. An overview of the memberships of members of the Supervisory Board and Executive Board of Rheinmetall AG of other statutory supervisory boards and comparable control bodies of commercial enterprises in Germany and abroad can be found from page 236.

Women in management

The German Act on Equal Participation of Women and Men in Executive Positions in the Private and the Public Sector, which was passed by the Bundestag on March 6, 2015, regulates the setting of targets for the share of women in governing bodies and at senior management levels.

The targets and deadlines for increasing the proportion of women on the Supervisory Board, management bodies and the two management levels below the management body that are defined for Rheinmetall AG and its German subsidiaries subject to codetermination in due consideration of sector-specific circumstances are published for the reporting period from July 1, 2017, to June 30, 2022, on our company's website in the section "Corporate Governance – Ratio of Women."

Diversity in the Supervisory Board and Executive Board

In accordance with sections 96(1) and (2) and 101(1) of the German Stock Corporation Act in conjunction with section 7(1) No. 2 of the 976 German Codetermination Act, the Supervisory Board of Rheinmetall AG comprises eight shareholder representatives and eight employee representatives, at least 30% of whom are women and at least 30% of whom are men. In the year under review, the Supervisory Board had four female members – two female employee representatives and two female shareholder representatives, which means that the regulation on a minimum quota for women and men on the Supervisory Board is complied with, having regard to the provisions of section 96(2) sentence 3 of the German Stock Corporation Act.

* Contents not reviewed by the auditor

The Supervisory Board and Executive Board of Rheinmetall AG must be filled with persons who provide a balanced mix of all the qualifications, knowledge, skills and personal characteristics needed for the management and supervision of a capital market-oriented, large company operating in the global Automotive and Defence industry.

The members of the Supervisory Board should possess, individually and collectively, the necessary prerequisites and experience, which are appropriate to the type, scope and complexity of the business as well as the risk structure of the company so that they can act as constructive supervisors and competent advisors to the Executive Board.

In the Supervisory Board of Rheinmetall AG, which is based on joint representation, the employees are represented by two trade union representatives, five elected employee representatives and one representative for the managerial staff. In each case, three employee representatives are elected to the Supervisory Board from the Automotive and Defence sectors.

The shareholder representatives are determined by the Annual General Meeting. The nominations to the Shareholders' Meeting are based on the recommendations of the Nomination Committee, which take account of balance and the differences in the knowledge, skills and experience of the shareholder representatives proposed for election to the Supervisory Board.

The Supervisory Board has decided not to stipulate any regulatory limit on membership of the Supervisory Board. It is convinced that a rigid regulatory limit on membership of the Supervisory Board, without looking at the respective individual Supervisory Board members, is not a suitable means of ensuring the further improvement and professionalization of the work of the Supervisory Board. On December 31,2019, the members of the Supervisory Board had been members of that body for an average of 82 months.

In its Rules of Procedure, the Supervisory Board has stipulated that, as a rule, consideration cannot be given in the nominations to people, who have reached the age of 75 at the date of the election. It takes the view that a mixed age structure in the Supervisory Board serves the interests of the company more effectively. On average, the members of the Supervisory Board were around 59 years old in the year under review, with the youngest and oldest members aged 40 and 71 respectively.

The targets for the composition and membership of the Supervisory Board resolved in the Supervisory Board meeting in December 2010 in accordance with item 5.4.1 of the German Corporate Governance Code, which form the basis for a diversity concept, were supplemented and made more specific by a comprehensive skills profile, comprising various parameters, for the shareholder representatives in fiscal 2017.

The composition of the Supervisory Board of Rheinmetall AG – focused on the specific requirements of the company – is balanced as a whole and thus serves to ensure that qualified individuals advise the Executive Board and monitor its management activities effectively. Individually and as a whole, the members of the Supervisory Board have the necessary qualifications, knowledge, skills and specialist and professional experience to perform their advisory and monitoring duties properly in an international technology group, and they possess the necessary qualities to successfully carry out the activities of the Supervisory Board. In addition to commitment, the ability to work as a team and debating skills as well as having adequate time available, these include integrity and confidentiality in particular.

* Contents not reviewed by the auditor

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The members of the Supervisory Board reflect the international activities of Rheinmetall AG. Supervisory Board members have in-depth knowledge of the branches of industry, sectors and core areas of expertise that are key to the company. They have managerial experience in a corporate or operational context and complement each other in terms of their different educational and professional background, their age structure, professional career and their qualifications.

In accordance with Article 6(1) of the Articles of Association, the Executive Board of the company is composed of at least two persons. The number of members of the Executive Board is determined by the Supervisory Board. As in the previous year, the Executive Board of Rheinmetall AG comprised four members in the year under review. The responsibilities of the members are shown on page 130.

In accordance with the decision of the Supervisory Board from August 2017, the Executive Board of Rheinmetall AG does not have any female members for the time being and will not have any until June 30, 2022. This is due – in addition to a continuing lack of supply of external female managers in the Automotive and Defence sectors – to the still insufficient number of women in the management levels of the Rheinmetall Group. The Supervisory Board supports the Executive Board's objective of promoting female managers to positions in top management in a gradual and structured way. In addition to the setting of targets for personnel development programs up to 2026 and the employment of women at the management levels, various measures and activities as part of career planning and career development have already been adopted with the aim of preparing women for management positions, both in terms of content and on a personal level, in the medium and long term to ensure that more women will be available in the future as candidates to assume management responsibility.

The weighting and nature of diversity criteria are based on the specific Executive Board position to be filled and the associated tasks within the specialist areas. The Supervisory Board of the company is of the opinion that the members of the Executive Board of Rheinmetall AG in the year under review form a managing committee with strong leadership qualities and, considering the respective requirement profile of the area of responsibilities and in the light of their character, training, professional qualifications, expertise, management qualities, experience and success, have proven the best choice both professionally and personally for the company and that they are appropriate appointments for the respective management areas. The Supervisory Board considers continuity in terms of staffing in the top management in the best interests of the company and additionally a key component for the further sustainable economic success of Rheinmetall AG.

Armin Papperger, Helmut P. Merch, Horst Binnig and Peter Sebastian Krause, all aged between their mid-fifties and their early sixties and on average 59.5 years old at the end of the reporting period, were systematically prepared for more demanding management roles in various functions and hierarchical levels in the Rheinmetall Group and have constantly assumed more responsibility for larger entities during their career in the Group. They know the Automotive and Defence industry, the industry cycles of the entities and the challenges to which an international technology group is exposed today, and are confronting future issues such as innovation, digitalization and transformation, especially in the automotive industry.

* Contents not reviewed by the auditor

Preventing conflicts of interest

In making decisions and performing their duties, members of the Executive and Supervisory Boards must not pursue their personal interests or take advantage of any business opportunities arising for the company for their own personal gain, or grant unfair advantages to other persons. In accordance with sections 4.3.3 and 5.5.2 of the German Corporate Governance Code dated February 7, 2017, any potential conflicts of interest involving members of the Supervisory Board or Executive Board must be disclosed immediately. No conflicts of interest were reported to the company by any members of the Executive or Supervisory Board in the year under review.

Shareholders and Annual General Meeting

Shareholders of Rheinmetall AG exercise their rights within the framework of the options provided by law or the company's Articles of Association before or during the Annual General Meeting, which is convened by the Executive Board or Supervisory Board as prescribed by law, or when it appears necessary in the interests of the company.

The Annual General Meeting is convened, the agenda items on which a vote will be taken are announced, and the conditions of participation and rights of shareholders are explained within the deadlines prescribed by law and the company's Articles of Association. All documents and reports required by stock corporation law, supplementary information on the Annual General Meeting and explanations of shareholder rights will be made available on the company's website, on which any countermotions or nominations from shareholders will also be published. Each share grants one vote in ballots. This does not include treasury shares held by the company.

The company's Annual General Meeting took place on May 28, 2019, in Berlin. During voting, 30,433,018 shares (previous year: 27,854,144), accounting for 69.87% of the share capital (previous year: 63.95%), were represented. Shareholders and shareholder representatives voted with significant majorities of between 95.13% and 99.83% in favor of the five resolutions proposed by management on the agenda. Information about attendance and the results of votes were published online on Rheinmetall's website after the Annual General Meeting.

D&O insurance

Rheinmetall has taken out Directors' and Officers' liability insurance (D&O insurance), which covers the activities of members of the Executive Board and Supervisory Board. This insurance provides for the statutory deductible under section 93(2) sentence 3 of the German Stock Corporation Act for the Executive Board and the deductible recommended by item 3.8(3) of the German Corporate Governance Code in the version dated February7, 2017, for the Supervisory Board.

* Contents not reviewed by the auditor

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Managers' transactions

Any transactions involving shares or debt instruments of Rheinmetall AG or derivatives or other financial instruments relating to them that have been carried out by members of the Supervisory and Executive Boards or related parties (managers' transactions in accordance with Article 19 of Regulation (EU) No.596/2014 of the European Parliament and of the Council on market abuse (Market Abuse Regulation – MMVO)) were published by the company in the prescribed manner immediately after notification of the transaction was received, including on the company's website.

Managers' transactions 2019 €

Publication	Name	Status	Transaction	Shares	Price	Platform
01/09/2019	Ulrich Grillo	Chairman of the Supervisory Board	Purchase	1,200	85.15	Xetra
01/11/2019	Dr. Jutta Roosen-Grillo	Related party of Ulrich Grillo, Chairman of the Supervisory Board	Purchase	400	83.42	Xetra
04/02/2019	Dr. Michael Mielke Allocation of shares as a remuneration component as part of the long-term incentive program for managerial staff of the Rheinmetall Group 2018	Member of the Supervisory Board	Allocation	317	75.55	Off-exchange
04/02/2019	Armin Papperger Allocation of shares as a remuneration component as part of the Executive Board remuneration 2018	Chief Executive Officer	Allocation	7,941	94.44	Off-exchange
04/02/2019	Helmut P. Merch Allocation of shares as a remuneration component as part of the Executive Board remuneration 2018	Member of the Executive Board	Allocation	3,970	94.44	Off-exchange
04/02/2019	Horst Binnig Allocation of shares as a remuneration component as part of the Executive Board remuneration 2018	Member of the Executive Board	Allocation	3,970	94.44	Off-exchange
04/02/2019	Peter Sebastian Krause Allocation of shares as a remuneration component as part of the Executive Board remuneration 2018	Member of the Executive Board	Allocation	2,779	94.44	Off-exchange

Transactions involving related third parties are listed in the notes to the consolidated financial statements on page 214.

Compliance

An essential requirement for sustainable economic success is consistent attention to comprehensive compliance. This also includes integrity in dealings with employees, business partners, shareholders and the public, which is expressed through exemplary conduct. Compliance includes all instruments, guidelines and measures which ensure that procedures in the companies of the Rheinmetall Group comply with country-specific legislation, general legal conditions, regulatory provisions and the company's internal directives and that conduct that is based on values and conforms to the law and regulations is assured. Compliance activities focus on corruption prevention, export controls and cartel law. Additional statements on compliance in the Rheinmetall Group are provided on pages 120 to 123.

* Contents not reviewed by the auditor

Accounting and auditing

Rheinmetall AG prepares the single-entity financial statements that are relevant for the dividend payment in accordance with the provisions of the German Commercial Code (HGB) and the German Stock Corporation Act. The company's consolidated financial statements are prepared in accordance with the International Financial Reporting Standards (IFRS) as adopted in the European Union and in accordance with the supplementary provisions of section 1 of the German Commercial Code. PricewaterhouseCoopers GmbH Wirtschaftsprüfungsgesellschaft, Frankfurt am Main, Düsseldorf branch, was elected by the Annual General Meeting on May 28, 2019, to audit the single-entity and consolidated financial statements for 2018. The Audit Committee had previously satisfied itself that the auditor was independent.

Transparency in reporting

In a time in which markets are interconnected and the flow of information is becoming increasingly globalized, communications and the quality of information are becoming more and more important to the company's success. Rheinmetall communicates openly, actively and in detail. Investors, potential investors, customers, employees, lenders, business partners, analysts and interested members of the public are informed regularly, promptly and without discrimination of the company's economic and financial situation, key developments, significant changes in business and any facts of relevance to valuation on the Internet at www.rheinmetall.com.

Facts and circumstances that may influence the share price on the stock market are published immediately in ad hoc notifications in accordance with the legal regulations. On December 26, 2019, we reported that the IT infrastructure of the Automotive sector at the plants in Brazil, Mexico and the US had suffered a malware attack ongoing since the late evening of September 24, 2019. This caused significant disruption to routine processes at these plants.

Rheinmetall publishes securities transactions that are subject to reporting requirements in the media required by law and on its website.

* Contents not reviewed by the auditor

Corporate governance
Disclosures required by takeover law

Explanatory report by the Executive Board in accordance with section 176 (1) sentence 1 of the German Stock Corporation Act on disclosures required under takeover law in accordance with sections 289a (1) and 315a (1) of the German Commercial Code as of December 31, 2019.

Composition of the subscribed capital

The subscribed capital (share capital) of Rheinmetall AG amounted to €111,510,656 as of December 31, 2019 (previous year: €111,510,656), and was divided into 43,558,850 (previous year: 43,558,850) ordinary bearer shares with no nominal value (no-par value shares), each of which represented €2.56 of the common stock. The shares are fully paid. Different classes of shares do not exist. In accordance with Article 5(2) of the Articles of Association, no shareholder is entitled to a physical share certificate. The company is authorized to issue bearer share certificates that document several shares.

Shareholder rights and obligations

The same rights and obligations are attached to all shares, as set out in the German Stock Corporation Act, in particular sections 12, 53a et seq., 118 et seq. and 186. The shareholder is entitled to asset-related and administrative rights. Asset-related rights primarily include the right to a share in the profits under the terms of section 58(4) of the German Stock Corporation Act, the right to net liquidation assets following the dissolution of the company in accordance with section 271 of the German Stock Corporation Act and share subscription rights in the event of capital increases in accordance with section 186(1) of the German Stock Corporation Act.

Administrative rights comprise the right to attend the Annual General Meeting and the right to speak there, ask questions, submit motions and exercise voting rights. Any shareholder may enforce such rights, in particular through actions for information, avoidance or rescission.

Each share in Rheinmetall AG grants one vote at the Annual General Meeting. This does not include treasury shares held by the company in accordance with section 71b of the German Stock Corporation Act, which do not entitle the company to any rights, particularly any voting rights.

The Annual General Meeting elects shareholder representatives on the Supervisory Board as well as the auditor. It decides on the appropriation of net income and approval of the activities of the members of the Executive Board and Supervisory Board. The Annual General Meeting passes resolutions on the Articles of Association and the objective of the company, key corporate measures such as affiliation agreements and conversions, the issuing of new shares, convertible bonds and bonds with warrants and authorization to acquire treasury shares, as well as the performance of a special audit, the early removal of Supervisory Board members and the dissolution of the company.

Subject to other overriding legal provisions, the Annual General Meeting adopts its resolutions by means of a simple majority of votes cast and, where the law prescribes both a voting and shareholding majority, by means of a simple majority of the common stock represented in the passing of the resolution.

Restrictions on voting rights and share transfer

The shares of Rheinmetall AG were not subject to any voting restrictions under the Articles of Association or legislation as of the end of the 2019 reporting period. To the extent that Rheinmetall AG issues shares under its long-term incentive program to Executive Board members and other senior management staff, these shares are subject to a four-year lockup period. However, this does not apply to retired members of the Executive Board. Eligible staff in Germany were offered Rheinmetall AG shares to purchase on preferential terms as part of the employee share purchase program during the period under review. A two-year lockup period applies to these shares.

In the case of acquisition of a defence technology company in Germany, sections 60 et seq. of the German Foreign Trade and Payments Regulation allow the German government to prohibit foreign investors from acquiring 10% or more of the shares. This regulation aims to safeguard material security interests of the Federal Republic of Germany.

Shareholdings exceeding 10% of voting rights

In the year under review, the company received notifications from investors pursuant to sections 33 and 34 of the German Securities Trading Act (WpHG) stating that their shareholdings had risen above the threshold of 10%: The shareholding of The Capital Group Companies, Inc., Los Angeles, USA, for example, which has invested in Rheinmetall for a long time, was 20.88% according to the notification published on July 23, 2019. In accordance with legal requirements, the increases in the shareholding – as reported by the company – can be found under “Investor Relations” on the Rheinmetall Group’s website.

Shares with special rights conferring controlling privileges

None of the shares issued by Rheinmetall AG vest rights that confer special control privileges on their holders.

Type of voting control if employees have shareholdings and do not exercise their rights of control directly

To the extent that Rheinmetall AG issues shares under its long-term incentive program and employee share purchase program, these shares are directly transferred to these individuals subject to a resale lockup period of four or two years. In the case of retired members of the Executive Board, the four-year lockup period does not apply.

As with other shareholders, these beneficiaries are also able to directly exercise the rights of control to which they are entitled based on the transferred shares, subject to the provisions of the law and Articles of Association.

Corporate governance
Disclosures required by takeover law

Appointment and removal of Executive Board members and amendments to the Articles of Association

The appointment and removal of the members of the Executive Board of Rheinmetall AG is based on sections 84 and 85 of the German Stock Corporation Act and section 31 of the German Codetermination Act in conjunction with Article 6 of the Articles of Association. Executive Board members are appointed by the Supervisory Board for a maximum of five years and may be reappointed or have their term of office renewed, for a maximum period of five years in each case.

The provisions of sections 179 et seq. of the German Stock Corporation Act apply to any amendment of the Articles of Association of Rheinmetall AG.

In accordance with Article 12 of the Articles of Association, amendments that affect only the version or wording of the Articles of Association with regard to the amount and utilization of authorized capital can be performed by the Supervisory Board without the passing of a resolution by the Annual General Meeting.

Issuing new shares and repurchasing treasury shares

According to section 202 of the German Stock Corporation Act, the Annual General Meeting can authorize the Executive Board for a maximum period of five years to increase the common stock by issuing new shares in return for capital contributions. By way of resolution of the Annual General Meeting of May 10, 2016, the Executive Board was authorized, with the approval of the Supervisory Board, to increase the share capital of the company up to May 9, 2021, by issuing once or several times new no-par shares in return for contributions in cash and/or in kind, up to a total of €50,000,000 (new authorized capital). The new shares can also be issued to employees of Rheinmetall AG or any subsidiary it controls. The disapplication of preemption rights that the Executive Board can resolve with the approval of the Supervisory Board is governed by Article 4(3) of the Articles of Association.

For the purpose of granting shares when options and/or conversion rights are exercised and when option and/or conversion obligations are fulfilled for the holders of bonds with warrants and/or convertible bonds issued on the basis of the authorization, a contingent increase of up to €20 million was carried out on the company's common stock (contingent capital) by way of a resolution of the Annual General Meeting on May 10, 2016. Furthermore, the Executive Board of the company was authorized by resolution of the Annual General Meeting of May 10, 2016, to issue interest-bearing bearer bonds with warrants and/or convertible bonds with a total nominal value of €800 million with a term of up to 20 years on one or several occasions up to May 9, 2021, and to grant the holders of the respective bonds, which carry the same rights, options and conversion rights on new shares of the company up to a total of 7,812,500 shares, in accordance with the more detailed provisions of the conditions for bonds with warrants and/or convertible bonds.

Furthermore, the Executive Board of the company was authorized by resolution of the Annual General Meeting of May 10, 2016, authorized the Executive Board, in accordance with section 71(1) No. 8 of the German Stock Corporation Act canceling the previous authorization to acquire treasury shares, to repurchase treasury bearer shares of Rheinmetall AG not to exceed 10% of the current common stock of €111,510,656.00, up to May 9, 2021. Such treasury shares may be acquired via the stock exchange or by public bid directed at all shareholders or by public invitation to submit a purchase bid.

Further information on the treasury shares can be found in the notes to the consolidated financial statements.

Agreements terminable upon a change of control

The granting of extraordinary rights of termination in the event of a change of control is standard practice especially in long-term credit business.

In the case of the syndicated credit facility for €500 million, the contract provides for negotiations on the continuation of the loan, if more than half of the Rheinmetall AG shares are held directly or indirectly by one person or several persons acting in concert, or if the person or persons acting in concert fulfill the conditions for appointing members of the Supervisory Board. In the event of a change of control such as this, the lending banks may terminate the agreement in part or in full.

The "change of control" clause in the loan agreement with the European Investment Bank for €250 million provides for the possibility of negotiations on continuation of the loan, after which the load is repaid early in full if more than half of the Rheinmetall AG shares are held directly or indirectly by one person or several persons acting in concert, or if the person or persons acting in concert fulfill the conditions for appointing members of the Supervisory Board (change of control). The European Investment Bank is not obligated to take part in any negotiations.

The contracts relating to the promissory notes totaling €403 million outstanding as of December 31, 2019, which mature between 2021 and 2029 include an extraordinary right of termination in the event of a change of control.

No precautions have been taken against a public takeover bid, the successive acquisition of a controlling stake via share purchases on the stock markets or control being gained by buying blocks of shares.

Compensation arrangements of the company

No compensation arrangements have been made with members of the Executive Board or employees.

Remuneration report
Remuneration of the Executive Board

Remuneration of the Executive Board

Rheinmetall AG's pay system is geared towards sustainable corporate development. Using an assessment basis spanning several years, incentives are provided for a sustainable corporate management strategy, in particular as part of the long-term incentive program (LTI). The Supervisory Board of Rheinmetall AG resolves upon and regularly reviews the amount of Executive Board remuneration and any significant employment contract elements following preparation work carried out by the Personnel Committee.

The Supervisory Board regularly performs an extensive review of the remuneration system of the Executive Board on the basis of all relevant information, and looks in particular at whether the total remuneration of Executive Board members is proportionate to the scope of responsibilities of the Executive Board member in question, his personal performance and the economic situation and success of the company in comparison with industry peers and ensuring that this remuneration does not exceed standard remuneration unless there are special reasons for this.

The Supervisory Board most recently reviewed the appropriateness of the Executive Board remuneration at its meeting on December 5, 2019, and adjusted it to standard market conditions with effect from January 1, 2020. In addition, and in accordance with the act on the transposition of the Second Shareholder Rights Directive and the recommendations of the German Corporate Governance Code, the Supervisory Board reviewed the remuneration system and, with effect from January 1, 2020, agreed to amendments for newly joined Executive Board members or Executive Board members whose contracts are due for renewal. Remuneration is calculated in such a way as to ensure that it is competitive on a national and international scale, thus offering an incentive for dedicated and successful work.

Total remuneration is performance-based and is made up of various components. These comprise fixed annual remuneration not linked to performance, performance-related variable remuneration comprising a short-term incentive program (STI) and a long-term incentive program (LTI) as well as fringe benefits and pension commitments. The fixed component makes up 60% and the STI 40% of the annual target salary.

Fixed remuneration

The fixed component is paid out on a monthly basis in twelve equal portions. In addition, Executive Board members receive fringe benefits in the form of non-cash remuneration. This mainly consists of contributions to statutory social pension insurance (or any exempting life insurance in lieu) plus the use of a company car.

Performance-related variable remuneration

Performance-related variable remuneration comprises two elements, the STI and the LTI.

The target value (100%) for the STI is based on planning for the fiscal year. This is subject to the development of two key figures, EBT and return on capital employed (ROCE), which are each weighted at 50% and used as criteria for determining this figure.

The amount paid from the STI ranges between 0% and 200% of the target amount. Here, 200% of the target amount is paid if the planned value is exceeded by 10%. No payment is made from the STI if target achievement undershoots the planned value by 30%. In the case of intermediate target achievement values, a corresponding value within the range is paid out.

The target parameters are also used, in combination with others, by managerial staff in order to ensure the uniformity and consistency of the target system in the Group as a whole in this respect.

In order to gear the Executive Board remuneration structure more strongly towards sustainable corporate development, an LTI is part of the Executive Board remuneration. The LTI provides for a distribution at the end of the fiscal year in question based on the calculation of the average adjusted EBT from the last three fiscal years. This distribution amount is divided into a cash portion and an equity portion. The number of shares granted is based on a reference share price which corresponds to the average price on the last five trading days in February of the subsequent fiscal year. The shares granted are subject to a four-year lockup period, during which they are subject to all opportunities and risks inherent in capital market performance. The vesting period is canceled if a member of the Executive Board retires.

As part of the LTI, the figure to be taken into account when calculating the distribution amount (average adjusted EBT from the last three fiscal years) is limited to a maximum of €300 million. This is therefore a cap that is intrinsic to the system. The cash portion is mainly used to pay the tax bill incurred upon receipt of the shares and the cash portion.

Adjusted EBT € million

	2019	2018
EBIT	**512**	**518**
One-off expenses and income in connection with:		
Properties	(2)	(35)
Restructuring	24	16
EBIT (adjusted)	**533**	499
Net interest	(35)	(33)
EBT (adjusted)	**498**	466

Average adjusted EBT for fiscal 2018 was €386 million. Average adjusted EBT totaled €447 million for fiscal 2019 just ended. On account of the cap, only €300 million was taken into account in the calculation of the LTI for fiscals 2018 and 2019.

The employment contracts make provision for the ability of the Supervisory Board to grant, in exceptional cases and at its own discretion, a special bonus exclusively in the following cases: (i) for special achievements or specific efforts, (ii) if and to the extent to which the Executive Board member has made a particular difference to the company through his activities. Executive Board members are not entitled to the granting of this special bonus. The members of the Executive Board were not awarded a bonus in fiscal 2019.

In addition to salaries, a group accident and invalidity insurance policy and a D&O insurance policy (Directors' and Officers' liability insurance) are also in place, where a deductible of 10% of the loss or one and a half times the annual fixed remuneration has been agreed.

The contracts of Executive Board members provide for compensation in the event that the position on the Executive Board is terminated prematurely without cause. This is limited to a maximum of two years' salary including fringe benefits (compensation cap) and shall not provide any more payment than the remaining term of the employment contract.

The members of the Executive Board did not receive any benefits or equivalent entitlements from third parties with regard to their activities as Executive Board members in fiscal 2019 or in the previous year.

Remuneration report
Remuneration of the Executive Board

Total remuneration of the Executive Board

Individual details of the remuneration of the Executive Board in fiscal 2019 and pension commitments attributable to individual members of the Executive Board can be found in the following table, in addition to the respective values for the previous year:

Benefits granted € '000

	Armin Papperger CEO from January 1, 2013[1]		Helmut P. Merch Member of the Executive Board from January 1, 2013	
	2019	**2018**	**2019**	**2018**
Fixed remuneration	1,200	1,200	660	660
Fringe benefits	32	25	26	26
Total	**1,232**	**1,225**	**686**	**686**
One-year variable remuneration (STI)	1,424	1,600	783	880
Multi-annual variable remuneration (LTI)	1,650	1,650	825	825
Total	**4,306**	**4,475**	**2,294**	**2,393**
Pension expenses	1,189	1,182	792	907
Total remuneration	**5,495**	**5,657**	**3,086**	**3,298**

[1] Member of the Executive Board since January 1, 2012

Benefits granted € '000

	Horst Binnig Member of the Executive Board from January 1, 2014		Peter Sebastian Krause Member of the Executive Board from January 1, 2017	
	2019	**2018**	**2019**	**2018**
Fixed remuneration	600	600	443	443
Fringe benefits	26	25	35	35
Total	**626**	**625**	**478**	**478**
One-year variable remuneration (STI)	285	726	431	596
Multi-annual variable remuneration (LTI)	825	825	578	578
Total	**1,736**	**2,176**	**1,487**	**1,652**
Pension expenses	697	685	482	476
Total remuneration	**2,433**	**2,861**	**1,969**	**2,128**

There is no minimum amount of variable remuneration, although there is an upper limit.

Remuneration from the STI can amount to a maximum of €1,600 thousand for the CEO Armin Papperger, a maximum of €880 thousand for Helmut P. Merch, a maximum of €800 thousand for Horst Binnig and a maximum of €616 thousand for Peter Sebastian Krause.

Remuneration from the LTI can amount to a maximum of €1,650 thousand for the CEO Armin Papperger, up to a maximum of €825 thousand each for Helmut P. Merch and Horst Binning and up to a maximum of €578 thousand for Peter Sebastian Krause.

Cash flows € '000

	Armin Papperger CEO from January 1, 2013[1]		Helmut P. Merch Member of the Executive Board from January 1, 2013	
	2019	**2018**	**2019**	**2018**
Fixed remuneration	1,200	1,200	660	660
Fringe benefits	32	25	26	26
Total	**1,232**	**1,225**	**686**	**686**
One-year variable remuneration (STI)	1,424	1,600	783	880
Multi-annual variable remuneration (LTI)				
Payment	900	900	450	450
Transfer of shares	750	750	375	375
Total	**4,306**	**4,475**	**2,294**	**2,391**
Pension expenses	1,189	1,182	792	907
Total remuneration	**5,495**	**5,657**	**3,086**	**3,298**

[1] Member of the Executive Board since January 1, 2012

Cash flows € '000

	Horst Binnig Member of the Executive Board from January 1, 2014		Peter Sebastian Krause Member of the Executive Board from January 1, 2017	
	2019	**2018**	**2019**	**2018**
Fixed remuneration	600	600	443	443
Fringe benefits	26	25	35	35
Total	**626**	**625**	**478**	**478**
One-year variable remuneration (STI)	285	726	431	596
Multi-annual variable remuneration (LTI)				
Payment	450	450	315	315
Transfer of shares	375	375	263	263
Total	**1,736**	**2,176**	**1,487**	**1,652**
Pension expenses	697	685	482	476
Total remuneration	**2,433**	**2,861**	**1,969**	**2,128**

On the basis of the reference share price of €94.44 for the end of February 2019, a total of 18,660 shares were transferred to the Executive Board of Rheinmetall AG on April 2, 2019, as part of the LTI for fiscal 2018. The CEO Armin Papperger received 7,941 shares, while Helmut P. Merch and Horst Binnig each received 3,970 shares and Peter Sebastian Krause received 2,779 shares. The transfer of shares for the LTI for fiscal 2019 will take place on March 27, 2020, based on the reference share price as of the end of February 2020.

Pensions

As of January 1, 2014, the defined benefit contributions in the form of pensions agreed on the basis of individual contracts were replaced by modular defined benefits. A transitional arrangement also applies to Executive Board members who are currently in office. The amount of the defined benefits is determined on the basis of a share of the annual target salary, which is an average of 27.5%. The retirement age is 63. The company has recognized provisions for future claims.

Remuneration report
Remuneration of the Executive Board

Amendments to the remuneration system as of January 1, 2020

In accordance with the act on the transposition of the Second Shareholder Rights Directive and the recommendations of the German Corporate Governance Code, the Supervisory Board reviewed the current remuneration system and approved a series of amendments effective from January 1, 2020. The updated remuneration system applies to newly joined or Executive Board members or Executive Board members whose contracts are due for renewal.

The updated remuneration system applies to Personnel Committee chairman Peter Sebastian Krause from January 1, 2020. The newly appointed Executive Board member, who is also responsible for the Automotive sector, will be paid in accordance with the new remuneration system. For the Chairman of the Executive Board, Armin Papperger, and CFO Helmut P. Merch, the old remuneration system (see pages 144–147) shall apply due to the ongoing contracts.

(A) Main features of the remuneration system for members of the Executive Board of Rheinmetall AG

The remuneration system for the members of the Executive Board of Rheinmetall AG is geared toward sustainable and long-term corporate development and, as such, contributes to advancing the business strategy and long-term growth of the company. The system offers incentives for the value-creating and long-term development of the company.

The remuneration system aims to ensure that the members of the Executive Board are properly remunerated according to their sphere of activity and responsibility, taking into reasonable account both the personal performance of each and every Executive Board member as well as the economic situation and success of the company. The remuneration system is designed to ensure that it is competitive on a national and international scale and so offer an incentive for dedicated and successful work.

The remuneration system at Rheinmetall AG envisages, on the one hand, fixed remuneration with fringe benefits and, on the other, performance-related remuneration comprising two components: the one-year short-term incentive (STI) and multi-year long-term incentive (LTI).

This remuneration essentially covers all activities for the company and for services performed with the company in accordance with sections 15 et seq. of the German Stock Corporation Act. If remuneration is agreed for mandates at affiliated companies, this is offset against the fixed remuneration. In the case of mandates at companies that are not affiliated companies or for functions in associations or similar groups to which the company or one of its affiliated companies belongs, the Supervisory Board decides on the setting-off.

(B) Maximum remuneration of the members of the Executive Board

The maximum total remuneration for each individual member of the Executive Board corresponds to the amount calculated from the sum of all remuneration components for the fiscal year in question, taking into account the modifier and defined caps. The maximum remuneration is defined as follows:

- Basic remuneration and
- STI up to 2.5 times the target value of +/- 20% due to modifier [see D 2.1] and
- LTI up to an average adjusted EBT over the past three fiscal years in the amount of €750 million, which is multiplied by a personal factor calculated for each individual Executive Board member, and up to a limit of the 75th percentile of a relative analysis of the TSR of Rheinmetall AG as a ratio of the TSR of the MDAX [see D 2.2]

Maximum remuneration of the Executive Board members €

	Basic remu-neration	STI	LTI at cap		Total
		2.5 times the target value +20% due to modifier	EBT	TSR	
Unnamed Executive Board member Automotive sector	600,000	1,200,000	618,750	618,750	3,037,500
Peter Sebastian Krause	540,000	1,080,000	552,750	552,750	2,725,500

(C) Description of the procedure for defining, implementing and reviewing the remuneration system

The remuneration system is defined by the Supervisory Board, which is supported here by the Personnel Committee of the Supervisory Board. The Personnel Committee formulates the structure and individual components of the remuneration system and informs the Supervisory Board so that can preparations can be made to discuss the remuneration system and pass a resolution. Both the Personnel Committee and Supervisory Board can consult external remuneration experts; care must be taken to ensure that external consultants are independent. External legal consultants can also be consulted.

The remuneration system is reviewed by the Personnel Committee every two years and every time an Executive Board remuneration agreement is pending. If necessary, the Personnel Committee then prepares for the benefit of the Supervisory Board any suggestions for adjusting the remuneration system.

The Annual General Meeting passes a resolution on the remuneration system every time it is changed significantly, but at least every four years. If the Annual General Meeting does not authorize the remuneration system, a revised remuneration system must be submitted for approval at the latest in the next ordinary Annual General Meeting.

When the remuneration system is being formulated, the Supervisory Board – with the support of the Personnel Committee – must review the appropriateness of the current structure of the Executive Board remuneration within the company. The Supervisory Board was supported by a leading remuneration expert in the detailed analysis of the salary.

The detailed examination of the Executive Board remuneration included above all a horizontal remuneration comparison in which the level of the target and maximum remuneration received by the members of the Executive Board were set in relation to the remuneration paid in MDAX-listed companies. This comparison took into account sales, number of employees, internationality and complexity (two technology sectors and major political implications) of the Rheinmetall Group.

The Supervisory Board performed a vertical remuneration comparison in which the remuneration and employment conditions of the employees in the company and Rheinmetall Group are taken into account. The primary comparison group was the first two management levels under the Executive Board.

For a range of parameters that are crucial to the level of remuneration, the remuneration system provides for various bandwidths within which the most important values for each individual Executive Board member can be set. This allows the Supervisory Board to set not only the individual performance and skills of each individual Executive Board member, but also personalized incentives on a case-by-case basis. The bandwidths anchored in the remuneration system also allow, for example, any change in the Chair of the Executive Board or the special importance of specific areas to be properly reflected.

Remuneration report
Remuneration of the Executive Board

Within the context of the variable, short-term remuneration components, the remuneration system envisages parameters that are agreed upon annually with the Executive Board member in question. On the basis of these parameters, and assuming 100% target achievement, the target remuneration for the remuneration component are set in coordination with the other key provisions for this remuneration component. The sum of the target remuneration of the variable remuneration components and the fixed remuneration components results in the total target remuneration of each Executive Board member.

When setting the remuneration parameters, the Supervisory Board ensures that the long-term variable remuneration forms the dominant component. Furthermore, the Supervisory Board ensures that remuneration components are related to challenging, relevant reference parameters.

No conflicts of interest have been identified among any of the Supervisory Board members in relation to decisions concerning the remuneration system for the Executive Board. In the event that any such conflict of interest should arise when the remuneration system is defined, implemented and reviewed, the Supervisory Board will handle this in the same way as it does any other conflict of interest relating to a member of the Supervisory Board and ensure that the Supervisory Board member in question does not take part in the passing of a resolution or, in the event of a serious conflict of interest, does not even attend the relevant meeting. In the event of a long-term and unresolvable conflict of interest, the Supervisory Board member in question must step down from their position. The early disclosure of conflicts of interest ensures that the decisions of the Supervisory Board and Personnel Committee are not inappropriately influenced.

This remuneration system is applied to the Executive Board contracts with Peter Sebastian Krause and the future chair of Automotive. New Executive Board contracts to be concluded and an extension of Executive Board contracts are also used as a basis. The remuneration of Armin Papperger and Helmut P. Merch, however, is governed by the rules of the current remuneration system.

(D) Fixed and variable remuneration components

The remuneration system provides for fixed and variable remuneration components.

1. Fixed remuneration components

1.1 Basic remuneration

Each Executive Board member receives a performance-related basic remuneration, which is paid every month in twelve equal parts.

1.2 Fringe benefits

In addition to their basic remuneration, the Executive Board members receive fringe benefits including not only the reimbursement of reasonable expenses, but also subsidies for health and long-term care insurance and the provision of a company car that can also be used privately in accordance with current guidelines. Additional accident insurance is also taken out for each Executive Board members, which may also include a payment to heirs of the Executive Board member in the event of his/her death. The tax burden resulting from these fringe benefits is borne by the respective Executive Board member.

1.3 Pension scheme for persons appointed to the Executive Board as of January 1, 2014

For persons who were first appointed to the Executive Board as of January 1, 2014, as a body of Rheinmetall AG and who previously had not sat on the Executive Board of Rheinmetall Automotive AG (a bridging provision from the old system applies here), the remuneration system provides for modular defined benefits. They receive an annual basic contribution in the amount of 16% of the target income comprising the basic remuneration and 100% target value of the STI. The basic contribution may also be supplemented by a performance-related additional contribution. The additional contribution is capped, i.e. it has an upper limit equal to 30% of the basic contribution.

The basic contribution and, if applicable, performance-related additional contribution are converted annually to a capital component with a capitalization factor linked to the benefits age. The sum of the capital components acquired in the past few calendar years yields the total pension capital.

The total pension capital is converted to a lifelong pension when benefits become due. With the new remuneration system, the retirement age is 65.

2. Variable remuneration components / financial and non-financial performance criteria

The variable, performance-related remuneration comprises a short-term variable remuneration component (STI) and long-term variable remuneration component (LTI).

2.1 STI

In this remuneration system, the short-term variable remuneration component is the one-year STI, the amount of which depends on the achievement of predefined financial and non-financial goals.

In the Executive Board contracts, a target value for the duration of Executive Board contract is agreed upon; this figure assumes a 100% target achievement. The amount corresponding to the target value is adjusted upward or downward depending on the extent of target achievement, with a linear calculation made between the target achievement levels shown in the table below. As of 120% target achievement, the extent to which the amount can be adjusted upward is capped at 2.5 times the target value. If target achievement is 80% or lower, the STI for the fiscal year in question is €0.00.

Degree of achievement of agreed annual targets			STI payment
≥	20%	under agreed targets	0%
	10%	under agreed targets	50%
	100%	of agreed targets	100%
	10%	over agreed targets	150%
	15%	over agreed targets	200%
≥	20%	over agreed targets	250%

The most important financial and non-financial targets for the fiscal year in question are, at the start of this fiscal year, defined in a separate target agreement, which becomes part of the Executive Board contract. Financial targets include the two key figures “earnings before tax” (EBT) and “return on capital employed” (ROCE), while non-financial targets include the implementation of the corporate strategy and an orientation toward sustainability-related aspects.

Remuneration report
Remuneration of the Executive Board

The STI also provides for a modifier – in other words, a margin of discretion that enables the Supervisory Board to adjust the values resulting from the achievement of targets upward or downward in the event of extraordinary developments. The margin by which the payment amount can be adjusted is limited to +/-20%. If and insofar as the employment contracts of multiple Executive Board members provide for a modifier, it can be set only uniformly for these contracts.

The resulting amount is transferred to the relevant Executive Board member with the next salary statement following approval of the single-entity financial statements by the Supervisory Board.

2.2 LTI

To focus Executive Board remuneration more strongly on sustainable corporate development, the remuneration system provides for the participation of Executive Board members in the Company's LTI program, taking into account the relevant, applicable program conditions.

The LTI is based on two pillars, which have to be evaluated separately. For the first pillar, the average EBT over the past three years multiplied by a personal factor for each Executive Board member is decisive.

For the other pillar, the average monthly total shareholder return (TSR) over the company's past fiscal year as a proportion of the average monthly TSR of the MDAX is decisive. For each of these pillars, a distribution amount needs to be calculated, 50% of which is issued in company shares and 50% in cash. Another 20% of the share value is added to this cash distribution amount.

I			II		
EBT (average over 3 years)			**TSR**		
EBT (average over 3 years) x factor			TSR Rheinmetall AG vs TSR MDAX (last 12 months in each case)		
50% shares	50% cash distribution	20% of share value in cash	50% shares	50% cash distribution	20% of share value in cash

In each case, the cash remuneration granted under LTI is paid and the granted shares are posted to the securities accounts of the Executive Board members in April of the following year.

(a) Target distribution amount

In the Executive Board contracts, a target value for the duration of this Executive Board contract is agreed upon; this value assumes 100% target achievement for the two remuneration components decisive for the LTI. This amount is adjusted upward or downward depending on the extent of target achievement.

(b) Inclusion of EBT

The EBT-oriented component of the LTI is based on the average adjusted EBT of the company in the year for which the remuneration is paid as well as for the two years previous to this year. The adjusted EBT is calculated annually on the basis of Rheinmetall's consolidated financial statements by adding together the adjusted EBIT published in the annual report and the net interest income. The adjusted EBIT is shown on page 145.

The average adjusted EBT in the year in question and the two years previous is calculated on this basis. This means that the distribution amount for the 2020 LTI is calculated on the basis of the average adjusted EBT of the Rheinmetall Group in the years 2018–2020.

For the contract term, a personal EBT factor is agreed upon with the Executive Board member. To determine the share of the long-term remuneration based on the average adjusted EBT, this factor is multiplied by the actual average adjusted EBT over the past few years. This yields the (provisional) distribution amount, 50% is issued in company shares and 50% in cash. An amount equivalent to 20% of the share value is added to the cash distribution; the share value refers to the amount for which the Executive Board member receives company shares for the fiscal year in question under the LTI.

The average adjusted three-year EBT needed for calculating the distribution amount is capped at €750 million, which means that a higher remuneration cannot be granted even if the average adjusted three-year EBT exceeds this value. If the average adjusted three-year EBT is €0.00 or lower, this remuneration component ceases to apply.

The following example explains the calculation: If an average adjusted EBT of €500 million and a personal factor of 0.00075 are assumed, this results in a (provisional) distribution amount of €375,000.00, of which 50% is issued in company shares 50% in cash. If 20% of the share value is then added to this amount, this results in a distribution amount of €412,500.00.

(c) Inclusion of TSR

The TSR-oriented component of the LTI is based on the monthly average TSR over the company's past fiscal year. The decisive TSR figure is calculated as follows on the basis of thirteen month ends (December 31 of the previous year up to and including December 31 of the year in question):

The total return of a single Rheinmetall share for each individual month in a fiscal year is first determined. Intermediate dividends are reinvested on the day of the dividend markdown (ex-day) at the closing price. Decisive here is the final XETRA closing price on the Frankfurt Stock Exchange in each month. This increases the portfolio of shares for the following months. These monthly returns on shares are used to form an average value, which is compared with all the MDAX values determined by the same method. For better comparability, only the MDAX values that appeared in the index across the entire period under review are included in the calculation. The average values of all companies – including Rheinmetall AG – are placed in order and assigned to percentiles. The percentiles, in turn, are assigned factors (percentages), with which a base LTI amount is multiplied to generate a monetary value for the LTI.

The assignment is made through linear interpolation between the 75th percentile (= cap 150%) and the 0 percentile (= 0%), whereby achievement of the 50th percentile (= median) corresponds to the factor 100%. The distribution amount – including the additional 20% of the share value – therefore corresponds to a gross amount of 50% of the target distribution amount [see [2.2 (a) above].

Remuneration report
Remuneration of the Executive Board

(d) Summarizing example
When the aforementioned underlying examples relating to the EBT component and TSR component are combined, this produces the following remuneration under the LTI:

I			II		
EBT (average over 3 years)			**TSR**		
Factor 0.00075	€500,000,000	€375,000	25th percentile ≥ 75th percentile **50th percentile**	50% 150% **100%**	€187,500 €562,500 **€375,000**
	50% cash distribution	€187,500		50% cash distribution	€187,500
	50% share value	€187,500		50% share value	€187,500
	+ 20% share value	€37,500		+ 20% share value	€37,500
	Total cash remuneration	**€412,500**		**Total cash remuneration**	**€412,500**

(e) Information on determining the number of shares and cash payment amount
Both for the remuneration component based on EBT and TSR, 50% of the provisional payment amount is divided by an average Rheinmetall AG share price. Decisive here is the average price from the XETRA closing prices on the Frankfurt Stock Exchange over the past five trading days in a February. The figure is rounded up to the whole share, with the remaining, disregarded fraction converted to euro and added to the cash distribution amount. 20% of the share value is added to the cash distribution amount.

Taxes and social security contributions incurred as a result of the granting of the shares and the cash distribution will be withheld from the cash distribution amount before payment.

During conversion and additions, the figures are calculated to two decimal places.

(f) Lockup period for the shares granted under LTI
The shares granted under the LTI are subject to a lockup period of four years as of the point at which these shares are posted to the securities account of the Executive Board member. This means that the Management Board member cannot freely dispose of and transfer these shares to a third party until after this period has expired. During the lockup period, the shares granted are exposed to all the opportunities and risks that prevail on the capital market. The four-year lockup period ends automatically when the Executive Board member retires. This means that Executive Board members can sell the granted shares as soon as they retire. The lockup period also ends automatically in the event of the death of an Executive Board member, which means that the securities account holdings can be sold immediately by the heirs.

3. Defining the target total remuneration
The Supervisory Board defines a target total remuneration for each Executive Board member. The target total remuneration is an amount granted in the event of 100% target achievement. The target total remuneration is the sum of the basic remuneration, the target STI and LTI along with the contributions for the pension scheme and fringe benefits.

4. **Possibilities for the company to reclaim variable remuneration components**
In accordance with the remuneration system, the Executive Board contracts contain a "claw-back" clause, which entitles the company to partially reclaim amounts paid under the STI or LTI, regardless of whether the targets decisive for these payments were achieved. This is subject to the condition that, after the end of the assessment period for the relevant remuneration component, the company suffers a serious deterioration in its situation as a result of serious, company-specific reasons and the "claw-back" with regard to the performance of the Executive Board member is not unreasonable at the dutiful discretion of the Supervisory Board, taking into account the conduct and performance of the Executive Board member during the assessment period. The company is entitled to reclaim amounts within two years of the end of the assessment period of the relevant remuneration component. The repayment claim is capped at 50% of the net amount of the STI and LTI granted in the assessment period. Any claims for compensation against the Executive Board member in question remain unaffected.

(E) Terms and termination of the Executive Board contracts

The Executive Board contracts are concluded for the duration of the appointment of the person concerned to the Executive Board and thus for a period of up to five years. It can be agreed in the contracts that the term can be extended accordingly if the person concerned is reappointed to the Executive Board. If either the company does not wish a specific Executive Board member to be reappointed or an Executive Board member does not wish to be reappointed or the Supervisory Board dismisses the Executive Board member, it may be agreed that the Supervisory Board shall release the Management Board member from their duties, with the contract remaining in force for the remaining period.

Ordinary termination of the employment contract of the Executive Board is excluded. It is possible, however, for both the Executive Board member concerned and the company to terminate the contract for cause.

The Executive Board contracts stipulate that the contract shall end automatically at the latest at the end of the month in which the Executive Board member reaches the standard retirement age under the statutory pension scheme or at the time when they draw a statutory retirement pension before reaching the standard retirement age. Automatic termination is also stipulated in the event that the Executive Board member becomes permanently unable to work during the term of their contract.

(F) Payments in the event of premature termination of the Executive Board contract

If the Executive Board contract is terminated during the year, the fixed compensation as well as the STI and LTI are granted only on a pro rata temporis basis. The level of target achievement for the STI and LTI is always calculated on the day on which the contract ends, although the remuneration system provides for the agreement of an alternative arrangement in the Executive Board contract.

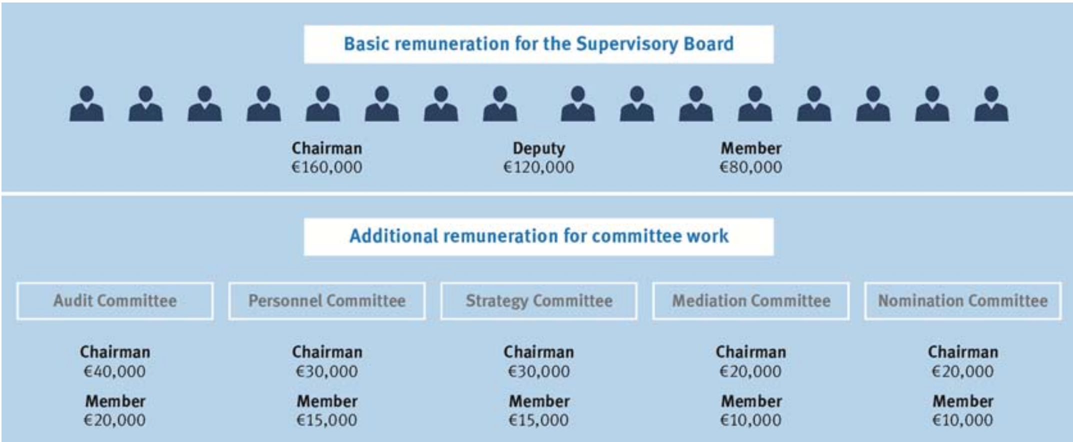
The remuneration system also stipulates a severance payment cap, whereby payments to an Executive Board member that are agreed upon with the Executive Board member concerned in the event of premature termination without cause of the Executive Board contract (including fringe benefits) do not exceed the equivalent of two annual remuneration payments and do not remunerate more than the remaining term of the Executive Board contract. The remuneration system does not allow any special arrangements for a severance payment in the event of a change of control.

Remuneration report
Remuneration of the Supervisory Board

Remuneration of the Supervisory Board

The remuneration of the Supervisory Board of Rheinmetall AG is regulated in Article 13 of the Articles of Association. Furthermore, the Executive Board of the company was authorized by resolution of the Annual General Meeting of May 8, 2018, approved the application of the Executive Board and Supervisory Board to increase the remuneration for the Supervisory Board from fiscal 2019 onward.

Remuneration of the members of the Supervisory Board and its committees



The shareholder representatives on the Supervisory Board received the following remuneration for fiscal 2019:

€		Fixed remuneration 2019	Remuneration for committee work	2019	2018
Ulrich Grillo	Chairman of the Supervisory Board and Chairman of the Strategy, Personnel, Mediation and Nomination Committees and a member of the Audit Committee	160,000	120,000	280,000	255,000
Dr.-Ing. Dr.-Ing. E. h. Klaus Draeger	Member of the Supervisory Board and Strategy Committee	80,000	15,000	95,000	75,000
Professor Dr. Andreas Georgi	Member of the Supervisory Board and Personnel Committee and Chairman of the Audit Committee	80,000	55,000	135,000	105,000
Professor Dr. Susanne Hannemann	Member of the Supervisory Board and Audit Committee	80,000	20,000	100,000	75,000
Dr. Franz Josef Jung	Member of the Supervisory Board and Nomination Committee	80,000	10,000	90,000	75,000
Detlef Moog	Member of the Supervisory Board and Strategy Committee	80,000	15,000	95,000	75,000
Klaus-Günter Vennemann	Member of the Supervisory Board and Nomination Committee	80,000	10,000	90,000	75,000
Univ.-Prof. Dr. Marion A. Weissenberger-Eibl	Member of the Supervisory Board and Mediation Committee	80,000	10,000	90,000	75,000
Total for shareholder representatives		720,000	255,000	**975,000**	**810,000**

Total for the Supervisory Board

The employee representatives in the Supervisory Board who are members of the trade union and forward their Supervisory Board remuneration to the Hans Böckler Foundation in accordance with the guidelines of the Federation of German Trade Unions received the following remuneration for fiscal 2019:

€		Fixed remuneration	Remuneration for committee work	2019	2018
Dr. Rudolf Luz	Deputy Chairman of the Supervisory Board and member of the Strategy, Personnel, Audit and Mediation Committees	120,000	60,000	180,000	180,000
Roswitha Armbruster	Member of the Supervisory Board and Audit Committee	80,000	20,000	100,000	75,000
Dr. Daniel Hay	Member of the Supervisory Board and member of the Personnel Committee	80,000	15,000	95,000	75,000
Dr. Michael Mielke	Member of the Supervisory Board	80,000	0	80,000	60,000
Reinhard Müller	Member of the Supervisory Board and member of the Mediation Committee	80,000	10,000	90,000	75,000
Dagmar Muth	Member of the Supervisory Board and member of the Strategy Committee	80,000	15,000	95,000	75,000
Markus Schaubel	Member of the Supervisory Board and member of the Strategy Committee	80,000	15,000	95,000	75,000
Sven Schmidt	Member of the Supervisory Board and member of the Audit Committee	80,000	20,000	100,000	75,000
Total for employee		680,000	155,000	**835,000**	**690,000**
Representatives				**1,810,000**	**1,500,000**

Total for the Supervisory Board

In addition, Rheinmetall refunds VAT on Supervisory Board remuneration to the members of the Supervisory Board upon request.

Supervisory Board and committee members who belonged to the Supervisory Board or committee for only part of the fiscal year receive remuneration on a pro rata temporis basis. The amount of the attendance fee has not changed. The attendance fee for Supervisory Board meetings is €1,000. The attendance fee for committee meetings that are not held on the same day as a Supervisory Board meeting is €500.

In the year under review, the members of the Supervisory Board did not receive any further remuneration or benefits for personal services, especially consultancy and mediation services. As in previous years, the Supervisory Board members did not receive any advance payments or loans, nor were any contingent liabilities in their favor entered into.

Supplementary report

Events after the end of the reporting period

Between the end of the reporting period on December 31, 2019, and February 27, 2020, no events that could have materially affected the company’s net assets, financial position or results of operations occurred at Rheinmetall AG. That said, the World Health Organization announced on January 30, 2020, a public health emergency due to the coronavirus. In China, numerous restricted zones have been established along with a series of other safety measures. The actual economic impact on China and the global economy due to the spread of this previously unknown virus is currently impossible to predict. From today's perspective, however, the economic risks – especially for the international supply relationships in the automotive industry – will increase in fiscal 2020. Rheinmetall will monitor the potential consequences of the global spread of the coronavirus and adjust the annual forecasts if and when necessary.

Düsseldorf, February 27, 2020

Rheinmetall Aktiengesellschaft
The Executive Board

Armin Papperger   Helmut P. Merch   Peter Sebastian Krause

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CONSOLIDATED FINANCIAL STATEMENTS

Rheinmetall Group
Balance sheet as of December 31, 2019

€ million	Note	Dec. 31, 2019	Dec. 31, 2018
Assets			
Goodwill	(7)	567	550
Other intangible assets	(7)	233	173
Rights of use	(8)	204	170
Property, plant and equipment	(9)	1,361	1,309
Investment property	(10)	42	43
Investments accounted for using the equity method	(11)	309	285
Other non-current assets	(14)	255	205
Deferred taxes	(28)	224	218
Non-current assets		**3,195**	**2,951**
Inventories	(12)	1,463	1,259
Contract Asset	(21)	388	338
Trade receivables	(21)	1,147	1,185
Other current assets	(14)	242	178
Income tax receivables		41	22
Liquid financial assets	(13)	20	100
Cash and cash equivalents	(15)	920	724
Assets held for sale		-	2
Current assets		**4,220**	**3,808**
Total assets		**7,415**	**6,759**
Equity and liabilities			
Subscribed capital		112	112
Additional paid-in capital		553	547
Retained earnings		1,478	1,384
Treasury shares		(17)	(21)
Rheinmetall AG shareholders' equity		**2,125**	**2,022**
Non-controlling interests		146	151
Equity	(16)	**2,272**	**2,173**
Provisions for pensions and similar obligations	(17)	1,169	972
Other non-current provisions	(18)	214	210
Non-current financial debts	(19)	880	704
Other non-current liabilities	(20)	86	79
Deferred taxes	(28)	16	15
Non-current liabilities		**2,365**	**1,980**
Other current provisions	(18)	709	656
Current financial debts	(19)	112	151
Contractual liabilities	(21)	948	650
Trade liabilities		695	797
Other current liabilities	(20)	215	231
Income tax liabilities		99	120
Current liabilities		**2,779**	**2,607**
Total liabilities		**7,415**	**6,759**

Rheinmetall Group
Income statement for fiscal 2019

€ million	Note	2019	2018
Sales	(21)	**6,255**	**6,148**
Changes in inventories and work performed by the enterprise and capitalized	(22)	236	44
Total operating performance		**6,491**	**6,192**
Other operating income	(23)	186	179
Cost of materials	(24)	3,444	3,209
Personnel expenses	(25)	1,678	1,574
Amortization, depreciation and impairment	(26)	280	318
Other operating expenses	(27)	781	775
Income from investments carried at equity		37	37
Other net financial income		(20)	(13)
Earnings before interest and taxes (EBIT)		**512**	**518**
Interest income		11	6
Interest expenses		(46)	(39)
Earnings before taxes (EBT)		**477**	**485**
Income taxes	(28)	(123)	(131)
Earnings after taxes		**354**	**354**
Of which:			
Non-controlling interests		*19*	*49*
Rheinmetall AG shareholders		*335*	*305*
Earnings per share	(29)	€ 7.77	€ 7.10

Statement of comprehensive income for fiscal 2019

€ million	2019	2018
Earnings after taxes	**354**	**354**
Remeasurement of net defined benefit liability from pensions	(97)	52
Other income from investments carried at equity	(3)	-
Amounts not reclassified in the income statement	**(100)**	**52**
Change in value of derivative financial instruments (cash flow hedge)	13	(20)
Currency conversion difference	32	(2)
Other income from investments carried at equity	1	(2)
Amounts reclassified in the income statement	**46**	**(24)**
Other comprehensive income (after taxes)	**(54)**	**29**
Comprehensive income	**299**	**383**
Of which:		
Non-controlling interests	*21*	*40*
Rheinmetall AG shareholders	*279*	*343*

Rheinmetall Group
Cash flow statement for fiscal 2019

€ million	2019	2018
Earnings after taxes	354	354
Amortization, depreciation and impairment	280	318
Allocation of CTA assets to secure pension and partial retirement obligations	(20)	(40)
Changes in pension provisions	(2)	(8)
Income from disposition of non-current assets	-	(32)
Changes in other provisions	23	28
Changes in working capital	31	(398)
Changes in receivables, liabilities (without financial debts) and prepaid & deferred items	(68)	52
Pro rata income from investments carried at equity	(37)	(37)
Dividends received from investments carried at equity	17	7
Other non-cash expenses and income	24	(3)
Cash flows from operating activities [1]	**602**	**242**
Investments in property, plant and equipment, intangible assets and investment property	(288)	(277)
Cash receipts from the disposal of property, plant and equipment, intangible assets and investment property	8	73
Payments for investments in subsidiaries and financial assets	(56)	(21)
Cash receipts from the disposal of current liquid financial assets	329	294
Payments for the purchase of current liquid financial assets	(245)	(277)
Cash flows from investing activities	**(252)**	**(208)**
Increases in shares in subsidiaries	(136)	-
Dividends paid out by Rheinmetall AG	(90)	(73)
Other profit contributions	(2)	(8)
Shares issued to employees	-	1
Borrowing of financial debts	236	154
Repayment of financial debts	(166)	(139)
Cash flows from financing activities	**(158)**	**(66)**
Changes in financial resources	**191**	**(32)**
Changes in cash and cash equivalents due to exchange rates	4	-
Total change in financial resources	**195**	**(33)**
Opening cash and cash equivalents Jan. 1	**724**	**757**
Closing cash and cash equivalents Dec. 31	**920**	**724**

[1] *Of which:*

Net interest of €-19 million (previous year: €-20 million), net income taxes of €-144 million (previous year: €-100 million)

Rheinmetall Group
Statement of changes in equity

€ million	Subscribed capital	Additional paid-in capital	Total retained earnings	Treasury shares	Rheinmetall AG shareholders' equity	Non-controlling interests	Equity
As at Jan. 1, 2018	**112**	**540**	**1,116**	**(25)**	**1,743**	**118**	**1,860**
Earnings after taxes	-	-	305	-	305	49	354
Other comprehensive income	-	-	38	-	38	(9)	29
Comprehensive income	-	-	343	-	343	40	383
Dividends payout	-	-	(73)	-	(73)	(8)	(81)
Disposal of treasury shares	-	-	-	4	4	-	4
Other changes	-	8	(2)	-	6	1	7
As at Dec. 31, 2018	**112**	**547**	**1,384**	**(21)**	**2,022**	**151**	**2,173**
As at Jan. 1, 2019	**112**	**547**	**1,384**	**(21)**	**2,022**	**151**	**2,173**
Earnings after taxes	-	-	335	-	335	19	354
Other comprehensive income	-	-	(56)	-	(56)	2	(54)
Comprehensive income	-	-	279	-	279	21	299
Dividends payout	-	-	(90)	-	(90)	(2)	(92)
Disposal of treasury shares	-	-	-	4	4	-	4
Changes in shares in subsidiaries	-	-	(92)	-	(92)	(43)	(136)
Change of circle of consolidation	-	-	-	-	-	18	18
Other changes	-	6	(2)	-	4	2	6
As at Dec. 31, 2019	**112**	**553**	**1,478**	**(17)**	**2,125**	**146**	**2,272**

Composition of retained earnings:

€ million	Currency conversion difference	Remeasure-ment of net defined benefit liability from pensions	Hedge reserve	Other income from investments carried at equity	Other reserves	Total retained earnings
As at Jan. 1, 2018	(18)	(483)	23	(3)	1,598	**1,116**
Earnings after taxes	-	-	-	-	305	305
Other comprehensive income	4	51	(16)	(2)	-	38
Comprehensive income	4	51	(16)	(2)	305	343
Dividends payout	-	-	-	-	(73)	(73)
Other changes	-	-	-	-	(2)	(2)
As at Dec. 31, 2018	(14)	(432)	7	(5)	1,828	**1,384**
As at Jan. 1, 2019	**(14)**	**(432)**	**7**	**(5)**	**1,828**	**1,384**
Earnings after taxes	-	-	-	-	335	335
Other comprehensive income	28	(92)	10	(3)	-	(56)
Comprehensive income	28	(92)	10	(3)	335	279
Dividends payout	-	-	-	-	(90)	(90)
Changes in shares in subsidiaries	-	-	-	-	(92)	(92)
Other changes	-	(3)	-	-	1	(2)
As at Dec. 31, 2019	13	(527)	17	(8)	1,981	**1,478**

Notes to the consolidated financial statements
Segment reporting

€ million		Automotive		Defence		Other/ Consolidation		Group	
		2019	2018	2019	2018	2019	2018	2019	2018
Income statement									
External sales		2,736	2,930	3,522	3,221	(3)	(4)	6,255	6,148
Operating result		184	262	343	254	(22)	(25)	505	491
Special items		2	4	(2)	(7)	7	30	7	27
EBIT	(1)	186	266	341	247	(15)	5	512	518
of which:									
At equity income		29	32	8	6	-	-	37	37
Amortization and depreciation		160	152	109	118	8	7	278	277
Impairment		*1*	*3*	-	*38*	-	-	*2*	*42*
Interest income		4	2	12	7	(5)	(2)	11	6
Interest expenses		(22)	(12)	(36)	(34)	11	7	(46)	(39)
EBT		169	256	317	220	(9)	10	477	485
Other data									
Operating free cash flow		73	26	266	(29)	(26)	(32)	314	(35)
Order intake		2,705	2,888	5,186	5,565	(3)	(3)	7,889	8,451
Order backlog Dec. 31		447	478	10,399	8,577	-	-	10,846	9,055
Employees as at Dec. 31 (capacities)		11,405	11,710	12,100	10,948	275	241	23,780	22,899
Net financial debt (-)/Net liquidity (+)	(2)	52	67	240	155	(345)	(252)	(52)	(30)
Pension provisions	(3)	401	375	702	535	65	63	1,169	972
Equity	(4)	1,113	1,077	1,384	1,265	(225)	(170)	2,272	2,173
Capital employed	-(2)+(3)+(4)	1,462	1,385	1,846	1,645	185	145	3,493	3,175
Average capital employed	(5)	1,423	1,310	1,746	1,553	165	168	3,334	3,030
ROCE (in %)	(1)/(5)	13.1	20.3	19.6	15.9	-	-	15.4	17.1

Disclosures according to region

€ million	Germany		Other Europe		Americas		Asia		Miscellaneous		Group	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
External sales Defence	1,434	1,118	693	597	113	171	594	644	688	692	3,522	3,221
External sales Automotive	515	586	1,173	1,267	542	564	486	492	20	22	2,736	2,930
Consolidation	(3)	(4)	-	-	-	-	-	-	-	-	(3)	(4)
External sales Group	1,946	1,700	1,866	1,863	655	735	1,080	1,136	708	713	6,255	6,148
in % of Group sales	31	28	30	30	10	12	17	18	11	12	-	-
Assets	1,379	1,322	588	530	216	201	144	123	79	68	2,406	2,244

Notes to the consolidated financial statements
Accounting principles

(1) General disclosures

Rheinmetall AG is the parent company of the Rheinmetall Group and has its registered office at Rheinmetall Platz 1, Düsseldorf (Düsseldorf Commercial Register, HRB 39401). The consolidated financial statements of Rheinmetall AG have been prepared in accordance with the regulations of section 315e(1) German Commercial Code ("HGB") and the International Financial Reporting Standards (IFRS) as adopted by the European Union (EU). The consolidated financial statements and the Group management report, which is combined with the management report of Rheinmetall AG, are submitted to the operator of the Federal Gazette and published in the Federal Gazette.

The fiscal year of Rheinmetall AG and the financial statements of subsidiaries included in the consolidated financial statements is the calendar year. The consolidated financial statements are presented in euro (€). Unless stated otherwise, all amounts – including those for the previous year – are reported in millions of euro (€ million). All figures in these consolidated financial statements have been rounded on a standalone basis. This can result in minor deviations when adding figures together. The new rounding method can also lead to minor deviations between the previous year's figures stated here and the figures in the consolidated financial statements for 2018. The consolidated income statement has been presented in the total cost (nature of expense) format. Only matters significant to the net assets, financial position and results of operations of the Rheinmetall Group are explained in the notes to the consolidated financial statements.

(2) New and amended accounting standards

Accounting standards, amendments to standards and interpretations applied for the first time in fiscal 2019:

Standard	Name
Amendments to IAS 19	Plan Amendment, Curtailment or Settlement
Amendments to IAS 28	Long-term Interests in Associates and Joint Ventures
Amendments to IFRS 9	Prepayment Features with Negative Compensation
IFRIC 23	Uncertainty over Income Tax Treatments
Improvements to IFRSs	2015-2017 Cycle

The amendments to IAS 19 stipulate that the current service cost and the net interest expense/income resulting from plan amendments, curtailments or settlements are determined for the rest of the period using updated assumptions.

The amendments to IAS 28 address the question of how the requirements of IAS 28 "Investments in Associates and Joint Ventures" combine with those of and IFRS 9 "Financial Instruments." They clarify that IFRS 9 including its impairment requirements is applicable to long-term interests in an associate or joint venture that, in substance, form part of the net investment in the associate or joint venture but to which the equity method is not applied.

The amendments to IFRS 9 clarify that a financial asset meets the SPPI condition regardless of the event or circumstance resulting in the early termination of the contract and regardless of which party pays or receives reasonable compensation for the early termination of the contract.

IFRIC 23 includes provisions on the recognition and measurement of uncertainties in income taxes and thus closes loopholes in IAS 12 "Income Taxes." The new provisions clarify that income tax risks must be recognized if it is probable that the tax authority will accept the selected tax treatment.

Notes to the consolidated financial statements
Accounting principles

In the 2015-2017 Cycle, the process for the improvement and interpretation of existing IFRSs primarily related to IFRS 3, IFRS 11, IAS 12, and IAS 23.

The application of the new and amended standards and interpretations has no material effect on the presentation of the Rheinmetall Group's net assets, financial position and results of operations. Rheinmetall Group already applied the new standard IFRS 16 "Leases" early in fiscal 2018.

Accounting standards, amendments to standards and interpretations published but not yet applied in fiscal 2019:

Standard	**Name**
Amendments relating to the Conceptual Framework	Amendments to References to the Conceptual Framework in IFRS Standards
Amendments to IAS 1 and IAS 8	Definition of Material
Amendments to IFRS 9, IAS 39 and IFRS 7	Interest Rate Benchmark Reform

Together with the revised Conceptual Framework of March 2018, the IASB has also issued amendments to references to the Conceptual Framework in various IFRSs.

The amendments to IAS 1 and IAS 8 are intended to standardize the definitional of material in all IFRSs and the Conceptual Framework. In addition, the amended requirements are intended to prevent material information from being obscured by immaterial information.

The amendments to IFRS 9, IAS 39, and IAS 7 provide certain expedients in connection with the IBOR reform. The expedients relate to the application of hedge accounting and mean that the IBOR reform will not generally result in the discontinuation of hedge accounting.

The application of the new and amended standards and interpretations is not expected to have a material effect on the presentation of the Rheinmetall Group's net assets, financial position and results of operations.

(3) Basis of consolidation

Besides Rheinmetall AG, the consolidated financial statements include all German and foreign subsidiaries over which Rheinmetall AG can directly or indirectly exercise a controlling influence. Rheinmetall AG controls an entity if it holds the majority of voting rights or other rights and is therefore able to steer the significant activities of the investee, is exposed to the risk of variable returns from the investment and can use its power over the investee to influence its returns. Jointly controlled entities in which Rheinmetall AG has rights to the net assets of the investee are included in the consolidated financial statements using the equity method. Entities over which Rheinmetall AG can exert significant influence (associates) are also recognized using the equity method.

Scope of consolidation – companies included

	Dec. 31, 2018	Additions	Disposals	Dec. 31, 2019
Fully consolidated subsidiaries				
Domestic	50	2	4	48
Foreign	101	10	3	108
	151	**12**	**7**	**156**
Investments accounted for using the equity method				
Domestic	17	1	-	18
Foreign	21	-	2	19
	38	**1**	**2**	**37**

In fiscal 2019, a total of six companies were added to the group of consolidated subsidiaries through being founded and six through being acquired. Five companies were merged with other Group companies; two companies left the consolidated group due to liquidation.

Weapon and Ammunition division

The Weapon and Ammunition division acquired the minority interests in Rheinmetall Chempro GmbH, Bonn (49%), Rheinmetall Active Protection GmbH, Bonn (26%), and the operating business of the IBD Deisenroth Engineering Group, Lohmar. With these acquisitions, Rheinmetall has brought the Defence sector's protection activities together under one roof and thus strengthened its position as systems provider for the army. A purchase price of €12 million was paid for the acquisition of the business operations of the IBD Deisenroth Engineering Group. The acquisitions were included in Rheinmetall's consolidated financial statements for the first time as of June 1, 2019.

Breakdown of assets and liabilities into balance sheet items:

€ million	Carrying amounts before acquisition	Adjustment purchase price allocation	Fair values
Other intangible assets	1	4	4
Property, plant and equipment	1	-	1
Inventories	9	(2)	6
Receivables	7	-	7
Total assets	**18**	**1**	**19**
Current liabilities	(7)	-	(8)
Net assets acquired	**10**	**-**	**11**
Goodwill	-	-	-
Total	**10**	**-**	**11**
Purchase price (after netting with cash)			**11**

Rheinmetall has also acquired Provectus Robotics Solutions Inc., Ottawa, Canada, a company specializing in the development of advanced robotic systems and software. €2 million of the purchase price has already been paid. Further purchase price payments of €2 million are contingent on achieving EBITDA targets. The company was included in Rheinmetall's consolidated financial statements for the first time as of June 1, 2019.

Notes to the consolidated financial statements
Accounting principles

Vehicle Systems division

After spinning off Rheinmetall MAN Military Vehicles GmbH (RMMV before being spun off) to form a company with business activities in the field of tactical vehicles, Rheinmetall Military Vehicles GmbH (RMV), and a company with business activities in the field of logistics vehicles, Rheinmetall MAN Military Vehicles GmbH (RMMV after being spun off), Rheinmetall reacquired the non-controlling interest in Rheinmetall Military Vehicles GmbH (RMV) from MAN Trucks & Bus SE and is therefore the sole shareholder of Rheinmetall Military Vehicles GmbH. The agreed conditions for completion were met at the end of June 2019. The purchase price of €111 million was paid in the third quarter 2019.

The Vehicle Systems division also acquired 55% of the shares in Rheinmetall BAE Systems Land Ltd. (formerly: BAE Systems Global Combat Systems Ltd.), Telford, UK, as of July 1, 2019, at a purchase price of €36 million. The contractually agreed additional purchase price adjustment of €8 million contingent on the award of future contracts no longer applies with the expected subcontracting by RMV GmbH, Munich, from the order received from ARTEC GmbH, Munich. At the time of acquisition, it had been estimated at €1 million with a probability of 10%. Through the new company, Rheinmetall wants to play a central role in production of the Mechanized Infantry Vehicle (MIV) for the British Army.

Breakdown of assets and liabilities into balance sheet items:

€ million	Carrying amounts before acquisition	Adjustment purchase price allocation	Fair values
Other intangible assets	7	17	24
Property, plant and equipment	10	14	24
Other non-current assets	45	-	45
Inventories	2	-	2
Receivables	7	-	7
Contract Asset	8	-	8
Other current assets	2	-	2
Total assets	**81**	**31**	**112**
Provisions for pensions and similar obligations	(45)	-	(45)
Non-current liabilities	(5)	-	(5)
Current liabilities	(25)	-	(25)
Net assets acquired	**6**	**31**	**37**
Pro rata net assets acquired (55%)	**3**	**17**	**20**
Goodwill	-	16	16
Total	**3**	**33**	**36**
Purchase price (after netting with cash)			**36**

Since initial consolidation, the sales of Rheinmetall BAE Systems Land Ltd. have totaled €38 million. The EBIT since initial consolidation amounts to €-3 million.

(4) Consolidation principles

A subsidiary is included in consolidation for the first time in accordance with the acquisition method. The assets and liabilities acquired are carried at fair value at the time of acquisition. Any positive difference between the purchase cost and the pro rata net assets of the acquired company is reported as goodwill under intangible assets. Any negative goodwill is recognized in other operating income. The cost of the acquired subsidiary equals the fair values of the assets given, liabilities assumed, and equity instruments issued by the acquirer in exchange for the acquisition. Any acquisition-related costs incurred are recognized as other operating expenses.

Receivables and payables, expenses and income and intercompany profits/losses among consolidated companies are eliminated. Taxes are deferred for all temporary differences from the consolidation of receivables/payables, income/expenses, and the elimination of intercompany profits/losses.

(5) Currency conversion

In the separate financial statements of consolidated companies, each foreign currency transaction is recognized at the historical rate. Monetary assets and liabilities denominated in a foreign currency are translated at the closing rate. Other assets and liabilities are translated at the rate prevailing at the time of the transaction if they are accounted for using the historical cost convention. These assets and liabilities are translated at the rate prevailing at the respective measurement date if they are measured at fair value. Any currency translation differences that arise are duly recognized in the net financial result.

The single-entity financial statements of Group companies whose functional currency is not the euro are translated into euro as the Group currency. Assets and liabilities are translated at the middle spot exchange rate as of the end of the reporting period and the income statement items at the average annual rate. The translation differences resulting from this are recognized in, and only in, equity as other comprehensive income (OCI).

(6) Accounting policies

The key accounting policies applied to Rheinmetall AG’s consolidated financial statements are described below.

Cost – Cost includes the purchase price and all incidental costs that can be directly attributed to the purchase (with the exception of company acquisitions as defined by IFRS 3 and financial instruments measured at fair value). In the event of an exchange, cost equals the fair value of the asset given in an exchange of assets transaction as of the date of the exchange, whereby any cash compensation is accounted for accordingly.

Cost includes all expenditures that are directly attributable to the production process and an appropriate share of production-related overheads. The latter also comprise material and production overheads including production-related depreciation and social security expenses. Overheads are allocated to production costs on the basis of the production facilities’ normal capacity utilization.
Financing costs are capitalized as costs if they relate to assets which are produced or purchased over a period exceeding one year.

Notes to the consolidated financial statements
Accounting principles

Grants and allowances – Government grants provided for the acquisition of an asset are deducted from the corresponding capital expenditures. Any government grants for expenses for purposes other than investment activities are recognized as deferred income and amortized to profit via other operating income when the related expenses are incurred. Private investment-related grants from customers are also recognized as deferred income and amortized to profit over the contract term. If economic ownership of the subsidized asset is transferred to the customer, sales are recognized on the date of the transfer.

Impairment – If there are indications of impairment on an asset and the recoverable amount is less than the amortized cost, an impairment loss is recognized. If indications for impairment cease to exist, impairment losses are reversed, with the exception of goodwill. The reversal cannot exceed the value what would have resulted for amortized cost that would have resulted if no impairment had been charged.

Goodwill – Goodwill in the amount of the potential benefit is allocated to the cash-generating units at the level of which management monitors goodwill. It is tested for impairment once a year at the end of the reporting period and during the year if there are indications of impairment. The impairment test compares the carrying amount to the recoverable amount. The value in use, which is calculated using the discounted cash flow method based on the current corporate planning, is used as the recoverable amount. If this value is below the carrying amount, a check is made as to whether the net fair value (NFV: fair value less costs to sell) is higher. If the carrying amount exceeds the recoverable amount, an impairment loss is then recognized in the amount of the difference, which is reported as a write-down. The subsequent reversal of write-downs is not permitted.

Goodwill is not amortized.

Other intangible assets – Intangible assets are capitalized at cost. Research costs are always recognized in expenses. Development costs are only capitalized if a newly developed product or process can be clearly defined, is technically feasible and is intended either for own use or marketing purposes. Furthermore, capitalization requires that the costs can be reliably measured and there is reasonable assurance of a future economic benefit. Any other development costs are immediately expensed.

Finite-lived intangible assets are amortized by straight-line charges from the date of first use over the economic lives.

The measurement is subject to the following useful lives:

	Years
Concessions and industrial property rights	3-15
Development costs	5-10
Customer relations	5-15
Technology	5-15

Property, plant and equipment – Property, plant and equipment are carried at cost less accumulated depreciation and any impairment. Depreciation is recognized on a straight-line basis over the expected useful life.

	Years
Buildings	20-50
Other structures	8-30
Equivalent titles	5-15
Production plant and machinery	3-20
Other plant, factory and office equipment	3-15

Leases – Agreements that transfer the right to use assets for a specified period of time in return for payment or a series of payments are leases.

For leases of land, buildings, machinery, technical equipment, and vehicles, Rheinmetall as the lessee recognizes a financial liability in the amount of the present value of the lease payments to be made over the term of the lease. The calculation of present value accounts for fixed lease payments, variable index-based payments, expected payments for residual value guarantees, exercise prices of call options and payments from the early termination of the lease less any rental incentives. The calculated lease payments are discounted at the date of commencement of the lease by the appropriate incremental borrowing rate specific to the lease term or, if this is not available, by a similar interest rate. The lease liability is reduced by the repayment portion of the lease payment until the lease expires.

At the same time, Rheinmetall as lessee recognizes a right-of-use asset equal to the cost at the date of commencement of the lease. Starting at the value of the lease liability, the cost is increased in some circumstances by initial direct costs, dismantling costs, and lease payments that are made by the lessee before or at the commencement of the transfer of use and therefore not included in the lease liability. The rights of use are amortized over the shorter of the remaining term of the leases and the useful life of the relevant leased asset.

In the case of leases with a term of less than one year, lease payments are recognized directly in other operating expenses. The same also applies to leases for low-value assets whose value is less than €50 thousand and which are not land, buildings, or vehicles.

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Investment property – Investment property is property held to earn rental income or to benefit from long-term capital appreciation, and not for use in production or administration.

Investment property is carried at cost less cumulative depreciation and impairment. Depreciation is recognized on a straight-line basis over useful lives of 20 to 50 years.

Financial instruments – A financial instrument is any contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity.

The first-time recognition of financial instruments is at fair value. Acquisition-related costs are included here, unless the financial instrument is measured at fair value in subsequent periods. Standard market purchases and sales of financial assets are recognized for the first time on the settlement date. This is the date when the financial instrument is delivered or the payment is made. Notwithstanding this, derivatives are recognized for the first time as of the date when the contract is concluded or the trading date.

There are three measurement categories for the subsequent measurement of financial instruments: (1) measurement at amortized cost, (2) measurement at fair value through other comprehensive income (FVOCI), and (3) measurement at fair value through profit or loss (FVTPL). The relevant measurement category for a financial instrument depends on the contractual cash flow characteristics of the financial asset and the entity's business model for managing financial assets.

If the contractual cash flows comprise solely payments of principal and interest ("solely payments of principal and interest" (SPPI) criterion met) and the business model is "hold," financial instruments are measured at amortized cost. Financial instruments with SPPI cash flows but the "hold and sell" business model are measured at fair value through other comprehensive income. If the SPPI criterion is not met, the financial instruments are likewise measured at fair value, but the changes in value are recognized through profit or loss. In the case of debt instruments, changes in value can be recognized through profit or loss despite fulfillment of the SPPI criterion by exercising the fair value option. In the case of equity instruments, the fair value OCI option provides the opportunity to recognize any changes in value that arise through other comprehensive income.

Trade receivables and liquid financial assets are generally measured at amortized cost. Trade receivables classified by Group companies as available for sale must be measured at fair value through other comprehensive income. Non-interest receivables are discounted by applying rates that match their maturity on first-time recognition and written down using the effective interest method. Loss allowances are recognized for expected future credit losses, which are calculated on the basis of customer credit rating, specific country risks and the structure of financing transactions. The loss allowance for expected default risks is recognized in the income statement.

Cash and cash equivalents are measured at amortized cost. Cash and cash equivalents comprise any liquid assets with a remaining term of less than three months at the date of their purchase.
Changes in the fair value of derivative financial instruments are recognized in the income statement. If the conditions under IFRS 9 are met, they are accounted for as cash flow hedges. The effective portion of the changes in the fair value of the designated derivative is recognized in equity in the hedge reserve. The cumulative changes in fair value are reclassified from equity to the income statement if the hedged item is recognized in the income statement. Changes in the fair value attributable to the ineffective portion of the hedge are always recognized in the income statement.

Financial liabilities are measured at amortized cost using the effective interest method.

Inventories – Inventories are carried at cost, usually using the weighted average. Inherent risks due to reduced utility or to obsolescence are adequately allowed for. If the net realizable value of inventories is lower than their carrying amount as of the end of the reporting period, they are written down to net realizable value. The write-down is recognized either as cost of materials (raw materials and supplies) or a change in inventories of finished products and work in progress. If the net realizable value of inventories previously written down increases, the ensuing reversal is routinely offset against cost of materials (raw materials and supplies) or recognized as a change in inventories of finished products and work in progress.

Contract assets and contract liabilities – Contract assets are recognized in connection with contracts with customers if, in the case of contract manufacturing, the cumulative sales recognized over time exceed the sum of the advance payments received and progress billings. This asset item is tested for impairment and impaired if necessary at the end of the reporting period. If the recognized sales are lower than the sum of the advance payments received and progress billings, a contract liability is recognized. A contract liability is also recognized if advance payments are received and consideration has not already been provided.

Deferred taxes – Deferred taxes are recognized for temporary measurement differences between items shown in the statement of financial position under IFRS and according to the local tax laws of the individual companies. Deferred tax assets also include the tax assets receivable from the expected future utilization of tax loss carryovers (if their realization is reasonably certain). Deferred taxes are calculated on the basis of the tax rates applicable or announced in each country as of the end of the reporting period.

Income tax liabilities are recognized on the basis of appropriate estimates for obligations to the respective national tax authorities that are uncertain in terms of amount and probability of occurrence. The tax rate specific to the company effective at the end of the reporting period is used. Other factors are also taken into account, such as experience from previous external audits and different legal interpretations between taxpayers and the tax authorities with regard to the issue at hand. Uncertain income tax items are recognized at the most likely amount.

Pensions – Pension provisions for defined benefit plan obligations are calculated using the projected unit credit method. The amount of obligations is calculated based on assumptions concerning mortality, expected future pay and pension increases, plan participant turnover rates, the discount rate and other actuarial parameters. The fair value of the plan assets is deducted from the DBO volume. Any excess of plan assets over the DBO volume (a defined benefit asset) is only recognized if and to the extent that it can actually be utilized. If there are deviations between the actuarial assumptions and the actual development of underlying parameters used to calculate the projected unit credits and the market value of the pension assets, gains and losses arise from remeasurement of the net defined benefit liability. These effects arising from remeasurement and the asset cap are recognized directly in equity under retained earnings in the year they occur.

Under defined contribution plans, the company incurs no obligations other than to pay the contributions to earmarked post-employment benefit plans. The payments incurred are recognized in personnel expenses.

The Rheinmetall Group also participates in multi-employer pension plans. As these are defined benefit plans, they are accounted for accordingly.

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Provisions – Other provisions take into account all identifiable commitments and obligations to third parties if based on past transactions or events and if it is probable that an outflow of resources (which can be reliably estimated) embodying economic benefits results. If the time value of money is material, provisions are discounted to their settlement amount as of the end of the reporting period. The settlement amount also accounts for identifiable future cost increases.

Revenue recognition – Revenue is recognized when the promised goods or services are transferred to the customer and the customer obtains control over them. Revenue is measured at the transaction price that is expected to be received as consideration. The transaction price is lowered by variable consideration such as rebates, bonuses, and penalties for late deliveries or increased by agreed and estimated price adjustments. If, especially in the case of longer-term contracts with customers, the revenue is recognized and the payments are received at different times, the contract must examined to determine whether it contains a significant financing component, which must be accounted for in the calculation of the transaction price.

If a contract with a customer relates to contract manufacturing, in which customer-specific products including a significant integration service are provided, the revenue is recognized over time. The revenue to be recognized is determined by the percentage of completion of the respective contract. This is calculated as the ratio of costs actually incurred to the estimated total costs. The costs associated with the customer contract are recognized in the income statement when incurred. In the case of service contracts, the revenue for the period is usually determined pro rata temporis.

Expenses – Operating expenses are recognized when caused or when the underlying service is used.

Interest and dividends – Interest income and expense are recognized on an accrual basis. Dividends are recognized in income when the legal claim to payment is established.

Summary of main measurement methods:

Assets	
Goodwill	Cost (subsequent measurement: impairment test)
Other intangible assets	(Amortized) cost
Rights of use	(Amortized) cost
Property, plant and equipment	(Amortized) cost
Investment property	(Amortized) cost
Investments accounted for using the equity method	Equity method
Inventories	(Amortized) cost
Trade receivables	(Amortized) cost/FVOCI [1]
Cash and cash equivalents	(Amortized) cost
Financial assets	
"Hold" business model, SPPI[2] met	(Amortized) cost
"Hold and sell" business model, SPPI[2] met	Fair value through other comprehensive income
Derivatives	Fair value through profit or loss
All other financial assets	Fair value through profit or loss

Equity and liabilities	
Provisions for pensions and similar obligations	Present value of DBO
Other provisions	Discounted settlement amount
Financial debts	(Amortized) cost
Trade liabilities	(Amortized) cost
Other liabilities	
Derivatives	Fair value
Miscellaneous	(Amortized) cost

[1] FVOCI – fair value through other comprehensive income

[2] SPPI – solely payments of principal and interest

Estimates – The preparation of the consolidated financial statements requires assumptions and estimates affecting the application of accounting principles within the Group and the disclosure of assets, liabilities, income and expenses.

When examining the recognition of goodwill of €567 million as of December 31, 2019 (previous year: €550 million), assumptions and estimates relating to forecasts and the discounting of future cash flows were made to calculate the recoverable amount of the relevant cash-generating units. Details of the parameters used are provided under note (7).

The carrying amounts as of December 31, 2019, of other intangible assets of €233 million (previous year: €173 million), rights of use of €204 million (previous year: €170 million), property, plant and equipment of €1,361 million (previous year: €1,309 million) and investment property of €42 million (previous year: €43 million) are assessed to determine whether there are indications of a possible impairment and whether the recoverable amount is lower than their carrying amount. When calculating the recoverable amounts, assumptions and estimates are made on the cash flows from realizable sales prices, costs and the discount rates. The yield curves used in the measurement of derivatives include assumptions about the expected future development of interest rates, taking into account estimated liquidity risks dependent on terms. Moreover, the measurement models used also incorporate parameters that are based on assumptions about volatilities and discount rates.

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The measurement of pension provisions and similar obligations of €1,169 million as of December 31, 2019 (previous year: €972 million), is based on the determination of actuarial parameters such as the discount rate, pension development and probability of death. The effect of changes in the parameters used as of the end of the reporting period on the present value of the DBO is shown under note (17). Any discrepancy between the parameters assumed at the beginning of the fiscal year and the actual conditions at the end of the reporting period has no impact on earnings after taxes, as gains and losses due to the remeasurement of the net defined benefit liability resulting from the discrepancy are recognized directly in equity.

The recognition of sales over time in the amount of €1,968 million in fiscal 2019 (previous year: €1,605 million) is based on estimates of the expected total contract costs and contract revenue. Comparing the actual contract costs incurred to expected total costs shows the percentage of completion as of the end of the reporting period, on the basis of which the pro rata sales for the period are calculated.

The calculation of future tax advantages which reflect the recognition of deferred tax assets of €224 million as of December 31, 2019 (previous year: €218 million), is based on assumptions and estimates on the development of tax income over a planning period of usually five years and tax legislation in the countries of the Group companies based there.

When assessing and accounting for legal risks and opportunities, estimates on the possible occurrence and the amount of the expected obligations are made. In the process, the management deploys internal legal assessments and evaluations by external attorneys.

The respective assumptions and estimates are based on premises which represent the most recent knowledge. Actual developments may result in amounts differing from these estimates. Changes in accounting estimates are recognized in the period of change where the change affects this period only. If changes in estimates affect both the current period and future periods, these are recognized accordingly in the periods in question.

(7) Goodwill, other intangible assets

€ million	Goodwill	Development costs	Other intangible assets	Total
Cost				
As at Jan. 1, 2018	550	344	382	1,275
Additions	-	16	9	25
Disposals	-	(1)	(2)	(3)
Book transfers	-	(1)	3	2
Currency differences	-	2	(1)	1
As at Dec. 31, 2018/Jan. 1, 2019	**550**	**360**	**391**	**1,301**
Additions	-	41	14	55
Disposals	-	(116)	(20)	(136)
Book transfers	-	12	1	13
Adjustment in scope of consolidation	16	-	32	48
Currency differences	1	2	3	6
As at Dec. 31, 2019	**567**	**298**	**421**	**1,286**

€ million	Goodwill	Development costs	Other intangible assets	Total
Amortization and depreciation/impairment				
As at Jan. 1, 2018	-	213	284	497
Current period (26)	-	61	24	85
Disposals	-	-	(2)	(2)
Book transfers	-	(1)	-	(1)
Currency differences	-	1	-	1
As at Dec. 31, 2018/Jan. 1, 2019	**-**	**274**	**305**	**579**
Current period (26)	-	16	25	41
Disposals	-	(116)	(20)	(136)
Currency differences	-	1	2	3
As at Dec. 31, 2019	**-**	**175**	**312**	**487**
Carrying amount as at Dec. 31, 2018	550	86	86	722
Carrying amount as at Dec. 31, 2019	**567**	**123**	**110**	**799**

Goodwill is managed at the level of the Automotive and Defence sectors and regularly tested for impairment. Goodwill was tested for impairment as of December 31, 2019. The impairment test revealed no impairment requirements. The impairment test uses the value in use of the cash-generating unit, which is calculated using the discounted cash flow method based on a three-year detailed planning period. For periods after the detailed planning phase, cash flows are extrapolated from the last planning period, taking into account growth rates based on the long-term inflation forecast.

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In the Rheinmetall Group, the corporate plan is prepared on the basis of empirical and current forecast data. Within the Defence sector, planning is predicated on projects already included in its order backlog, on customer inquiries and, most importantly, on national defence budgets of relevant customers. Key planning assumptions by Automotive are based on the sector forecasts underlying sales plans and covering the worldwide automotive market trend, the planned engine programs of carmakers, specific customer commitments to individual projects and adjustments specific to Automotive adjustments to allow for planned product innovations and cost savings.

The discount rates for each sector and the carrying amounts of the goodwill of the divisions are shown below.

€ million	Dec. 31, 2019			Dec. 31, 2018		
	Carrying amount	WACC before taxes	WACC after taxes	Carrying amount	WACC before taxes	WACC after taxes
Defence divisions						
Weapon and Ammunition	179	8.2%	6.1%	178	9.0%	6.6%
Electronic Solution	120	9.0%	6.7%	119	9.8%	7.3%
Vehicle Systems	98	8.5%	6.3%	82	8.8%	6.5%
Automotive divisions						
Mechatronics	67	9.7%	7.3%	67	10.8%	7.9%
Hardparts	88	8.0%	7.1%	88	9.0%	7.7%
Aftermarket	15	10.8%	8.0%	15	12.3%	8.9%

For the period after the last planning year, an unchanged growth rate of 1.0% was deducted from the risk-specific pretax discount rate.

In addition to the impairment test, each cash-generating unit was subjected to sensitivity analyses. These analyses assumed scenarios based firstly on a 0.5 percentage point higher discount rate after taxes and secondly a 0.5 percentage point lower growth rate. For further sensitivity, the cash flows used to calculate the terminal value were reduced by a flat rate of 10%. In five of the six divisions in total, the sensitivity analyses did not result in impairment of the recognized goodwill. As of the reporting date, the Hardparts division had headroom of €15 million. If the individual parameters change as described above, the sensitivity analyses reveal a potential impairment risk of a mid-eight-figure sum. On the basis of the sensitivity analyses, the recoverable amount would attain the carrying amount as of December 31, 2019, if the WACC after taxes increased to 7.2%, the cash flows in the terminal value were 2.1% lower or a growth rate of 0.9% were assumed.

In addition to capitalized development costs of €41 million (previous year: €16 million), €238 million was recognized as expenses for research and development costs in 2019 (previous year: €225 million).

(8) Rights of use

The capitalized rights of use from leases primarily relate to rented office and production space at various locations in Germany and abroad. The rental agreements for property usually include options for renewals and index-based rent price adjustment clauses.

€ million	Property – land	Property – buildings	Passenger cars	Other rights of use	Total
Cost					
As at Jan. 1, 2018 (as adjusted for IFRS 16)	15	144	12	3	174
Additions	-	14	7	3	24
Disposals	-	(3)	-	-	(3)
Book transfers	6	10	-	-	16
Currency differences	-	(1)	-	-	(1)
As at Dec. 31, 2018/Jan. 1,2019	22	164	18	7	210
Additions	-	57	7	8	72
Disposals	-	(3)	(1)	-	(4)
Currency differences	-	2	-	-	2
As at Dec. 31, 2019	**22**	**220**	**24**	**14**	**281**

€ million	Property – land	Property – buildings	Passenger cars	Other rights of use	Total
Amortization and depreciation/impairment					
As at Jan. 1, 2018	-	-	-	-	-
Current period	1	26	6	2	35
Book transfers	-	5	-	-	5
As at Dec. 31, 2018/Jan. 1,2019	1	31	6	2	40
Current period (26)	1	28	8	3	39
Disposals	-	(2)	(1)	-	(4)
Book transfers	-	-	-	-	-
Currency differences	-	1	-	-	1
As at Dec. 31, 2019	**2**	**58**	**13**	**5**	**77**
Carrying amount as at Dec. 31, 2018	21	133	12	4	170
Carrying amount as at Dec. 31, 2019	**21**	**162**	**11**	**10**	**204**

Besides the amortization of rights of use indicated above, the expenses and payments below were also incurred in connection with leases:

€ million	2019	2018
Expenses from short-term leases	5	7
Expenses for low-value leased assets	4	4
Interest expenses from lease liabilities	6	6
Repayment of lease liabilities	36	34
Total lease payments	51	51

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On the recognition of lease liabilities of €208 million (previous year: €171 million), interest rates of appropriate terms and currencies were used to calculate the present values. The leases are expected to result in the following future cash outflows:

€ million	2019				2018			
	2020	2021-2024	from 2025	Total	2019	2020-2023	from 2024	Total
Right of use property – land	1	3	16	19	1	5	14	19
Right of use property – buildings	27	94	47	167	23	76	37	136
Right of use – passenger cars	6	5	-	11	6	5	-	11
Right of use – other	3	6	2	10	2	2	-	4
	36	**107**	**65**	**208**	**32**	**88**	**51**	**171**

The existing obligations from contracts already entered into, but under which the lease has not yet commenced, amounted to around €58 million as of December 31, 2019.

(9) Property, plant and equipment

€ million	Land, land rights, and buildings	Production plant and machinery	Other plant, factory and office equipment	Prepayments made and construction in progress	Total
Cost					
As at Jan. 1, 2018	1,014	2,016	636	189	3,855
Additions	17	56	47	133	252
Disposals	(2)	(33)	(25)	(1)	(60)
Book transfers	1	55	32	(106)	(18)
Currency differences	9	16	(3)	(1)	22
As at Dec. 31, 2018, Jan. 1,2019	**1,039**	**2,111**	**687**	**214**	**4,051**
Additions	13	46	48	125	232
Disposals	(2)	(34)	(109)	(6)	(150)
Book transfers	7	92	22	(135)	(13)
Adjustment in scope of consolidation	18	5	1	1	25
Currency differences	16	22	3	2	42
As at Dec.31, 2019	**1,093**	**2,243**	**651**	**201**	**4,187**

€ million	Land, land rights, and buildings	Production plant and machinery	Other plant, factory and office equipment	Prepayments made and construction in progress	Total
Amortization and depreciation/impairment					
As at Jan. 1, 2018	587	1,541	457	-	2,585
Current period	20	108	62	5	196
Disposals	(1)	(32)	(24)	-	(57)
Book transfers	-	(5)	1	-	(4)
Currency differences	8	15	-1	-	21
As at Dec. 31, 2018, Jan. 1,2019	**613**	**1,628**	**495**	**6**	**2,742**
Current period	20	110	66	-	197
Disposals	(1)	(33)	(109)	-	(143)
Book transfers	-	1	-1	-	-
Currency differences	11	17	2	-	30
As at Dec.31, 2019	**644**	**1,723**	**453**	**6**	**2,826**
Carrying amount as at Dec. 31, 2018	426	483	192	209	1,309
Carrying amount as at Dec. 31, 2019	**449**	**520**	**198**	**195**	**1,361**

(10) Investment property

€ million		2019	2018
Cost			
As at Jan. 1		54	55
Disposals		-	(1)
As at Dec. 31		**54**	**54**
Amortization and depreciation/impairment			
As at Jan. 1		11	9
Current period	(26)	1	2
As at Dec. 31		**12**	**11**
Carrying amount as at Dec. 31		**42**	**43**

Investment property has a fair value of €54 million (previous year: €54 million), partially determined on the basis of independent external appraisal reports (date of last regularly prepared reports: December 31, 2013) and partially on the basis of the company's own calculations. Generally accepted measurement methods are used to calculate the fair value – a combination of the discounted cash flow method and the sales comparison approach. Both methods come under level 3 of the measurement hierarchy in IFRS 13. The discounted cash flow method is used to discount annual cash flows of leased properties and to calculate the fair value.

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A standard market discount rate is used in addition to market rents, which reflects the specific country's local property market and the features of the property. The sales comparison approach is used for land that cannot be rented on a long-term basis and is based on indicative land values or transactions involving similar plots of land.

(11) Investments accounted for using the equity method

The major investments accounted for using the equity method are firstly the joint ventures Kolbenschmidt Huayu Piston Co., Ltd., HASCO KSPG Nonferrous Components (Shanghai) Co., Ltd., Pierburg Yinlun Emission Technology (Shanghai) Co. Ltd. and Pierburg Huayu Pump Technology Co. Ltd. (together China Joint Ventures), which are based in Shanghai and operated with the Chinese SAIC Group, and with which the Automotive sector is strengthening its position on the Chinese market for pistons, pumps for automotive applications and other engine parts. Secondly, the joint venture KS HUAYU AluTech GmbH (KS HUAYU), Neckarsulm, likewise conducted with the SAIC Group and operating in aluminum technology, is also significant.

Financial information (100% basis) on the major investments accounted for using the equity method

€ million	China Joint Ventures		KS HUAYU	
	2019	**2018**	**2019**	**2018**
Assets (Dec. 31)				
Non-current	431	422	130	130
Cash and cash equivalents	87	64	-	-
Other current	487	406	69	85
Financial debts (Dec. 31)				
Non-current	91	90	23	28
Current	190	153	11	27
Other liabilities (Dec. 31)				
Non-current	12	10	62	50
Current	377	343	55	52
Sales	1,010	872	256	321
Amortization and depreciation	76	64	16	17
Net interest	(13)	(12)	(2)	(2)
Income taxes	9	13	-	(2)
Earnings after taxes	51	44	(2)	11

Development of the major investments accounted for using the equity method

€ million	China Joint Ventures		KS HUAYU	
	2019	**2018**	**2019**	**2018**
Net assets Jan. 1	295	243	57	46
Comprehensive income	52	41	(9)	11
Earnings after taxes	*51*	*44*	*(2)*	*11*
Other comprehensive income	*1*	*(3)*	*(8)*	-
Capital increase	*1*	*20*	-	-
Dividend	(12)	(9)	-	-
Net assets Dec. 31	**336**	**295**	**47**	**57**
Investment in %	50	50	50	50
Carrying amount of investment Dec. 31	168	147	24	28
Dividend received	6	5	-	-

The following table shows the financial information for the investments accounted for using the equity method that, considered individually, are immaterial for the Rheinmetall consolidated financial statements. The amounts given all relate to the share held by Rheinmetall:

€ million	2019		2018	
	Joint ventures	Associated companies	Joint ventures	Associated companies
Carrying amount of shares	38	81	38	72
Earnings after taxes	6	7	6	4
Other comprehensive income	1	-	1	(1)
Comprehensive income	7	7	7	3

(12) Inventories

€ million	Dec. 31, 2019	Dec. 31, 2018
Raw materials and supplies	506	457
Work in process	633	496
Finished products	165	130
Merchandise	93	112
Prepayments made	67	64
	1,463	**1,259**

Additions to write-downs totaled €13 million (previous year: €6 million).

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(13) Liquid financial assets

Liquid financial assets comprise commercial papers with a maturity between three and eleven months issued by companies with short-term investment grade ratings (at least A3 (S&P) or P3 (Moody's) or alternative ratings from Euler Hermes with grade 4).

(14) Other assets

€ million	Dec.31, 2019	Of which current	Of which non-current	Dec. 31, 2018	Of which current	Of which non-current
Derivatives	44	34	10	28	20	8
Receivables from contracts with customers	25	25	-	37	-	37
Receivables from sales of real estate	19	19	-	19	-	19
Receivables from finance leases	8	-	8	8	-	8
Bonds	4	-	4	6	2	4
Other	20	19	1	17	15	2
Financial assets	**119**	**96**	**23**	**114**	**37**	**77**
Other taxes	91	61	29	84	57	27
Contract acquisition costs	81	-	81	67	-	67
Contract costs	8	-	8	2	-	2
Subsidies/grants receivable	27	16	11	60	45	15
Deferred income	36	28	8	35	25	10
Pension reimbursement claim	81	-	81	-	-	-
Reimbursement claims from insurances	10	10	-	14	14	-
Other	44	30	14	6	-	6
Non-financial assets	**378**	**146**	**232**	**269**	**141**	**127**
Other assets	**497**	**242**	**255**	**383**	**178**	**205**

As of the end of the reporting period, there were loss allowances of €22 million (previous year: €10 million) for receivables from contracts with customers.

The receivables from the sale of real estate result from sales of developed plots in Hamburg.

The finance lease receivables relate to the letting of a production building built in 2017 to the joint venture KS HUAYU. The lease has a term of 30 years with a renewal option for a further five years and a non-guaranteed residual value of €1 million. The interest rate of 3.62% on which the lease is based was used to calculate the present value of the lease payments.

€ million	Dec. 31, 2019			Dec. 31, 2018		
	2020	2021-2024	from 2025	2019	2020-2023	from 2024
Minimum lease payments	-	2	10	-	2	11
Present value of minimum lease payments	-	2	6	-	2	6

The unearned financial income amounted to €5 million as of December 31, 2019 (previous year: €6 million).

The contract acquisition costs are described in note (21).

The subsidies/grants receivable essentially relate to grants paid by public administrative bodies to subsidize the in-house development of new technologies.

The pension reimbursement claim is described in note (17).

The other non-financial assets primarily comprise advance payments to suppliers, receivables from employees from travel expense accounts, and operating costs not yet invoiced.

(15) Cash and cash equivalents

€ million	Dec. 31, 2019	Dec. 31, 2018
Bank balances in credit institutions, checks, cash in hand	770	629
Short term investments (up to 3 months to maturity)	150	95
	920	**724**

(16) Equity

Subscribed capital – The subscribed capital of Rheinmetall AG is unchanged at €111,510,656 and is divided into 43,558,850 no-par value shares (shares with no nominal value).

Authorized capital – By way of resolution of the Annual General Meeting on May 10, 2016, the Executive Board was authorized, with the approval of the Supervisory Board, to increase the share capital of the company by up to €50,000,000 in total by May 9, 2021, by issuing new no-par shares in return for contributions in cash or in kind. Shareholder subscription rights for up to 10% of the current share capital of the company can be disapplied at an issue price not significantly below the stock market price. The Executive Board is granted the option of carrying out capital increases in return for contributions in kind for the granting of shares for the purpose of acquiring companies, parts of companies or investments, or of issuing a limited number of employee shares without subscription rights.

Contingent capital – By way of resolution of the Annual General Meeting on May 10, 2016, the Executive Board was authorized to issue bonds with warrants or convertible bonds with a total nominal value of up to €800,000,000 and to create the associated contingent capital of up to €20,000,000.

With the approval of the Supervisory Board, the Executive Board can issue interest-bearing bonds with warrants or convertible bonds on one or several occasions until May 9, 2021, and attach options or conversion rights to the respective bonds entitling the acquirer to subscribe to a total of up to 7,812,500 shares of Rheinmetall AG. This does not affect shareholders' statutory pre-emptive rights. The Executive Board is also authorized to disapply the statutory right of shareholders to subscribe to bonds within certain limits. The subscription right is to be disapplied to the extent necessary to be able to offset any fractional amounts that may arise when determining the subscription ratio or to be able to grant subscription rights to bearers of bonds with warrants and/or convertible bonds that have already been issued. Subscription rights are also disapplied for up to 4,355,885 new shares, corresponding to €11,151,056.60 or 10% of the current share capital. The disapplication of pre-emptive subscription rights is limited to a maximum of 20% of share capital.

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Retained earnings – The retained earnings include earnings generated by the Rheinmetall Group in the past less profit distributed.

Effects from the currency translation of subsidiaries' financial statements not prepared in euro, from the remeasurement of pension plans recognized in other comprehensive income, from the measurement of derivatives in cash flow hedges and other comprehensive income from investments accounted for using the equity method (other income) are also reported here.

Treasury shares – By way of resolution of the Annual General Meeting on May 10, 2016, the Executive Board of the company is authorized to acquire treasury bearer shares equivalent to a maximum of 10% of the share capital existing on this date of €111,510,656. The acquisition may be via the stock exchange or by public bid directed at all shareholders or by public invitation to submit a purchase bid. In this case, the purchase price per share in the event of an acquisition via the stock exchange must not be more than 10% higher or lower than the average closing price of the shares in Xetra trading on the Frankfurt Stock Exchange on the three preceding trading days. In the event of a public bid or an invitation to submit such a bid, the purchase price offered and paid must not be more than 10% higher or lower than the average closing price of the shares in Xetra trading on the Frankfurt Stock Exchange on the fifth to third trading day prior to publication of the purchase bid.

The Executive Board is authorized to retire or resell the treasury shares acquired on the basis of this authorization or earlier authorizations without further Annual General Meeting resolutions.

As in the previous year, no treasury shares were acquired in the reporting year. Disposals related to the long-term incentive program and the European share purchase program for employees, which are described under note (34). Sales proceeds from the disposals are used for general financing purposes. As of December 31, 2019, the portfolio of treasury shares amounted to 475,608 shares with acquisition costs of €17 million. The amount of subscribed capital attributable to treasury shares totaled €1,218 thousand. This represents a share in subscribed capital of 1.1%.

Other comprehensive income

€ million	2019			2018		
	Gross amount	Tax effect	Net amount	Gross amount	Tax effect	Net amount
Remeasurement of net defined benefit liability from pensions	(133)	36	(97)	64	(12)	52
Other income from investments carried at equity	(3)	-	(3)	-	-	-
Amounts not reclassified in the income statement	**(136)**	**36**	**(100)**	**64**	**(12)**	**52**
Change in value of derivatives (Cash flow hedges)	18	(5)	13	(28)	8	(20)
Currency conversion difference	32	-	32	(2)	-	(2)
Other income from investments carried at equity	1	-	1	(2)	-	(2)
Amounts reclassified in the income statement	**50**	**(5)**	**46**	**(32)**	**8**	**(24)**
Other comprehensive income	**(86)**	**31**	**(54)**	**33**	**(4)**	**29**

In fiscal 2019, Rheinmetall AG paid a dividend of €90 million or €2.10 per share (previous year: €73 million or €1.70 per share) to its shareholders from its retained earnings.

At the Annual General Meeting on May 5, 2020, the Executive Board and Supervisory Board intend to propose a dividend payment of €2.40 per share. The total amount paid out will be €103 million.

Significant non-controlling interests – Significant non-controlling interests of 49% are still held by other shareholders in the subgroup of Rheinmetall MAN Military Vehicles GmbH, Munich, even after the spin-off of the tactical activities and the purchase of shares (see note 3). The Group's financial information is shown below.

€ million	2019	2018
Non-controlling interests included in equity (Dec. 31)	32	39
Assets (Dec. 31)	470	879
Of which non-current	*109*	*169*
Of which inventories	*184*	*234*
Liabilities (Dec. 31)	406	803
Of which non-current	*86*	*119*
External sales	743	982
Internal sales	3	59
Earnings after taxes	36	73
Of which from minority interests	*17*	*36*
Comprehensive income	32	72
Of which from minority interests	*16*	*35*
Cash flows from operating activities	7	(18)

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Non-controlling interests in earnings after taxes – The table below shows the earnings after taxes attributable to shareholders that hold non-controlling interests in Group companies. As a result of the spin-off of the tactical activities and the purchase of shares in the subgroup of Rheinmetall MAN Military Vehicles GmbH (see note (3)), the non-controlling interests in net income for the year are shown separately. The non-controlling interests in Rheinmetall Military Vehicles GmbH result from the period up to the spin-off.
In 2019, Rheinmetall also acquired the minority interests in Rheinmetall Chempro GmbH and bundled the business activities in Rheinmetall Protection Systems GmbH (see note (3)). This is why Rheinmetall Chempro GmbH is not shown in the following table for this year.

€ million	Non-controlling interests	2019	2018
Subgroup of Rheinmetall MAN Military Vehicles GmbH	49 %	17	36
Rheinmetall Military Vehicles GmbH (non-controlling interests before spin-off)	49 %	4	-
Rheinmetall Denel Munition Pty. Ltd.	49 %	(5)	6
Rheinmetall Chempro GmbH	49 %	-	3
Other		*3*	*4*
		19	49

Capital management – Capital management is geared towards sustainably increasing enterprise value, securing sufficient liquidity and preserving the Rheinmetall Group's credit standing. The Group manages and monitors its capital structure in order to achieve its business targets regarding operations, necessary capital expenditure and strategic acquisitions and to optimize capital costs. Debt management pursues a diversified financing strategy to guarantee continual access to liquid funds both via money and capital markets and via bank financing.

The key figures for capital management in the Rheinmetall Group are the equity ratio and the ratio of net financial debts to equity (gearing).

€ million	Dec. 31, 2019	Dec. 31, 2018
Cash and cash equivalents	920	724
Liquid financial assets	20	100
Financial debts	(992)	(854)
Net financial debts	(52)	(30)
Equity	2,272	2,173
Equity ratio	30.6%	32.1%
Net gearing	2.3%	1.4%

Further information on the financing strategy and on the asset and capital structure is contained in the combined management report.

(17) Provisions for pensions and similar obligations

Rheinmetall's company pension systems consist of both defined contribution and defined benefit plans.

Defined contribution plans – Under defined contribution plans, the relevant company pays contributions to earmarked pension institutions, which are reported in personnel expenses. The company does not enter into any further obligations; a provision is not recognized.

Personnel expenses of €77 million (previous year: €73 million) were incurred in the year under review for defined contribution pension commitments, which mainly relate to payments to statutory pension institutions in Germany.

Defined benefit plans – Under its defined benefit plans, Rheinmetall is required to meet confirmed benefit obligations to active and former employees. Provisions are recognized for obligations under vested rights and current pensions payable to eligible active and former employees, retirees and surviving dependents, taking into account any plan assets. There are material pension plans at the Rheinmetall Group's German and Swiss companies and, following the acquisition of Rheinmetall BAE Systems Land Ltd. in 2019, also in the United Kingdom.

Rheinmetall has implemented a Group-wide defined benefit plan for its subsidiaries based in Germany, which consists of three elements: a basic plan and a corporate performance-related intermediate plan, each of which are financed by the employer, and a supplementary plan financed through deferred compensation. The agreed retirement benefits comprise old-age pensions, invalidity pensions and pensions for surviving dependents. The annual pension contribution or the amount of deferred compensation for each beneficiary in accordance with actuarial principles is converted into a capital component. The total pension capital when benefits become due is based on the sum of all capital components. In the case of the basic plan and intermediate plan, pension capital is paid out in the form of a life-long pension that increases annually in accordance with an agreement. In the case of the supplementary plan financed solely by the employee, the pension capital is paid out as a lump sum when benefits become due.

Other pension plans exist in Germany, but these are no longer available to new employees joining the Group. The agreed retirement benefits comprise old-age pensions, invalidity pensions and pensions for surviving dependents. Depending on the plan, these are based on agreed fixed amounts per year of service or on a percentage of the employee's final salary before leaving the Rheinmetall Group. Ongoing retirement benefits are subject to compensation for inflation.

The pension obligations of the German companies are largely financed internally. Rheinmetall has set up a contractual trust agreement (CTA) with the aim of spreading the financing of its pension and partial retirement obligations across several pillars over the long term. Since 2016, a total of €120 million has been paid into a fund managed by a trustee, of which €100 million was allocated to pension obligations and €20 million to partial retirement obligations. Pension payments to the beneficiaries are made by the respective Group companies.

There are pension plans at the Swiss subsidiaries, each of which are managed via pension funds for several companies (multi-employer plans). These are defined benefit plans used to cover pensions and risks arising from invalidity and death for former employees, their relatives and surviving dependents. On retirement, the pension is based on the available retirement assets multiplied by conversion rates determined by pension fund regulations, whereby payment can take place monthly or in certain cases as a lump sum. Pension plans are financed by contributions made by the employer and employee, primarily at a rate of 50% each, which are paid into pension funds.

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The pension funds are independent foundations that do not belong to the Rheinmetall Group, whose funds are due solely to pension beneficiaries. Any return of assets and income to the contributing companies is excluded. The top bodies in the foundations comprise equal numbers of employer and employee representatives of the relevant companies. The foundations are responsible for investments. Principles of security, risk distribution, yield and liquidity must be observed in this process in order to be able to render the agreed benefits from the foundation's assets when due. Both contributions paid into the pension funds and future benefits arising from these are reviewed regularly by the foundation's bodies and may be changed after taking into account the foundation's financial options. In the event of a shortage of cover, the pension funds can levy remedial contributions from all associated employers if other measures do not lead to the desired result. Liability of the Swiss subsidiaries towards the companies belonging to the pension funds is excluded. At one Swiss subsidiary, benefits from the pension fund provided for in accordance with the pension plan are also covered by an insurance policy.

The acquisition of the shares in Rheinmetall BAE Systems Land Ltd. requires Rheinmetall to make payments to the BAE Group's pension fund for the entitlements earned by the acquired employees. It is not possible to withdraw from the pension fund. For the recognized pension obligations of Rheinmetall BAE Systems Land Ltd. that are not covered by plan assets, Rheinmetall has a claim to reimbursement from the BAE Group in the same amount (see note (14)), which compensates for the remeasurement of the net defined benefit liability from pensions. In addition, the BAE Group is obliged to make the ongoing pension payments to retirees. Excess or deficient cover of the pension fund and its performance are therefore neutral in terms of earnings and risk. By acquiring the shares, Rheinmetall took on full joint liability for the BAE Group's pension agreements. The occurrence of a liability claim is considered to be remote.

The present value of the DBO, plan assets and pension provisions developed as follows:

€ million	2019			2018		
	Present value of DBO	Plan assets	Pension provision	Present value of DBO	Plan assets	Pension provision
As of Jan. 1	**2,155**	**(1,182)**	**972**	**2,251**	**(1,171)**	**1,080**
Current service cost	34	-	34	31	-	31
Past service cost	1	-	1	-	-	-
Interest cost	29	-	29	22	-	22
Interest income	-	(13)	(13)	-	(7)	(7)
Settlement	-	-	-	(52)	52	-
Income from disposal of pension obligation	-	-	-	(5)	-	(5)
Entry benefits/leaving benefits [1)]	(1)	-	-	-	-	-
Amounts recognized in the income statement	**64**	**(13)**	**51**	**(4)**	**46**	**41**
Income from plan assets excluding interest income	-	(72)	(72)	-	(19)	(19)
Actuarial gains (-) and losses (+)						
Change in financial assumptions	240	-	240	(48)	-	(48)
Change in demographic assumptions	(6)	-	(6)	12	-	12
Empirical adjustments	(1)	-	(1)	(9)	-	(9)
Other comprehensive income from remeasurement of net defined benefit	**234**	**(72)**	**162**	**(45)**	**(19)**	**(64)**
Employer contributions	-	(28)	(28)	-	(52)	(52)
Employee contributions	9	(9)	1	8	(8)	-
Pension payments	(113)	72	(41)	(100)	59	(40)
Adjustment in scope of consolidation	465	(420)	45	-	-	-
Currency differences/Other	63	(57)	6	44	(38)	6
As of Dec. 31	**2,877**	**(1,708)**	**1,169**	**2,155**	**(1,182)**	**972**
Of which Switzerland	*1,240*	*(1,108)*	*131*	*1,134*	*(1,049)*	*85*
Of which Germany	*1,033*	*(121)*	*911*	*940*	*(97)*	*843*
Of which United Kingdom	*520*	*(438)*	*81*	-	-	-
Of which others	*85*	*(40)*	*44*	*80*	*(36)*	*44*

[1)] *Results from employees at the Swiss subsidiaries changing employer.*

The service cost and the balance of entry/leaving benefits are reported under personnel expenses.

Net interest expense is included in net interest.

The application of the new 2018G mortality tables by Heubeck for the measurement of pension obligations of German Group companies resulted in actuarial expenses of €11 million in 2018, which were recognized in other comprehensive income and contained in the 'Change in demographic assumptions' item.

Employers and employees made total payments of €37 million to plan assets (previous year: €60 million). €15 million (previous year: €40 million) of this relates to the allocation to CTA assets for pension obligations in Germany.

Key pension plans – The statements below refer to the pension plans of Group companies based in Germany, Switzerland, and – since 2019 – in the United Kingdom.

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The pension plans relate to the following beneficiaries:

Number of people

	Dec. 31, 2019		Dec. 31, 2018	
	Germany	Switzerland	Germany	Switzerland
Active employees	10,718	1,118	10,103	1,087
Vested rights of former employees not subject to expiration	2,072	-	2,073	-
Pensioners	11,050	1,791	10,603	1,837
Total	**23,840**	**2,909**	**22,779**	**2,924**

In the current year, there are 186 active employees entitled to a pension in the United Kingdom. Rheinmetall is obliged to pay into a pension fund for these employees.

The average durations of pension obligations are 17 years at the German companies, as in the previous year, 17 years at the companies in the United Kingdom, and 12 years (previous year: 11 years) at companies based in Switzerland.

In order to determine the present value of the DBO in due consideration of actuarial factors, measurement assumptions were made according to standard principles and per country, taking into account the respective economic circumstances. Discount rates are derived from yields on fixed-interest corporate bonds with a suitable duration and currency which are rated “AA” or better. The discount rate for Germany is determined using a standard procedure specified by the Group actuary on the basis of market data as of December 31, 2019, and the duration for a mixture of active employees and retirees. The following table presents the key underlying actuarial parameters:

Parameters in %

	Dec. 31, 2019			Dec. 31, 2018	
	Germany	Switzerland	United Kingdom	Germany	Switzerland
Discount rate	1.07	0.27	2.10	1.80	1.15
Pension development	1.75	0.00	2.80	1.75	0.00
Life expectancy	2018G mortality tables by Heubeck	BVG2015 Generation tables	CMI 2018 projection tables	2018G mortality tables by Heubeck	BVG2015 Generation tables

The following table shows the parameters where a change in values determined as of the end of the reporting period would have a significant impact on the present value of the DBO. Pension commitments in Switzerland are excluded from changes in the present value of the DBO based on assumptions on pension development, as the pension funds’ regulations do not stipulate ongoing adjustment to future pensions. Instead, the foundation board decides on any adjustments. The potential impact of a change in mortality expectations was analyzed by increasing the individual statistical life expectancy of each employee by one year.

Change in present value of DBO

€ million	Dec. 31, 2019			Dec. 31, 2018	
	Germany	Switzerland	United Kingdom	Germany	Switzerland
Discount rate - 0.25%	43	33	22	36	31
Discount rate + 0.25%	(40)	(12)	(21)	(34)	(30)
Pension development - 0.50%	(33)	-	(28)	(30)	-
Pension development + 0.50%	36	-	31	33	-
Increase in life expectancy by 1 year	58	62	22	49	53

The Rheinmetall Group is exposed to various risks as a result of defined benefit pension commitments. As well as general actuarial risks arising from the measurement of pension obligations, the plan assets harbor investment risks. The investment strategy and composition of assets managed by pension funds are geared towards yield targets, risk tolerance and short-term and medium-term liquidity requirements.

Fair value of the plan assets in %

	Dec. 31, 2019	Dec. 31, 2018
Properties	33	44
Equities, funds	36	33
Corporate bonds	15	8
Other	16	15
Total	**100**	**100**

The fair values of shares, funds, fixed-interest securities and other investments are determined based on market prices in an active market. The fair values of property are not based on market prices in an active market.

For the following year, the estimated cash outflows for contributions to plan assets are shown below.

€ million	2020
Employer contributions to plan assets	68
Employee contributions to plan assets	8

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The forecast cash outflows for the payment of pensions from the pension plans are as follows for the following periods:

€ million	Payments from plan assets	Payments from companies
2020	62	42
2021	63	38
2022	64	41
2023	65	41
2024	67	40
2025-2029	334	204

(18) Other provisions

€ million	Personnel	Structural measures	Guar-antees	Noticeable losses	Contract-related costs	Other provisions	**Total**
As at Jan. 1, 2019	**187**	**52**	**120**	**38**	**238**	**232**	**867**
Utilization	144	31	20	2	68	72	338
Reversal	6	5	25	1	4	29	69
Added/provided for	152	29	39	20	114	107	461
Currency differences/Other	(2)	(1)	1	-	3	1	3
As at Dec. 31, 2019	**187**	**44**	**115**	**55**	**283**	**239**	**923**
Of which current	*163*	*11*	*78*	*53*	*215*	*189*	*709*
Of which non-current	*24*	*33*	*37*	*2*	*68*	*50*	*214*

Personnel provisions essentially relate to variable remuneration of €92 million (previous year: €92 million) and obligations from vacation/overtime/flexitime accounts of €55 million (previous year: €58 million).

Provisions for restructuring mainly relate to termination settlements and expenses for partial retirement obligations.

Miscellaneous provisions relate to commissions at €58 million (previous year: €31 million), environmental risks at €27 million (previous year: €27 million), and rebates and bonuses at €10 million (previous year: €12 million).

(19) Financial debts

€ million	Dec. 31, 2019	Of which current	Of which non-current	Dec. 31, 2018	Of which current	Of which non-current
Promissory notes	402	-	402	300	53	247
Bank liabilities	378	74	305	374	57	317
Leasing	208	36	172	172	33	138
Other	3	3	1	9	8	1
	992	**112**	**880**	**854**	**151**	**704**

Promissory note loans – As of the end of the reporting period, there are various promissory note loans with a nominal value totaling €403 million that serve the Group's general corporate financing. Promissory note loans of €53 million fell due and were repaid in 2019.

€ million

Interest terms	Year concluded	Currency	Nominal value	Maturity	Average weighted nominal interest rate (in %)
Fixed rate			**270**		
	2014	EUR	44	2021-2024	2.72
	2017	EUR	117	2022	1.15
	2018	EUR	42	2025	1.67
	2019	EUR	68	2024-2029	0.97
6-month EURIBOR + spread			**133**		
	2014	EUR	9	2021	6-month EURIBOR + 1.65
	2017	EUR	5	2022	6-month EURIBOR + 1.00
	2018	EUR	32	2025	6-month EURIBOR + 1.06
	2019	EUR	88	2024-2026	6-month EURIBOR + 0.88
			403		

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Bank liabilities

€ million			Dec. 31, 2019	Dec. 31, 2018
Maturing in	Type of loan	Interest terms	Nominal value	Nominal value
August 2023	EIB loan	0.962%	250	250
2025	Construction loan DZ HYP	1.90%	23	26
2022-2026	KfW loan	∅ 2.48%	16	20
2020-2025	Various – medium-term	∅ 4.87%	28	29
2020 or 2019	Various – short-term		62	50
			378	**374**

The loan from the European Investment Bank (EIB), Luxembourg, is a project-related loan granted to finance research and development activities in the Automotive sector. In particular, it is intended improve the financing of projects for the reduction of emissions from combustion engines and for alternative drive technologies.

The liabilities to banks of €58 million (previous year: €68 million) are secured by land charges and similar rights.

The cash and non-cash changes in financial debts are shown below.

	Promissory note loans		Bank liabilities				
€ million	‹ 1 year	› 1 year	‹ 1 year	› 1 year	Leasing	Other	Total
As of Jan. 1, 2018	**-**	**243**	**58**	**325**	**184**	**11**	**821**
Cash changes	-	57	(5)	(2)	(34)	(2)	14
Borrowing of financial debts	-	73	47	4	-	30	154
Repayment of financial debts	-	(16)	(52)	(5)	(34)	(32)	(139)
Non-cash changes	53	(53)	4	(6)	21	-	19
Addition of right of use	-	-	-	-	24	-	24
Currency differences	-	-	(2)	-	(3)	-	(4)
Book transfer	53	(53)	6	(6)	-	-	-
As of Dec. 31, 2018	**53**	**247**	**57**	**317**	**172**	**9**	**854**

	Promissory note loans		Bank liabilities				
€ million	‹ 1 year	› 1 year	‹ 1 year	› 1 year	Leasing	Other	Total
As at Jan. 1, 2019	**53**	**247**	**57**	**317**	**172**	**9**	**854**
Cash changes	(53)	156	2	3	(32)	(5)	70
Borrowing of financial debts	-	155	43	8	-	30	236
Repayment of financial debts	(53)	-	(41)	(5)	(32)	(36)	(166)
Non-cash changes	-	-	15	(15)	68	-	68
Currency differences	-	-	-	-	2	-	1
Adjustment in scope of consolidation	-	-	-	-	-	-	-
Interest	-	-	-	-	-	-	-
Addition of right of use	-	-	-	-	67	-	67
Book transfer	-	-	15	(15)	(1)	-	(1)
As at Dec. 31, 2019	**-**	**402**	**74**	**305**	**208**	**3**	**992**

(20) Other liabilities

€ million	Dec. 31, 2019	Of which current	Of which non-current	Dec. 31, 2018	Of which current	Of which non-current
Monies in transit from debt collection (ABS program)	53	53	-	76	76	-
Derivatives	13	12	2	24	19	5
Other	34	29	5	25	24	2
Financial liabilities	**101**	**94**	**6**	**125**	**119**	**6**
Liabilities from other taxes	68	68	-	67	67	-
Liabilities from social security	12	12	-	12	12	-
Other	121	41	80	106	33	72
Non-financial liabilities	**201**	**121**	**80**	**185**	**113**	**73**
Other liabilities	**302**	**215**	**86**	**310**	**231**	**79**

(21) Sales

The Group generates sales from the transfer of goods and services in the areas of automotive supply and armed forces technology. In the table below, the sales are broken down by area of activity in the two sectors of the Group.

€ million	2019			2018		
	At a point in time	Over time	Total	At a point in time	Over time	Total
Mechatronics	1,525	-	1,525	1,664	-	1,664
Hardparts	937	-	937	988	-	988
Aftermarket	361	-	361	367	-	367
Other/consolidation	(87)		(87)	(90)	-	(90)
Automotive sector	**2,736**	**-**	**2,736**	**2,930**	**-**	**2,930**
Weapon and Ammunition	951	68	1,018	992	64	1,056
Electronic Solutions	459	489	948	442	397	839
Vehicle Systems	339	1,448	1,787	372	1,196	1,568
Other/consolidation	(195)	(37)	(231)	(190)	(52)	(242)
Defence sector	**1,554**	**1,968**	**3,522**	**1,616**	**1,605**	**3,221**
Group consolidation	(3)	-	(3)	(4)	-	(4)
Group total	**4,287**	**1,968**	**6,255**	**4,543**	**1,605**	**6,148**

The sales for 2019 include €5 million (previous year: €4 million), which resulted from the inclusion of a financing component. Net interest was reduced by a corresponding amount.

In the Automotive sector, contracts with customers relate almost exclusively to serial deliveries of modules and systems for engine technology. Customers are predominantly large automotive manufacturers. The Aftermarket division is purely a spare parts trading business aimed at wholesalers and workshops. As a rule, sales are recognized at the time of delivery.

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In the Defence sector, there are both customer contracts for the manufacture and supply of goods and service contracts for service and maintenance activities and for the provision of development services. Depending on contract design, sales are recognized at the time at which risk is transferred, which is agreed individually. Sales are recognized at a point in time in particular in the case of orders for protection and weapon systems and for ammunition.

In the case of customer-specific contract manufacturing, sales are recognized over time. This predominantly applies to contracts with customers in the Electronic Solutions division, to development and pilot production contracts, and to the delivery of vehicle programs.

The following contract balances result from contracts with customers:

€ million	Dec. 31, 2019	Dec. 31, 2018
Trade receivables	1,147	1,185
Contract assets	388	338
Contractual liabilities	948	650

Trade receivables are recognized as soon as the goods and services have been transferred to the customer and there is an unconditional legal entitlement to the corresponding consideration. The credit term for contracts with customers is predominantly 90 days.

Contract assets exist for contracts with customers under which sales are recognized over time and the performance rendered has not yet been billed. As of the end of the reporting period, the contract assets rose by €50 million to €388 million (previous year: €338 million).

Contract liabilities result from the excess of advance payments received and other customer payments over the performance already rendered in the case of contract manufacturing. Contract liabilities increased by €298 million to €948 million (previous year: €650 million). The increase in contract liabilities results primarily from the increased pre-financing of major projects by contract customers.

In addition, there are assets from contract acquisition in connection with contracts with customers, which are as follows:

€ million	2019	2018
As of Jan. 1	67	73
Addition	37	17
Write-down	(24)	(23)
As of Dec. 31	81	67

The assets from contract acquisition relate to contracts with customers in the Defence sector and comprise commissions for agents and indirect offset costs. Offset costs are usually incurred for contracts with customers in which the customer wishes to support the local economy in order to offset an import business through an additional agreement. Indirect offset costs are costs that are incurred in addition to the manufacturing-related costs. The assets are recognized at the time the costs arise and are written down in line with the sales recognition over the time of contract fulfillment.

The order backlog as of December 31, 2019, reflects the total of performance obligations not fulfilled or partly not yet fulfilled. Besides the contract value, the order backlog also includes adjustments from variable remuneration, such as index-based price adjustment clauses, which are customary in the case of longer-term orders. Future sales from the order backlog are expected for the following periods:

€ million	Order backlog	Expected sales		
	Dec. 31, 2019	2020	2021	from 2022
Automotive	447	447	-	-
Defence	10,399	3,040	1,890	5,469
	10,846	**3,487**	**1,890**	**5,469**

(22) Changes in inventories and work performed by the enterprise and capitalized

€ million	2019	2018
Increase/decrease in inventory of finished and unfinished products	169	4
Other work performed by the enterprise and capitalized	67	40
	236	**44**

(23) Other operating income

€ million	2019	2018
Reversal of provisions	58	53
Disposal of assets/divestments	2	35
Sundry rental agreements and leases	11	11
Refunds	34	8
Other secondary income	81	72
	186	**179**

(24) Cost of materials

€ million	2019	2018
Cost of raw materials, supplies, and merchandise purchased	2,794	2,616
Cost of services purchased	650	593
	3,444	**3,209**

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(25) Personnel expenses

€ million	2019	2018
Wages and salaries	1,366	1,285
Social security and related employee benefits	176	162
Pension expenses	109	104
Expenses for redundancy plans, termination indemnities, partial retirement	28	23
	1,678	**1,574**

Annual average head count (capacity)

	2019	2018
Automotive sector	11,619	11,521
Defence sector	11,522	10,661
Rheinmetall AG/Other	264	227
	23,405	**22,409**

(26) Amortization, depreciation and impairment

€ million	2019	2018
Other intangible assets	41	85
Rights of use	39	35
Property, plant and equipment	198	196
Investment property	1	2
	280	**318**

The impairment losses of €2 million (previous year: €42 million) included in amortization, depreciation and impairment break down as follows:

€ million	Automotive		Defence	
	2019	2018	2019	2018
Other intangible assets				
Development costs capitalized	-	-	-	32
Property, plant and equipment				
Technical and other equipment, furniture and fixtures	1	3	-	1
Assets under construction	-	-	-	5
	1	3	-	38

(27) Other operating expenses

€ million	2019	2018
Repairs and maintenance	103	103
Distribution and advertising costs	99	106
IT costs	96	89
Incidental staff costs	64	62
Travel expenses	57	56
Audit, legal and consultancy fees	48	51
Insurances	31	26
Warranty	31	19
Rents, leases and ancillary costs	22	21
Other	231	243
	781	**775**

The “Other” item primarily contains building operating expenses, research and development costs, licensing costs, other taxes and various individual items.

(28) Income taxes

€ million	2019	2018
Current income tax expense	99	130
Earlier-period income taxes	4	3
Deferred taxes	20	(1)
	123	**131**

As in the previous year, a tax rate of 30% is used to calculate deferred income taxes for Germany. This includes corporate income tax, the solidarity surcharge and trade tax. The tax rates in other countries range from 16% to 34% (previous year: 16% to 34%).

The table below presents a reconciliation of expected tax expense to reported actual tax expense. A tax rate of 30% is applied to earnings before taxes in order to calculate the expected tax expense. This includes German corporate income tax, the solidarity surcharge and trade tax.

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€ million	2019	2018
Extraordinary expenses	477	485
Expected income tax expense (tax rate of 30%; previous year: 30%)	**143**	**146**
Foreign tax rate differentials	(10)	(11)
Effects of loss carryforwards and tax rate changes	3	10
Reduction of tax expense due to previously unrecognized loss carryovers and temporary differences	(14)	(13)
Tax-exempt income	(5)	(4)
Non-deductible expenses	9	9
Earlier-period income taxes	4	3
Taxes on entities carried at equity	(11)	(11)
Taxes on dividend and other withholding taxes	3	1
Other	1	3
Actual income tax expense	**123**	**131**

Allocation of deferred taxes to items in the statement of financial position

€ million	Dec. 31, 2019		Dec. 31, 2018	
	Deferred tax assets	Deferred tax liabilities	Deferred tax assets	Deferred tax liabilities
Loss carryforwards and tax credits	55	-	51	-
Fixed assets	19	115	16	120
Inventories and receivables	27	78	19	42
Pension provisions	193	-	150	-
Other provisions	70	2	57	1
Liabilities due to banks	53	11	74	2
Other	2	4	3	3
	419	**211**	**370**	**167**
Set off	(195)	(195)	(152)	(152)
	224	**16**	**218**	**15**
Of which non-current	*224*	*16*	218	15

In addition to capitalized deferred tax assets from loss carryovers and tax credits, further tax loss carryovers and tax credits exist in Germany and abroad totaling €348 million (previous year: €374 million), which cannot be utilized or whose deferred tax assets were adjusted by value adjustments. €159 million (previous year: €180 million) of this relates to German loss carryovers, €188 million (previous year: €194 million) to foreign loss carryovers and €1 million to tax credits. The German loss carryovers, and €123 million of the foreign loss carryovers (previous year: €133 million), are not subject to expiration. Most of the limited foreign loss carryforwards can still be utilized for up to eight years (previous year: up to eight years). Within the Group, €18 million (previous year: €12 million) in deferred tax assets were recognized at companies with ongoing tax losses due to positive corporate planning. No deferred tax liabilities have been recognized for temporary differences in connection with shares in subsidiaries, as the Group is able to manage the progress of reversal over time and the temporary differences will not be reversed in the foreseeable future. Unrecognized deferred tax liabilities of €12 million (previous year: €12 million) relate to the main differences.

(29) Earnings per share

Earnings per share are calculated as a ratio of the consolidated result of the shareholders of Rheinmetall AG and the weighted average number of shares in circulation during the fiscal year. As there were no shares, options or similar instruments outstanding that could dilute earnings per share as of December 31, 2019, or December 31, 2018, basic and diluted earnings per share are identical. Treasury shares reduce the weighted number of shares.

	2019	2018
Weighted number of shares in millions	43.06	42.95
Consolidated net profit for the year for shareholders of Rheinmetall AG in € million	335	305
Earnings per share	**€7.77**	**€7.10**

(30) Statement of cash flows

€11 million (previous year: €7 million) of the net interest income included in the cash flow from operating activities related to interest payments received and €30 million (previous year: €27 million) to interest payments made.

The payments for investments in subsidiaries and other financial assets of €56 million essentially break down as follows: €35 million for the acquisition of 55% of the shares in Rheinmetall BAE Systems Land Ltd., Telford, United Kingdom; €11 million for the acquisition of the operating business of the IBD Deisenroth Engineering Group, Lohmar; and €2 million for the purchase of all shares in Provectus Robotics Solutions Inc., Ottawa, Canada (see note (3)). Cash and cash equivalents totaling €4 million were acquired in the above transactions. €3 million for the capital increase at the joint venture Kolbenhöfe GmbH & Co. KG, Hamburg, and €3 million for the acquisition of shares in the associate Carbon Truck & Trailer GmbH, Stade, are also accounted for here. In the previous year, €10 million for the capital increase at the joint venture Pierburg Huayu Pump Technology Co. Ltd., Shanghai, China; €3 million for the further acquisition of shares in the associate Riken Automobile Parts (Wuhan) Co., Ltd., Wuhan, China; and €7 million for the establishment of and capital increase at the joint venture Kolbenhöfe GmbH & Co. KG, Hamburg, were also recognized here.

The increase in shares in consolidated subsidiaries included €111 million for the repurchase of the non-controlling interests in Rheinmetall Military Vehicles GmbH (RMV) from MAN Trucks & BUS SE after the spin-off of Rheinmetall MAN Military Vehicles GmbH. In addition, €26 million was attributable to the acquisition of the non-controlling interests in Rheinmetall Chempro GmbH, Bonn (49%), and Rheinmetall Active Protection GmbH, Bonn (26%).

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(31) Segment reporting

The Group bundles its operations in two sectors, Defence and Automotive, which are organized and run as independent segments where the respective products, services and customer profiles are grouped accordingly. Reporting on these reportable segments is in accordance with the Rheinmetall Group's internal organizational and reporting structures.

The Automotive sector is the mobility segment of the Rheinmetall Group. As a global automotive supplier, Rheinmetall Automotive operates in the areas of air management, emissions reduction and pumps and in the development, production and supply of replacement parts for pistons, engine blocks and plain bearings. As well as supplying automotive manufacturers, the Automotive sector operates in the aftermarket business, supplying wholesalers, engine repair shops and independent garages with replacement parts through a global distribution network.

The Defence sector brings together all activities for the defence and security industry. The service range covers development, manufacturing and service provision and is aimed at German and international armed forces. The product portfolio comprises system and partial system solutions and covers capability in the areas of mobility, reconnaissance, management, effectiveness and protection. Specifically, the product range includes vehicle, protection and weapon systems, air defence systems, function sequence networking, simulation hardware and software, and infantry equipment.

In addition to the Group holding company (Rheinmetall AG), "Other/Consolidation" includes Group service companies and other non-operating companies, plus consolidation transactions. Transactions between the Defence and Automotive sectors are of minor significance and are made at arm's length.

The sectors of the Rheinmetall Group are controlled by means of sales, operating result (EBIT before special items), EBIT, EBT and operating free cash flow performance indicators. Operating free cash flow comprises the cash flow from operating activities and capital expenditure on rights of use, property, plant and equipment, intangible assets, and investment property.

Profitability is also assessed for management purposes on the basis of ROCE calculated on an annual basis, which represents the ratio of EBIT to average capital employed (average of values as of December 31 of the previous year and December 31 of the year under review). Capital employed is calculated as the total of equity, pension provisions and net financial debts. Net financial debts are calculated as financial debts less cash and cash equivalents and liquid financial assets. Intersegment loans within the Group are assigned to cash and cash equivalents.

The indicators for internal controlling and reporting purposes are based on the accounting principles described under note (6).

The reconciliation of segment net financial debts to Group financial debts and of segment EBIT to consolidated EBT is shown below:

€ million	Dec. 31, 2019	Dec. 31, 2018
Net financial debts (-)/Net liquidity (+)		
Net liquidity of sectors	292	222
Others	(345)	(252)
Consolidation	-	-
Net financial debts of Group	**(52)**	**(30)**
	2019	**2018**
EBIT		
EBIT of sectors	527	512
Others	198	105
Consolidation	(213)	(100)
Group EBIT	**512**	**518**
Group net interest	(35)	(33)
Group EBT	**477**	**485**

When presenting segment information by geographical region, foreign sales in the Defence sector are reported based on the country of destination, while those of the Automotive sector are reported according to where the customer is based. Segment assets include intangible assets, rights of use, property, plant and equipment and investment property according to the respective location of the company.

(32) Contingent liabilities

Furthermore, several guarantees have been issued in favor of non-consolidated interests as part of joint projects, which are primarily carried out in the form of joint ventures. There are letters of comfort for the purposes of contract performance, whereby Rheinmetall may also be held liable for the performance of the other joint venture partners in its relations with third parties. However, in internal relations, it is only liable for its own share of products and services by virtue of corresponding rights of recourse. Moreover, a letter of comfort involving a joint and several liability has been issued to secure the financing of the capex costs for a joint venture. No cash outflows are expected. In addition, commitments exist in favor of joint ventures and associated affiliates for credit and guarantee facilities granted to the affiliated companies. Rheinmetall’s liability is equal to the equity interest held. No cash outflows are expected here.

Contingent liabilities

€ million	Dec. 31, 2019	Dec. 31, 2018
Letters of comfort	893	927
Credit enhancement	15	42
Contract performance	-	2
Other	12	10
	921	**981**

The purchase commitment from firm capital expenditure contracts totals €25 million (previous year: €45 million).

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(33) Additional information on financial instruments

Financial instruments according to the measurement categories of IFRS 9

€ million	Dec. 31, 2018				
	Measurement category in accordance with IFRS 9				
	Amortized cost	Fair value/OCI	Fair value/PL	No category	Total
Trade receivables	562	622	-	-	1,185
Cash and cash equivalents	724	-	-	-	724
Liquid financial assets	100	-	-	-	100
Derivatives without hedge accounting	-	-	10	-	10
Derivatives with cash flow hedge	-	-	-	18	18
Other financial assets	70	4	2	3	78
Financial assets	**1,456**	**626**	**12**	**20**	**2,115**
Promissory notes	300	-	-	-	300
Financial debts	383	-	-	-	383
Trade liabilities	797	-	-	-	797
Derivatives without hedge accounting	-	-	11	-	11
Derivatives with cash flow hedge	-	-	-	12	12
Other financial liabilities	102	-	-	-	102
Financial liabilities	**1,582**	**-**	**11**	**12**	**1,606**

€ million	Dec. 31, 2019				
	Measurement category in accordance with IFRS 9				
	Amortized cost	Fair value/OCI	Fair value/PL	No category	Total
Trade receivables	549	597	-	-	1,147
Cash and cash equivalents	920	-	-	-	920
Liquid financial assets	20	-	-	-	20
Derivatives without hedge accounting	-	-	17	-	17
Derivatives with cash flow hedge	-	-	-	27	27
Other financial assets	61	4	-	2	67
Financial assets	**1,550**	**601**	**17**	**29**	**2,197**
Promissory notes	402	-	-	-	402
Financial debts	382	-	-	-	382
Trade liabilities	695	-	-	-	695
Derivatives without hedge accounting	-	-	8	-	8
Derivatives with cash flow hedge	-	-	-	6	6
Other financial liabilities	87	-	-	-	87
Financial liabilities	**1,566**	**-**	**8**	**6**	**1,580**

The trade receivables, which would in principle be available for sale before their due date, are measured at fair value, which any changes in value being recognized in other comprehensive income. The carrying amount is approximately equal to the fair value (level 2).

The market value of other financial assets and financial liabilities measured at fair value is determined on the basis of input factors observed directly or indirectly on the market (level 2). The foreign exchange rates applicable at the end of the reporting period and the yield curves are key inputs in calculating the fair value of derivatives for currency and interest rate hedges. The discounted cash flow method is used for interest rate swaps, currency swaps and currency forwards. The euro yield curve used to measure the interest rate derivatives takes into account basis spreads. The fair value of the commodity futures is derived from the market price as of the measurement date. The forward rates applicable at the end of the reporting period are used to calculate the market value of energy derivatives (electricity and gas derivatives).

The carrying amounts and fair values of financial instruments that are measured at amortized cost and whose carrying amounts do not approximate fair value are shown below.

€ million		Dec. 31, 2019		Dec. 31, 2018	
		Carrying amount	Fair value	Carrying amount	Fair value
Promissory notes	Level 2	402	422	300	315
Other financial debts	Level 2	382	409	383	400

The fair value of the promissory note loans and the other financial debts was determined by discounting the associated future cash flows at rates that match the time to maturity of similar debts.

Sale of customer receivables – Under an asset-backed securities program, the Rheinmetall Group sells customer receivables to a financial service provider each month on a revolving basis. The customer receivables sold are recognized as disposals. In 2019, the maximum volume of the program was €169 million (previous year: €169 million). The nominal value of receivables was €130 million as of December 31, 2019 (previous year: €169 million).

The retained risks are insignificant for the Group. An asset item of €2 million has been reported for the maximum continuing involvement (previous year: €3 million), together with a liability item of the same amount for the associated liabilities.

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Net result from financial instruments

€ million	2019	2018
Interest income	11	6
Interest expenses	(24)	(15)
Guarantee commission	(9)	(9)
Currency result	-	5
Loss allowances on trade receivables	(12)	(9)
Amortization of other financial assets	(12)	(10)
Other	1	-
	(45)	**(31)**

€1 million of the loss allowances on trade receivables (previous year: €4 million) is attributable to financial instruments of the measurement at fair value through other comprehensive income category. Interest expenses of €1 million (previous year: €2 million) are attributable to the same category. All other items relate to financial instruments measured at amortized cost.

Finance market risks – The operations and financing transactions of the Rheinmetall Group as an international group are exposed to financial market risks, mainly from liquidity, counterparty default, electricity, gas and commodity prices, exchange rate volatility and interest rate changes. In accordance with the Group-wide risk management system of Rheinmetall AG, such risks are not only identified, analyzed and measured, but also managed by taking actions to avoid, contain or limit such risks. Inherent financial risks are actively managed to ensure that no significant risks arise from financial instruments as of the end of the reporting period.

Derivative financial instruments – Derivative financial instruments are used to reduce currency, interest rate and commodity price risks. Provided that the necessary criteria are met and automatic offsetting of the hedged item and the hedging instrument is not possible, changes in the fair value of hedging transactions are recognized in the hedge reserve in the context of cash flow hedge accounting. The effectiveness of these transactions is subject to ongoing monitoring, using the critical terms match method prospectively. Ineffective portions to be recognized are determined using the dollar offset testing method.

The table below shows the fair value of all hedges accounted for as financial assets or financial liabilities as of the end of the reporting period.

€ million	Dec. 31, 2019		Dec. 31, 2018	
	Assets	Equity and liabilities	Assets	Equity and liabilities
Currency hedges	17	(7)	9	(9)
Interest rate hedges	-	-	-	-
Commodity hedges	-	-	-	-
Electricity price hedges	-	-	1	(1)
Without hedge accounting	**17**	**(8)**	**10**	**(11)**
Currency hedges	25	(5)	15	(10)
Interest rate hedges	-	-	-	-
Commodity hedges	1	(1)	-	(3)
Electricity price hedges	-	-	2	-
With hedge accounting	**27**	**(6)**	**18**	**(12)**

In the year under review, total positive changes in the fair value of derivatives of €21 million before the deduction of deferred taxes (previous year: total negative changes in fair value of €11 million) were recognized in the hedge reserve. €8 million (previous year: €10 million) of the reserve was reclassified to revenue and €1 million (previous year: €3 million) was reclassified to the cost of materials.

For derivatives in hedge accounting, the nominal volumes for currency and commodity hedges are shown below. For significant currency pairs and commodity hedges, the average hedging rates are also shown.

	Dec. 31, 2019			Dec. 31, 2018		
	2020	2021	from 2022	2019	2020	from 2021
Currency hedges						
Nominal volumes (gross, in € million)	774	137	145	559	184	30
Average hedging rate						
Average rate CHF/EUR	1.10	-	1.08	1.14	1.13	1.13
Average rate USD/ZAR	0.07	0.06	-	0.07	0.07	0.06
Average rate CZK/EUR	26.36	26.71	26.93	-	-	-
Average rate USD/EUR	1.18	1.23	1.21	1.18	1.24	1.26
Average rate EUR/ZAR	0.06	0.05	-	0.06	0.05	-
Commodity hedges						
Nominal volumes (gross, in € million)	28	17	3	28	16	5
Average hedging rate						
Average rate aluminum (EUR/ton)	1,668	1,681	1,712	1,731	1,697	1,715
Average rate copper (EUR/ton)	5,225	5,071	5,160	5,330	5,227	5,065

There were only immaterial ineffective portions, so the fair value changes of the hedged item and the hedging instrument largely canceled each other out.

Currency risk – Owing to the international nature of the Rheinmetall Group’s business, certain operational currency risks arise from the fluctuating exchange rates between the functional currencies of Group companies and other currencies. Open positions exposed to a currency risk are hedged through derivatives, generally currency forwards, as well as currency swaps. Where legally possible, foreign exchange trading is contracted exclusively with Rheinmetall AG. Here, currency hedge transactions are concluded with subsidiaries and squared either directly or in a portfolio approach via banks. The most important currency hedges in the Group refer to Swiss franc, US dollar, Australian dollar and Czech koruna transactions. These hedges are measured as of the end of the reporting period and recognized at their fair value calculated according to the DCF method.

Interest rate risk – Rheinmetall AG uses interest rate hedging instruments (interest rate swaps) as part of its Group-wide management of interest rate risks. The interest rate swaps essentially serve to hedge variable interest on promissory note loans and future variable interest payments.

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Commodity price risks – The Rheinmetall Group is exposed to price volatility risks from commodity buying, such as metals. By means of materials cost escalator agreements with customers, the major part of these risks from volatile metal prices is shifted to customers, albeit with a time lag. Moreover, the Automotive sector (where most of these risks exist) has also used derivative financial instruments for risk management, mainly commodity futures and swaps maturing by 2022 at the latest contracted on the basis of a financial settlement.

Energy price risk (electricity and gas price) – Owing to volatile prices on the energy market, derivative financial instruments in the form of forward contracts have been concluded to secure the price of gas for the consumption volumes planned up to 2021. There are no outstanding price hedges via derivative financial instruments for electricity.

Sensitivity analysis – As part of sensitivity analyses for the risk variables concerned, the effects that a change in the relevant underlying instruments as of the end of the reporting period would have on other net financial income and the hedge reserve, before taking deferred taxes into account, are examined.

€ million		Other net financial income		Cash flow hedge reserve	
		Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018
Currency	Exchange rates (total) -10%/+10%	-7/7	+3/-3	-74/74	-31/+31
Interest rate	Yield curve -100 BP/+100 BP	- / -	- / -	- / -	- / -
Commodity	Price curve for material prices -10%/+10%	- / -	- / -	-5/+5	-5/+5
Energy price	Forward curve (total) -10%/+10%	- / -	- / -	- / -	- / -

Default risk (expected credit risk) – The default risk from financial assets is that the other contractual party does not fulfill his obligations. The maximum risk for loans granted and customer receivables is the carrying amount recognized. In order to minimize the default risk with derivative financial instrument contracts, the Rheinmetall Group sets high requirements in respect of its counterparties, restricting itself exclusively to German and foreign banks with impeccable ratings.

The Rheinmetall Group monitors and tracks the default risk on customer receivables at the level of its operating units in line with the corporate policies for proper debtor management. Individual assessments (where appropriate, based on current trends and qualitative information) can be used in addition to database-supported rating and default data of an external data supplier. Current del credere risks are covered by valuation allowances.

There are no significant valuation allowances for customer receivables at the Rheinmetall Group. Given the type of business and the customer structure, default rarely occurs and instead there are only delays in payment. In addition, potential default risks are assessed on an individual basis in connection with long-term orders and reduced or hedged by means of prepayments, credit insurance, guarantees or letters of credit. In 2019, the risk provision for general default risk calculated according to the simplified approach for the measurement of trade receivables amounted to €7 million (previous year: €8 million). As in the previous year, the risk calculated using business model-specific default rates for receivables up to 30 days past due is less than 1%. As of the end of the reporting period, there were no indications that the debtors of any receivables past due will fail to make payment. Because of the customer structure, the risk does not significantly increase even when the receivables are a long time past due.

Default risk of trade and other receivables, amount before loss allowance

€ million	Dec. 31, 2019	Dec. 31, 2018
Not past due and less than 30 days past due	974	1,048
Up to 180 days past due	82	71
More than 180 days past due	95	73
	1,151	**1,192**

No important credit concentrations exist in the Rheinmetall Group.

Liquidity risk – In particular, the Rheinmetall Group ensures sufficient liquidity at all times by a cash budget and forecast over a specified time horizon, and through existing, partly unutilized finance facilities, including credit lines granted by banks on a syndicated basis, a commercial paper (CP) program and an asset-backed securities program. For further details of such credit facilities, see the “Financing” section of the management report.

The undiscounted contractually agreed payments from repayment and interest components in connection with financial debts and derivative financial instruments as of the end of the reporting period are listed below.

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Cash outflows

€ million	Dec. 31, 2019			Dec. 31, 2018		
	2020	2021-2024	from 2025	2019	2020-2023	from 2024
Promissory notes	5	279	146	58	162	100
Other bank liabilities	79	309	6	65	63	265
Other financial debts	2	-	-	8	1	-
	87	**588**	**152**	**131**	**225**	**365**
Derivatives with positive fair value						
Cash outflow	1,205	267	-	835	158	-
Cash inflow	1,239	282	-	848	171	-
Derivatives with negative fair value						
Cash outflow	709	152	5	743	82	-
Cash inflow	712	152	6	727	79	-

The fair values of derivatives as of the end of the reporting period should be seen in the context of the associated underlyings, whose values develops in the opposite direction to that of derivatives, regardless of whether these have already been recognized or are pending. The derivatives would only produce a cash outflow at the amount shown above if they were terminated early.

The Rheinmetall Group's financial resources comprise cash and cash equivalents, financial current assets available for sale, and the cash provided by operating activities. By contrast, the capital requirements cover the redemption of financial liabilities (principal and interest), capital expenditure and the funds for the ongoing financing of operating activities.

(34) Share programs

Long-term-incentive program – There is a long-term incentive remuneration program (LTI) for the Executive Board and the managers of the Rheinmetall Group in order to involve management in the company's long-term development. Under this program, the beneficiaries are paid performance-related remuneration for the past fiscal year in the subsequent year. The calculation of the amount of remuneration is based on the average adjusted EBT of the Rheinmetall Group for the past three fiscal years, capped at a maximum of €300 million. Average adjusted EBT for fiscals 2017 to 2019 is over €300 million, so the remuneration for fiscal 2019 is based on the maximum amount, multiplied by a personal factor according to individual arrangement.

The remuneration for members of the Executive Board comprises a component settled in shares of 50% of the assessment basis and a cash component of 60% of the assessment basis. The remuneration for German managers is measured according to the respective assessment basis, with 40% and 60% being settled in shares and cash respectively. Managers working outside Germany receive remuneration of 50% of the determined assessment basis in shares.

The number of shares granted is determined in the subsequent year on the basis of the average price on the last five trading days in February of a year (reference price), with a deduction of 20% in the case of managers (relevant share value). The portion of the assessment basis to be granted in shares is divided by the relevant share value to determine the number of shares to be granted. The shares granted are subject to a lock-up period of four years. If employment is terminated by the employer, the Executive Board member or manager receives remuneration pro rata for each completed calendar month of employment.

An expense totaling €18 million (previous year: €17 million) was recognized for the LTI program in fiscal 2019.

The reference price in February 2019 was €94.44. For fiscal 2018, a total of 101,290 shares were transferred to the entitled participants of the LTI program on April 2, 2019 (previous year: a total of 89,724 shares were transferred for fiscal 2017 on April 3, 2018). In addition, there was a further transfer of a total of 158 shares on July 10, 2019 (reference price in July 2019: €103.40).

The shares attributable to the Executive Board members are presented in the remuneration report included in the management report.

Share purchase program – Since 2018, there has been a new share purchase program for Rheinmetall employees in Germany, in which employees of participating Group companies can purchase Rheinmetall shares at reduced prices on the basis of monthly savings plans. The program comprises two elements: a monthly basic savings plan and a monthly extra savings plan. Under the basic savings plan, employees can acquire Rheinmetall shares for a monthly sum of at least €30 up to a maximum of €100. Rheinmetall contributes 30% of the defined savings amount. For example, a monthly savings amount of €100 comprises €70 from the employee and the employer's contribution of €30.

In addition, employees can acquire additional Rheinmetall shares as part of the extra savings plan. Here, the monthly savings contribution can amount to up to 10% of the annual gross salary divided by 12. There is a cap of €900 per month. Here, too, Rheinmetall contributes 30% of the defined savings amount.

In 2019, employees acquired a total of 55,742 shares (previous year: 38,319 shares) under this share purchase program. The employer contribution amounted to €2 million (previous year: €1 million). The shares acquired under the share purchase program within a year are subject to a lock-up period of two years starting on January 1 of the following year.

Notes to the consolidated financial statements
Other explanatory information

(35) Other information on related parties

The Rheinmetall Group’s corporate related parties are the joint ventures and associated companies accounted for using the equity method. The products/services provided primarily relate to sales proceeds recognized in respect of project companies of the Defence sector from the sale of finished and unfinished goods and from construction contracts. The receivables and liabilities are chiefly attributable to customer receivables, trade payables and prepayments received and made. The scope of related-party transactions is shown in the table below.

€ million	Joint ventures		Associated companies	
	2019	2018	2019	2018
Products/services provided	445	393	64	24
Products/services received	6	6	22	16
Receivables Dec. 31	122	143	48	43
Liabilities Dec. 31	4	9	2	3
Receivables from finance leases Dec. 31	8	8	-	-

Please see note (14) for information on the finance lease receivable.

Please see the comments under note (32) “Contingent liabilities” for details of the Rheinmetall Group’s contingent liabilities in connection with joint ventures.

There are business relationships between a subsidiary of Rheinmetall AG and PL Elektronik GmbH, Lilienthal, whose sole shareholder is Mr. Armin Papperger, a member of the Rheinmetall AG Executive Board, and which is managed by a related party of Mr. Papperger. PL Elektronik GmbH provides development services and produces and supplies electric igniters to order. The transactions are carried out on an arm’s-length basis. In fiscal 2019, the volume of products/services received amounted to €1 million (previous year: €2 million).

Remuneration of the Executive Board and the Supervisory Board – The reportable remuneration of senior management within the Group comprises that paid to active Executive Board and Supervisory Board members.

The expenses for compensation paid or payable to active members of the Executive Board break down as follows:

€ ’000	2019	2018
Fixed remuneration incl. fringe benefits	3,022	3,015
Performance based remuneration	2,923	3,802
LTI	3,878	3,878
	9,823	**10,695**
Pension expenses (service cost)	3,160	3,250
Total	**12,983**	**13,945**

The net present value of pension commitments, which corresponds to the amount of provisions, totals €29,225 thousand for members of the Executive Board active at year-end (previous year: €21,716 thousand). There are provisions of €6,801 thousand (previous year: €7,679 thousand) for variable remuneration of the Executive Board.

Supervisory Board remuneration including attendance fees amounted to €1,909 thousand (previous year: €1,611 thousand). In addition to Supervisory Board remuneration, those employee representatives who are employees of the Rheinmetall Group also receive compensation unrelated to their service on the Supervisory Board. The employee representatives received €817 thousand in total from such activities (previous year: €785 thousand).

For further details and itemization of each member's remuneration, see the Board remuneration report within the combined management report of the Rheinmetall Group and Rheinmetall AG.

€1,992 thousand (previous year: €2,200 thousand) was paid to former members of the Executive Board or their surviving dependents. Pension provisions for these persons totaled €26,924 thousand (previous year: €31,895 thousand). €582 thousand (previous year: €536 thousand) was paid to former Executive Board members of Rheinmetall DeTec AG (merged with Rheinmetall AG in 2005) or their surviving dependents. Pension provisions for these persons totaled €8,074 thousand (previous year: €8,374 thousand).

(36) Auditor's fees

The following fees for the auditor PricewaterhouseCoopers GmbH Wirtschaftsprüfungsgesellschaft (PwC) were recognized:

€ '000	Fees Germany	
	2019	2018
End-of-year auditing services	2,575	2,235
Other verification services	107	102
Tax consultancy services	50	14
Other services	554	309
	3,286	**2,660**

The fees for audits of financial statements cover Rheinmetall AG's single-entity and consolidated financial statements and the accounts of all subsidiaries audited by PwC in Germany. Fees for other services essentially relate to activities in the context of project audits. All services not related to the audit of the financial statements were approved by the Audit Committee.

Notes to the consolidated financial statements
Other explanatory information

(37) Exercise of exemption provisions under HGB

Based on the provisions of section 264(3) HGB governing corporations and section 264b HGB governing partnerships, the following German enterprises have elected not to prepare notes or management reports or to disclose their 2019 financial statements:

Amprio GmbH
BF Germany GmbH
EMG EuroMarine Electronics GmbH
GVG Grundstücksverwaltung Gleitlager GmbH & Co. KG
GVMS Grundstücksverwaltung Service GmbH & Co. KG
GVN Grundstücksverwaltung Neckarsulm GmbH & Co. KG
Kolbenhöfe GmbH & Co. KG
Kolbenschmidt Liegenschaftsverwaltung GmbH Berlin
Kolbenschmidt Pierburg Innovations GmbH
KS ATAG Beteiligungsgesellschaft m.b.H.
KS Gleitlager GmbH
KS Grundstücksverwaltung Beteiligungs GmbH
KS Grundstücksverwaltung GmbH & Co. KG
KS Kolbenschmidt GmbH
MEG Marine Electronics Holding GmbH
MS Motorservice Deutschland GmbH
MS Motorservice International GmbH
Pierburg GmbH
Pierburg Grundstücksverwaltung GmbH & Co. KG
Pierburg Pump Technology GmbH
Rheinmetall Automotive AG
Rheinmetall Berlin Verwaltungsgesellschaft mbH
Rheinmetall Dienstleistungszentrum Altmark GmbH
Rheinmetall Electronics GmbH
Rheinmetall Eastern Markets GmbH
Rheinmetall Financial Services GmbH
Rheinmetall Immobilien GmbH
Rheinmetall Immobilien Hamburg GmbH
Rheinmetall Immobilien Hamburg Friedensallee GmbH
Rheinmetall Industrietechnik GmbH
Rheinmetall Insurance Services GmbH
Rheinmetall Landsysteme GmbH
Rheinmetall Maschinenbau GmbH
Rheinmetall Military Vehicles GmbH
Rheinmetall Project Solutions GmbH
Rheinmetall Soldier Electronics GmbH
Rheinmetall Technical Assistance GmbH
Rheinmetall Technical Publications GmbH
Rheinmetall Verwaltungsgesellschaft mbH
Rheinmetall Waffe Munition GmbH
Solidteq GmbH
SUPRENUM Gesellschaft für numerische Superrechner mbH

(38) Corporate governance

In August 2019, Rheinmetall AG published its declaration of conformity in accordance with the German Corporate Governance Code pursuant to section 161 of the Aktiengesetz (AktG – German Stock Corporation Act) on the Internet at www.rheinmetall.com in the section “Group – Corporate Governance”, thus making it available to shareholders.

(39) Events after the end of the reporting period

No events that could have materially affected the company’s net assets, financial position and results of operations occurred at Rheinmetall AG between the end of the reporting period on December 31, 2019, and February 27, 2020. However, the World Health Organization declared the coronavirus outbreak a Public Health Emergency of International Concern on January 30, 2020. China has instituted extensive exclusion zones and taken other safety measures. The actual economic consequences for China and the global economy due to the spread of the previously unknown virus cannot yet be foreseen. As things stand, however, the economic risks in fiscal 2020 are growing, especially for the international supply relationships in the automotive industry. Rheinmetall will monitor the potential impact of the global spread of coronavirus and adjust its annual forecasts if necessary.

Düsseldorf, February 27, 2020

Rheinmetall Aktiengesellschaft
The Executive Board

Armin Papperger　　Helmut P. Merch　　Peter Sebastian Krause

Notes to the consolidated financial statements
Shareholdings

Company		Direct share of capital in %	Indirect share of capital in %	Equity in € ’ooo	Net income for the year after PLTA in € ’ooo
Fully consolidated subsidiaries					
Holding companies/service companies/other					
Amprio GmbH, Neuss/Germany	(1)		100	212	12
EMG EuroMarine Electronics GmbH, Neckarsulm/Germany			100	61,235	909
MEG Marine Electronics Holding GmbH, Düsseldorf/Germany			100	223,990	3,880
Rheinmetall Berlin Verwaltungsgesellschaft mbH, Berlin/Germany	(1)	100		213,750	-
Rheinmetall Financial Services GmbH, Düsseldorf/Germany	(1)	100		336,961	-14
Rheinmetall Immobilien GmbH, Düsseldorf/Germany		100		172,672	872
Rheinmetall Immobilien Hamburg Friedensallee GmbH, Düsseldorf/Germany	(1)		100	22,788	(1,351)
Rheinmetall Immobilien Hamburg GmbH, Düsseldorf/Germany		100		1,687	-
Rheinmetall Industrietechnik GmbH, Düsseldorf/Germany	(1)	100		26	-
Rheinmetall Insurance Services GmbH, Düsseldorf/Germany	(1)	100		264	47
Rheinmetall Maschinenbau GmbH, Düsseldorf/Germany			100	62,466	1,304
Rheinmetall Verwaltungsgesellschaft mbH, Düsseldorf/Germany	(1)		100	733,843	-
SUPRENUM Gesellschaft für numerische Superrechner mbH, Bremen/Germany			100	(1,397)	-
Defence sector					
American Rheinmetall Defense, Inc., Biddeford, Maine/USA		100		20,785	1,560
American Rheinmetall Munition Inc., Stafford, Virginia/USA			100	(14,318)	(2,210)
American Rheinmetall Systems, LLC, Biddeford, Maine/USA			100	33,464	481
American Rheinmetall Vehicles LLC, Dover, Delaware/USA			100	(252)	(253)
Benntec Systemtechnik GmbH, Bremen/Germany	(2)		49	2,801	(528)
BIL Industriemetalle GmbH & Co. 886 KG, Grünwald/Germany	(3)	94		(1,261)	294
Cyber Works AG, Zürich/Switzerland			100	(3,838)	(169)
EOD TEKNOLOJILERI LIMITED SIRKETI, Istanbul/Turkey			100	100	(7)
EODC Engineering, Developing, Licensing, Inc., Ottawa, Ontario/Canada			100	-	-
Eurometaal N.V., Hengelo/Netherlands			100	42	(43)
IBD Engineering France, Paris/France			100	8	(5)
IBD Italy S.R.L., Bagnolo Mella/Italy			100	-	-
Logistic Solutions Australasia Pty. Ltd., Melbourne/Australia			100	1,991	411
Nitrochemie Aschau GmbH, Aschau/Germany			55	27,564	4,978
Nitrochemie South Africa (Pty) Ltd., Somerset West/South Africa			55	667	592
Nitrochemie Wimmis AG, Wimmis/Switzerland			55	50,483	3,429
Oerlikon Contraves GmbH, Zürich/Switzerland		100		20	-
Provectus Robotics Solutions Inc., Ottawa, Ontario/Canada			100	3,145	12
RD Investment AG, Zürich/Switzerland			69	119	(18)
RFEL LTD, Newport, Isle of Wight/Great Britain			100	2,358	104
RH Mexico Simulation and Training S.A. de C.V., Mexico City/Mexico			100	5,268	(225)
Rheinmetall Air Defence AG, Zürich/Switzerland		100		59,515	50,195
Rheinmetall Aviation Services GmbH, Bremen/Germany			100	21	(2)

Company

		Direct share of capital in %	Indirect share of capital in %	Equity in € ’000	Net income for the year after PLTA in € ’000
Rheinmetall BAE Systems Land Limited, Telford/Great Britain			55	37,681	(2,608)
Rheinmetall Canada Inc., St.-Jean-sur-Richelieu/Canada		100		79,980	4,897
Rheinmetall Ceska republika s.r.o., Trmice/Czech Republic			100	(9)	(5)
Rheinmetall Combat Platforms North America Inc, Wilmington, Delaware/USA			100	(166)	(30)
Rheinmetall Communication and Simulation Technology Pte. Ltd., Singapore/Singapore			100	1,840	(989)
Rheinmetall Defence Australia Pty. Ltd., Melbourne/Australia		100		(5,723)	(3)
Rheinmetall Defence Lietuva, UAB, Vilnius/Lithuania			100	10	(7)
Rheinmetall Defence Polska sp. z.o.o., Warsaw/Poland			100	119	267
Rheinmetall Defence UK Limited, London/Great Britain		100		30,737	(1,598)
Rheinmetall Denel Munition Pty. Ltd., Somerset West/South Africa			51	101,379	(9,283)
Rheinmetall Dienstleistungszentrum Altmark GmbH, Letzlingen/Germany	(1)	100		28	(4)
Rheinmetall Eastern Markets GmbH, Düsseldorf/Germany	(1)	100		1,356	(5)
Rheinmetall Electronic Solutions AG, Urdorf/Switzerland			80	-	-
Rheinmetall Electronics GmbH, Bremen/Germany	(1)	100		70,741	29,920
Rheinmetall Electronics Pty. Ltd., Adelaide/Australia			100	615	(114)
Rheinmetall Fraen Fuzes, LLC, Wilmington, Delaware/USA			51	-	-
Rheinmetall International Defence and Security Ltd., Riyadh/Saudi Arabia			100	1,585	(1,093)
Rheinmetall International Services Limited, Masdar City/UAE			100	(3,673)	(1,487)
Rheinmetall Italia S.p.A., Rome/Italy			100	104,778	62
Rheinmetall Laingsdale (Pty) Ltd., Cape Town/South Africa			76	8,611	2,376
Rheinmetall Landsysteme GmbH, Südheide/Germany	(1)	100		50,277	27,028
Rheinmetall Ltd., Moscow/Russian Federation			100	547	23
Rheinmetall MAN Military Vehicles Australia Pty Ltd., Melbourne/Australia			51	25,365	2,614
Rheinmetall MAN Military Vehicles Canada Ltd., Ottawa/Canada			51	552	(8)
Rheinmetall MAN Military Vehicles GmbH, Munich/Germany		51		52,393	1,397
Rheinmetall MAN Military Vehicles Nederland B.V., Ede/Netherlands			100	(28,027)	(475)
Rheinmetall MAN Military Vehicles Österreich GesmbH, Vienna/Austria			51	74,764	29,744
Rheinmetall MAN Military Vehicles Österreich Holding GesmbH, Vienna/Austria			51	100,058	(15)
Rheinmetall MAN Military Vehicles RSA (Pty) Ltd., Pretoria/South Africa	(2)		36	19	-
Rheinmetall MAN Military Vehicles UK Ltd., Swindon/Great Britain			51	(867)	1,106
Rheinmetall Military Vehicles GmbH, Munich/Germany		100		68,716	61,335
Rheinmetall Netherlands B.V., Hengelo/Netherlands			100	920	-
Rheinmetall NIOA Munitions Pty Ltd, Bundaberg/Australia			51	1,455	(108)
Rheinmetall Norway AS, Nøtterøy/Norway		100		17,721	(6,173)
Rheinmetall Project Solutions GmbH, Düsseldorf/Germany	(1)		100	25	-
Rheinmetall Projects Development Consultancy LLC, Abu Dhabi/UAE	(2)	49		397	131
Rheinmetall Protection Systems GmbH, Bonn/Germany			100	74,412	8
Rheinmetall Protection Systems Gulf (FZE), SAIF-Zone, Sharjah/UAE			100	(1,327)	(502)
Rheinmetall Protection Systems Nederland B.V., Ede/Netherlands			100	1,869	649
Rheinmetall Savunma Sanayi Anonim Sirketi, Ankara/Turkey			90	301	192
Rheinmetall Singapore Pte. Ltd., Singapore/Singapore			100	3,879	50
Rheinmetall Soldier Electronics GmbH, Stockach/Germany	(1)	100		3,361	787
Rheinmetall Technical Assistance GmbH, Kassel/Germany	(1)		100	25	-
Rheinmetall Technical Publications GmbH, Bremen/Germany	(1)	100		3,786	794

Notes to the consolidated financial statements
Shareholdings

Company		Direct share of capital in %	Indirect share of capital in %	Equity in € ’ooo	Net income for the year after PLTA in € ’ooo
Rheinmetall Technical Publications Schweiz AG, Zürich/Switzerland			100	244	33
Rheinmetall VIRE (Nanjing) Technologies Co., Ltd., Beijing/China			51	294	(35)
Rheinmetall Waffe Munition ARGES GmbH, Schwanenstadt/Austria			100	1,934	167
Rheinmetall Waffe Munition GmbH, Südheide/Germany	(1)	100		135,189	9,951
Rheinmetall Waffe Munition South Africa (Pty) Ltd., Somerset West/South Africa			100	10	(4)
RM Euro B.V., Hengelo/Netherlands		100		55,937	390
RRS - MITCOS Rheinmetall Rohde&Schwarz Military IT and Communications Solutions GmbH, Berlin/Germany		75		103	32
RTP-UK Ltd., Bristol/Great Britain			100	8,137	(815)
RWM Beteiligungsverwaltung Austria GmbH, Schwanenstadt/Austria			100	18,796	2,784
RWM Italia S.p.A., Ghedi/Italy			100	94,433	24,093
RWM Schweiz AG, Zürich/Switzerland			100	36,321	17,298
RWM Zaugg AG, Lohn-Ammannsegg/Switzerland			100	11,001	1,458
Automotive sector					
BF Engine Parts LLC, Istanbul/Turkey			100	115	150
BF Germany GmbH, Tamm/Germany	(1)		100	3,223	67
GVG Grundstücksverwaltung Gleitlager GmbH & Co. KG, Neckarsulm/Germany			100	6,585	249
GVMS Grundstücksverwaltung Service GmbH & Co. KG, Neckarsulm/Germany			100	41	3
GVN Grundstücksverwaltung Neckarsulm GmbH & Co. KG, Neckarsulm/Germany			100	6,250	704
Intec France SAS, Meyzieu/France			100	1,044	13
Karl Schmidt Trading Company S. de R.L. de C.V., Celaya/Mexico			100	127	30
Karl Schmidt Unisia Michigan LLC, Southfield/USA			100	-	-
Kolbenschmidt de México, S. de R.L. de C.V., Celaya/Mexico			100	12,324	1,485
Kolbenschmidt K.K., Hiroshima/Japan			100	41,052	2,758
Kolbenschmidt Liegenschaftsverwaltung GmbH Berlin, Neckarsulm/Germany	(1)		100	7,179	56
Kolbenschmidt Pierburg Innovations GmbH, Neckarsulm/Germany	(1)		100	25	(450)
Kolbenschmidt USA Inc., Marinette/USA			100	-	-
KS ATAG Beteiligungsgesellschaft m.b.H., Neckarsulm/Germany	(1)		100	10,263	-
KS ATAG Romania S.R.L., Bucharest/Romania			100	2,747	(32)
KS CZ Motorservice s.r.o., Usti/Czech Republic			100	10,122	238
KS France SAS, Basse-Ham (Thionville)/France			100	16,667	353
KS Gleitlager de México S. de R.L. de C.V., Celaya/Mexico			100	13,286	1,445
KS Gleitlager GmbH, St. Leon-Rot/Germany	(1)		100	13,940	2,292
KS Gleitlager North America LLC, Marinette/USA			100	3,848	77
KS Grundstücksverwaltung Beteiligungs GmbH, Neckarsulm/Germany			100	142	7
KS Grundstücksverwaltung GmbH & Co. KG, Neckarsulm/Germany			100	24,140	896
KS Kolbenschmidt Czech Republic a.s., Usti/Czech Republic			100	47,488	3,705
KS Kolbenschmidt France SAS, Basse-Ham (Thionville)/France			100	8,847	(890)
KS Kolbenschmidt GmbH, Neckarsulm/Germany	(1)		100	69,821	3,057
KS Kolbenschmidt US Inc., Marinette/USA			100	(15,733)	(2,694)
KS Large Bore Pistons LLC, Marinette/USA			100	35,402	3,790
KSG Pistons, Inc., South Haven/USA			100	-	-

Company		Direct share of capital in %	Indirect share of capital in %	Equity in € ’000	Net income for the year after PLTA in € ’000
KSLP (China) Co., Ltd., Kunshan/China			100	1,808	(670)
KSPG (China) Investment Co., Ltd., Shanghai/China			100	57,003	2,547
KSPG Automotive Brazil Ltda., Nova Odessa/Brazil			100	41,111	(5,652)
KSPG Automotive India Private Ltd., Pune Maharashtra/India			100	38,679	7,198
KSPG Holding USA Inc., Delaware/USA			100	275,739	1,946
KSPG Malta Holding Ltd., St. Julians/Malta		21	79	60,545	(10)
KSPG Netherlands Holding B.V., Amsterdam/Netherlands			100	83,964	(29)
KSPG Services Ltd., St. Julians/Malta			100	8,006	7
KSUS International LLC, Marinette/USA			100	61,786	5,251
Mechadyne International Ltd., Kirtlington/Great Britain			100	3,489	88
MS Motorservice Aftermarket Iberica S.L., Abadiano/Spain			100	10,791	1,659
MS Motorservice Asia Pacific Co. Ltd., Shanghai/China			100	2,528	456
MS Motorservice Deutschland GmbH, Tamm/Germany	(1)		100	3,273	84
MS Motorservice France SAS, Villepinte/France			100	23,034	1,444
MS Motorservice International GmbH, Neuenstadt/Germany	(1)		100	51,622	(359)
MS Motorservice Istanbul Dis Ticaret ve Pazarlama A.S., Istanbul/Turkey			51	2,438	514
MS Motorservice Trading (Asia) Pte. Ltd., Singapore/Singapore			100	274	30
Pierburg China Ltd., Kunshan City/China			100	24,160	4,594
Pierburg Gestion S.L., Abadiano/Spain			100	49,315	676
Pierburg GmbH, Neuss/Germany	(1)		100	122,524	6,383
Pierburg Grundstücksverwaltung GmbH & Co. KG, Neuss/Germany			100	5,946	130
Pierburg Korea, Ltd., Seoul/South Korea			100	100	14
Pierburg Mikuni Pump Technology (Shanghai) Corp., Shanghai/China			51	6,105	(2,466)
Pierburg Mikuni Pump Technology Corporation, Odawara/Japan			51	1,404	70
Pierburg Pump Technology France SARL, Basse-Ham (Thionville)/France			100	43,192	4,371
Pierburg Pump Technology GmbH, Neuss/Germany	(1)		100	91,289	3,832
Pierburg Pump Technology Italy S.p.A., Lanciano/Italy			100	42,530	(3,875)
Pierburg Pump Technology México S.A.de C.V., Mexico City/Mexico			100	9,556	1,205
Pierburg Pump Technology US LLC, Marinette/USA			100	43,337	9,480
Pierburg S.A., Abadiano/Spain			100	49,360	13,138
Pierburg s.r.o., Usti/Czech Republic			100	84,571	14,964
Pierburg Systems S.L., Abadiano/Spain			100	166	(107)
Pierburg US LLC, Fountain Inn (Greenville)/USA			100	44,836	7,057
Rheinmetall Automotive AG, Neckarsulm/Germany	(1)		100	339,139	1,066
Société Mosellane de Services SCI, Basse-Ham (Thionville)/France			100	10,180	(15)
Solidteq GmbH, Neuss/Germany	(1)		100	284	49
Investments carried at equity					
Holding companies/service companies/other					
casa altra development GmbH, Düsseldorf/Germany	(6)		35	(135)	19
KOLBENHÖFE GmbH & Co. KG, Hamburg/Germany	(5)		50	18,645	(319)
LIGHTHOUSE Development GmbH, Düsseldorf/Germany	(4), (6)		10	202	(5)
Unternehmerstadt GmbH, Düsseldorf/Germany	(5)		50	3	(3)

Notes to the consolidated financial statements
Shareholdings

Company		Direct share of capital in %	Indirect share of capital in %	Equity in € ’ooo	Net income for the year after PLTA in € ’ooo
Defence sector					
Advanced Pyrotechnic Materials Pte. Ltd., Singapore/Singapore	(5)		49	3,341	(439)
AIM Infrarot-Module GmbH, Heilbronn/Germany			50	11,296	3,004
ARGE RDE/CAE (GbR), Bremen/Germany	(5)		50	66	-
ARGE TATM, Bremen/Germany	(5)		50	(1)	1
ARTEC GmbH, Munich/Germany	(5)		64	1,529	301
BHIC Systems Integration Sdn Bhd, Kuala Lumpur/Malaysia			49	(68)	(84)
Contraves Advanced Devices Sdn Bhd, Malaka/Malaysia	(5)		49	26,462	1,245
Defense Munitions International, LLC, Wilmington, Delaware/USA	(5), (6)		50	9	-
DynITEC GmbH, Troisdorf/Germany			35	1,350	-
EuroSpike GmbH, Röthenbach an der Pegnitz/Germany	(5)		40	4,790	986
GIWS Gesellschaft für Intelligente Wirksysteme mbH, Nuremberg/Germany	(5), (6)		50	1,239	-
Hartchrom Defense Technology AG, Steinach/Switzerland	(6)		38	1,795	-
HFTS Helicopter Flight Training Services GmbH, Hallbergmoos/Germany	(5)		25	71,595	16,657
HIL Industrie-Holding GmbH, Bonn/Germany	(5)		33	54	(1)
LOG GmbH, Bonn/Germany			25	-	-
ORR Training Systems LLC, Moscow/Russian Federation	(5)		25	(166)	1
Oy Finnish Defence Powersystems Ab, Helsinki/Finland			30	63	(2)
PSM Projekt System & Management GmbH, Kassel/Germany	(5)		50	1,600	702
RDZM, LLC, Wilmington, Delaware/USA	(5), (6)		50	2,244	186
Rheinmetall Arabia Simulation and Training LLC, Riyadh/Saudi Arabia	(5), (6)		40	1,974	1,064
Rheinmetall Barzan Advanced Technologies QSTP-LLC, Doha/Qatar			49	525	2,713
Rheinmetall BMC Savunma Sanayi Ve Ticaret A.S., Ankara/Turkey			40	-	-
The Dynamic Engineering Solution Pty Ltd, Magill/Australia			49	3,507	1,289
Werk Aschau Lagerverwaltungsgesellschaft mbH, Aschau/Germany	(5), (6)		50	26	-
Automotive sector					
Advanced Bearing Materials LLC, Greensburg/USA			25	2,778	-
Carbon Truck & Trailer GmbH, Stade/Germany			25	1,257	(386)
HASCO KSPG Nonferrous Components (Shanghai) Co., Ltd., Shanghai/China	(5)		50	220,290	39,356
Kolbenschmidt Huayu Piston Co., Ltd., Shanghai/China	(5)		50	83,154	4,807
KS HUAYU AluTech GmbH, Neckarsulm/Germany	(5)		50	47,216	(1,866)
Pierburg Huayu Pump Technology Co., Ltd., Shanghai/China	(5)		50	32,607	4,251
Pierburg Yinlun Emission Technology (Shanghai) Co., Ltd., Shanghai/China	(5)		51	32	(1,098)
Riken Automobile Parts (Wuhan) Co., Ltd., Wuhan/China			40	38,775	5,797
Shriram Pistons & Rings Ltd., New Delhi/India			20	133,226	12,588

(1) Profit and loss transfer agreement
(2) Included in consolidation due to majority of voting rights
(3) Structured entity (real estate management company)
(4) Significant influence due to distribution of voting rights
(5) Joint ventures
(6) Equity and income from previous years

Notes to the consolidated financial statements
Responsibility statement

To the best of our knowledge and in accordance with the applicable accounting principles, the consolidated financial statements of Rheinmetall AG give a true and fair view of the net assets, financial position and results of operations of the Group, and the management report of Rheinmetall AG includes a fair review of the development and performance of the business and the position of the Group, together with a description of the principal opportunities and risks associated with the expected development of the Group.

Düsseldorf, February 27, 2020

Rheinmetall Aktiengesellschaft
The Executive Board

Armin Papperger Helmut P. Merch Peter Sebastian Krause

Auditor’s report and opinion

INDEPENDENT AUDITOR’S REPORT

To Rheinmetall Aktiengesellschaft, Düsseldorf

REPORT ON THE AUDIT OF THE CONSOLIDATED FINANCIAL STATEMENTS AND OF THE GROUP MANAGEMENT REPORT

Audit Opinions

We have audited the consolidated financial statements of Rheinmetall Aktiengesellschaft, Düsseldorf, and its subsidiaries (the Group), which comprise the balance sheet as at 31 December 2019, the income statement, the statement of comprehensive income, the cash flow statement and the statement of changes in equity for the financial 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 group management report of Rheinmetall Aktiengesellschaft, which is combined with the Company’s management report, for the financial year from 1 January to 31 December 2019*.* In accordance with the German legal requirements we have not audited the content of those parts of the group management report listed in the “Other Information” section of our auditor’s report.

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

- the accompanying 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 § [Article] 315e Abs. [paragraph] 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 financial 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 audit opinion on the group management report does not cover the content of those parts of the group management report listed in the “Other Information” section of our auditor’s report.

Pursuant to § 322 Abs. 3 Satz [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 Audit Opinions

We conducted our audit of the consolidated financial statements and of the group management report in accordance with § 317 HGB and the EU Audit Regulation (No. 537/2014, referred to subsequently as “EU Audit Regulation”) 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 audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit 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 judgment, were of most significance in our audit of the consolidated financial statements for the financial 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 audit opinion thereon; we do not provide a separate audit opinion on these matters.

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

❶ Recoverability of Goodwill

❷ Recognition of revenue from customer-specific contracts

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

① Matter and issue

② Audit approach and findings

③ Reference to further information

Hereinafter we present the key audit matters:

❶ Recoverability of Goodwill

①

In the Company's consolidated financial statements, goodwill in the total amount of EUR 567 million (8% of total assets) is reported. Goodwill is tested for impairment by the Company once a year or when there are indications of impairment to determine any possible need for write-downs. The impairment test is carried out at the level of those groups of cash-generating units to which the relevant goodwill has been allocated. The carrying amount of the relevant cash-generating unit, including goodwill, is compared with the corresponding recoverable amount in the context of the impairment test.

The present value of the future cash flows from the respective group of cash-generating units normally serves as the basis of valuation. Present values are calculated using discounted cash flow models. For this purpose, the adopted corporate planning of the Group forms the starting point which is extrapolated on the basis of assumptions about long-term rates of growth. Expectations relating to future market developments and assumptions about the development of macroeconomic factors are also taken into account. The discount rate used is the weighted average cost of capital for the relevant group of cash-generating units. The impairment test determined that no write-downs were necessary.

The outcome of the valuation exercise is dependent to a large extent on the estimates made by the executive directors with respect to the future cash inflows from the respective group of cash-generating units, the discount rate used, the rate of growth and other assumptions, and is therefore subject to considerable uncertainty. Against this background and due to the complex nature of the valuation, this matter was of particular significance in the context of our audit.

②

As part of our audit, we assessed the methodology employed for the purposes of performing the impairment test, among other things. After matching the future cash inflows used for the calculation against the adopted corporate planning for the period 2020-2022 of the Group, we evaluated the appropriateness of the calculation, in particular by comparing it with general and sector-specific market expectations. We also evaluated whether the costs for Group functions were considered properly. With the knowledge that even relatively small changes in the discount rate applied can have material effects on the enterprise value calculated in this way, we also assessed the parameters used to determine the discount rate applied, and evaluated the measurement model. In addition we evaluated the sensitivity analyses performed by the Company and carried out our own sensitivity analyses in order to estimate any potential impairment risk related to any potential changes in key assumptions of the measurement and we verified that the necessary disclosures were made in the notes to the consolidated financial statements.

Overall, the measurement inputs and assumptions used by the executive directors are in line with our expectations and are also within the ranges considered by us to be reasonable.

③

The Company's disclosures on impairment testing are contained in notes 6 ”Accounting policies“ and 7 "Goodwill, other intangible assets" to the consolidated financial statements.

❷ Recognition of revenue from customer-specific contracts

①

In the Company's consolidated financial statements as of 31 December 2019, EUR 6,255 million in revenue are reported in the income statement, which were recognized over a period of time at an amount of EUR 1,968 million. EUR 388 million in contract assets and EUR 948 million in contract liabilities are recognized in the balance sheet as of 31 December 2019. Revenue from customer-specific contracts is recognized over a period of time if an asset is created that does not have an alternative use to Rheinmetall Aktiengesellschaft, Düsseldorf, and a legal right to payment for the performance already completed exists. Also, if an asset is created or enhanced and the customer gains control over the asset as it is created or enhanced, revenue is recognized over a period of time. When recognizing revenue over a period of time, revenue is recognized based on the percentage of completion, which is the ratio of the actually incurred contract cost to the expected total cost. With respect to the complex production processes, the recognition of revenue over a period of time requires in particular an effective internal budgeting and reporting system, including concurrent project costing, as well as a functioning internal control system.

Against this background, the proper application of the accounting standards for revenue recognition is considered to be complex and to a certain extent based on estimates and assumptions made by the executive directors. This matter was therefore of particular significance for our audit.

②

In the knowledge that the complexity and the need to make estimates and assumptions give rise to an increased risk of accounting misstatements, we evaluated the Group's processes and controls for recognizing revenue from customer-specific contracts. Our specific audit approach included testing of the controls and substantive audit procedures, in particular:

- evaluating the processes for the proper identification of the performance obligations and the classification of satisfying the performance obligation over a specific period of time or at a point in time;
- evaluating the cost accounting system and other relevant auxiliary systems used to account for customer-specific contracts;
- assessing the proper recognition and allocation of individual costs and the amount and allocation of shared overheads;
- assessing the project costings underlying the customer-specific contracts and the calculation of percentage of completion.

We were able to satisfy ourselves that the systems, processes, and controls in place are appropriate and that the estimates and assumptions made by the executive directors are sufficiently documented and substantiated to ensure that revenue from customer-specific contracts is properly recognized.

③

The Company’s disclosures on recognition of revenue are contained in notes 6 “Accounting policies” and 21 “Revenue” to the consolidated financial statements.

Other Information

The executive directors are responsible for the other information. The other information comprises the following non-audited parts of the group management report:

- the statement on corporate governance pursuant to § 289f HGB and § 315d HGB included in section “Corporate Governance” of the group management report
- the corporate governance report pursuant to No. 3.10 of the German Corporate Governance Code
- the chapter “Energy management” of the non-financial statement pursuant to § 289b Abs. 1 HGB and § 315b Abs. 1 HGB, which is included in section “Non-financial aspects of business activities” of the management report

The other information comprises further the remaining parts of the annual report – excluding cross-references to external information – with the exception of the audited consolidated financial statements, the audited group management report and our auditor’s report.

Our audit 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 audit opinion or any other form of assurance conclusion thereon.

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

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

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

The executive directors are 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 § 315e Abs. 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 the executive directors are 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, the executive directors are 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, the executive directors are 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, the executive directors are 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 audit 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 § 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 judgment and maintain professional skepticism 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 audit opinions. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- 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 audit opinion on the effectiveness of these systems.

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

- Conclude on the appropriateness of the executive directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the 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 audit opinions. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the 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 § 315e Abs. 1 HGB.

- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express audit 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 audit 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 the executive directors in the group management report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by the executive directors as a basis for the prospective information, and evaluate the proper derivation of the prospective information from these assumptions. We do not express a separate audit opinion on the prospective information and on the assumptions used as a basis. There is a substantial unavoidable risk that future events will differ materially from the prospective information.

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

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

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the 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 by the annual general meeting on 28 May 2019. We were engaged by the supervisory board on 6 November 2019. We have been the group auditor of the Rheinmetall Aktiengesellschaft, Düsseldorf, without interruption since the financial year 1927.

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

GERMAN PUBLIC AUDITOR RESPONSIBLE FOR THE ENGAGEMENT

The German Public Auditor responsible for the engagement is Norbert Linscheidt.

Düsseldorf, 2 March 2020

PricewaterhouseCoopers GmbH
Wirtschaftsprüfungsgesellschaft

Norbert Linscheidt (German Public Auditor)	ppa. Oliver Nölke (German Public Auditor)

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ADDITIONAL INFORMATION

Balance Sheet of Rheinmetall AG
as of December 31, 2019

Assets € '000

	Note	Dec. 31, 20198	Dec. 31, 2018
Fixed assets	(1)		
Intangible assets		9,536	7,162
Property, plant and equipment		36,135	36,431
Financial assets		1,481,645	1,316,715
		1,527,316	**1,360,308**
Current assets			
Inventories	(2)	118	154
Receivables and other assets	(3)	1,094,189	873,951
Bonds	(4)	170,000	195,000
Cash in hand	(5)	649,426	480,901
		1,913,733	**1,550,006**
Deferred income	(6)	**10,938**	**11,444**
Active difference from asset offsetting	(7)	**101**	**-**
Total assets		**3,452,087**	**2,921,759**

Equity and liabilities € '000

	Note	Dec. 31, 20198	Dec. 31, 2018
Share capital		111,511	111,511
Treasury stock (notional value relating to the share capital)		(1,218)	(1,477)
		110,293	110,033
Capital reserves		555,433	549,598
Retained earnings		242,690	154,041
Net earnings		105,000	91,000
Equity		**1,013,416**	**904,672**
Provisions	(6)	**93,908**	**101,444**
Liabilities	(7)		
Liabilities due to banks		652,500	550,752
Other liabilities		1,688,139	1,359,715
		2,340,639	**1,910,467**
Deferred income		**4,125**	**5,175**
Total liabilities		**3,452,087**	**2,921,759**

Income Statement for Rheinmetall AG
for Fiscal 2019

€ ’000

	Note	2019	2018
Investment income	(13)	227,990	133,372
Net interest	(14)	8,237	(4,420)
Net financial income		**236,227**	**128,952**
Sales	(15)	73,617	69,718
Other operational income		100,257	131,983
Staff costs		40,644	40,096
Amortization of intangible and depreciation of tangible assets (incl. write-down)		4,274	3,987
Depreciation of financial assets	(15)	-	20,000
Other operating expenses	(16)	145,293	130,358
Extraordinary expenses	(17)	**219,891**	**136,213**
Earnings before taxes (EBT)		(30,158)	(39,617)
Taxes on income and revenue	(18)	**189,733**	**96,596**
Net profit for the year		**189,733**	**96,596**
Appropriations to retained earnings		84,733	5,596
Appropriations of retained earnings		-	-
Net earnings		**105,000**	**91,000**

Supervisory Board

Ulrich Grillo
Mülheim an der Ruhr

Diplom-Kaufmann

Chairman of the Board of Grillo-Werke AG

Chairman

Membership in Supervisory Boards

Innogy SE (up to Oct. 4, 2019)
E.ON SE (from Oct. 02, 2019)
Grillo Zinkoxid GmbH **)
Zinacor S.A. **)

Dr. Rudolf Luz *)
Weinsberg

Board of Directors / Head of operating policies of German Metalworkers' Union

Vice Chairman

Membership in Supervisory Boards

Rheinmetall Automotive AG
Stellvertretender Vorsitzender

Opel Automotive GmbH

Roswitha Armbruster *)
Schramberg

Chairwoman of Works Council of the Defence sector of Rheinmetall AG

Chairwoman of Works Council
Rheinmetall Waffe Munition GmbH
Branch Mauser Oberndorf

Vice Chairwoman of the Group's Works Council
Rheinmetall AG

Dr.-Ing. Dr.-Ing. E.h. Klaus Draeger
München

Former member of the Executive Board of BMW AG

Membership in Supervisory Boards

TÜV Süd AG

Professor Dr. Andreas Georgi
Starnberg

Professor of Leadership and Control Problems in Enterprises
Ludwig-Maximilians-Universität Munich

Executive Advisor

Membership in Supervisory Boards

ABB AG
Felix Schoeller Holding GmbH & Co. KG

Professor Dr. Susanne Hannemann
Bochum

Professor of Applied Business Administration, in particular company taxation and auditing
Bochum University of Applied Sciences

Dr. Daniel Hay *)
Velbert

Trade union secretary of German Metalworkers' Union

Dr. Franz Josef Jung
Eltville am Rhein

Lawyer and Notary ret.

Dr. Michael Mielke *)
Berlin

Head of Product Division Actuators
Pierburg GmbH, Berlin Plant

Detlef Moog
Mülheim an der Ruhr

Consulting engineer

*) *Elected by the employees*
**) *Internal mandates of Grillo-Werke AG on facultative supervisory boards*

Reinhard Müller *)
Wabern

Chairman of the Works Council of
Rheinmetall Landsysteme GmbH, Kassel

Vice Chairman of the General Works Council of
Rheinmetall Landsysteme GmbH

Member of the Works Council of the Defence Sector
of Rheinmetall AG

Member the Group's Works Council of
Rheinmetall AG

Chairman of the European Works Council

Dagmar Muth *)
Bremen

Chairwoman of the Works Council of
Rheinmetall Electronics GmbH

Member of the Works Council of the Defence Sector of
Rheinmetall AG

Vice Chairwoman of the Group's Works Council Rheinmetall AG

Membership in Supervisory Boards

Rheinmetall Electronics GmbH
Vice Chairwoman

Markus Schaubel *)
Lauffen am Neckar

Chairman of the Works Council of Rheinmetall Automotive AG
KS Kolbenschmidt GmbH
MS Motorservice International GmbH

Chairman of the Sub-Works Council of
Rheinmetall Automotive AG

Vice Chairman of the Group's Works Council
Rheinmetall AG

Membership in Supervisory Boards

Rheinmetall Automotive AG

KS Kolbenschmidt GmbH
Vice Chairman

Sven Schmidt *)
Wiesloch

Chairman of the Works Council of
KS Gleitlager GmbH, St. Leon - Rot

Chairman of the General Works Council of
KS Gleitlager GmbH

Vice Chairman of the Sub-Works council of
Rheinmetall Automotive AG

Chairman of the Group's Works Council
Rheinmetall AG

Klaus-Günter Vennemann
Waidring, Österreich

Consulting engineer

Membership in Supervisory Boards

Nanogate SE
Chairman (from June 26, 2019)

Dr. Rudolf Kellermann GmbH (up to April 22, 2019)

Univ.-Prof. Dr. Marion A. Weissenberger-Eibl
Karlsruhe

Head of the Fraunhofer System and Innovation
Research Institute (ISI)

Chairholder „Innovation and Technology Management"
at Karlsruhe Institute of Technology (KIT)

Membership in Supervisory Boards

HeidelbergCement AG
MTU Aero Engines AG
Deutsche Akademie der Technikwissenschaften (acatech)

*) *Elected by the employees*

Executive Board Rheinmetall AG

Armin Papperger
Meerbusch

Chairman

Defence

Chairman of Management Board Defence

Membership in Supervisory Boards

Rheinmetall Automotive AG *)
Chairman

HASCO KSPG *)
Nonferrous Components (Shanghai) Co., Ltd.
Chairman (from November 11,2019)

Kolbenschmidt Huayu Piston Co., Ltd. *)
Vice Chairman (from November 11,2019)

KS HUAYU Alu Tech GmbH *)
Vice Chairman (from November 1, 2019)

Nitrochemie AG *)
President

Nitrochemie Aschau GmbH *)
Chairman

Nitrochemie Wimmis AG *)
President

Rheinmetall Denel Munition (Pty) Ltd *)
Chairman

Rheinmetall MAN Military Vehicles GmbH *)
Chairman

Pierburg HUAYU Pump Technology Co., Ltd. *)
Chairman Board of Directors (from November 11, 2019)

Helmut P. Merch
Meerbusch

Finance and Controlling

CFO of Management Board Defence

Membership in Supervisory Boards

Rheinmetall Automotive AG *)

Nitrochemie AG *)

Nitrochemie Aschau GmbH *)

Nitrochemie Wimmis AG *)

Rheinmetall Denel Munition (Pty) Ltd *)

*) *Affiliated mandates*

Horst Binnig
Bad Friedrichshall

Automotive

Chairman of the Executive Board
Rheinmetall Automotive AG (up to December 31, 2019)

Membership in Supervisory Boards

HASCO KSPG *)
Nonferrous Components (Shanghai) Co., Ltd.
Chairman (up to November 11, 2019)

Kolbenschmidt Huayu Piston Co., Ltd. *)
Vice Chairman (up to November 11, 2019)

KS HUAYU Alu Tech GmbH *)
Vice Chairman (up to October 31, 2019)

KS Gleitlager GmbH *)
Chairman (up to October 31, 2019)

KS Kolbenschmidt GmbH *)
Chairman (up to October 31, 2019)

KSPG Holding USA, Inc. *)
Director (up to October 31, 2019)

Pierburg GmbH *)
Chairman (up to October 31, 2019)

Pierburg HUAYU Pump Technology Co., Ltd. *)
Vice Chairman Board of Directors (up to November 11, 2019)

Pierburg Pump Technology GmbH *)
Chairman (up to October 31, 2019)

KSPG (China) Investment Co., Ltd. *)
Chairman of the Board of Directors (up to December 31, 2019)

Bertrandt AG

*) *Affiliated mandates*

Peter Sebastian Krause
Erkrath

Human Resources

Director of Industrial Relations

Member of the Executive Board
Rheinmetall Automotive AG

Member of Management Board Defence

Membership in Supervisory Boards

Rheinmetall Electronics GmbH *)

Rheinmetall Landsysteme GmbH *)
Chairman

Rheinmetall Waffe Munition GmbH *)

Representative Director

Dr. Rolf Giebeler, MPA (Harvard)
Bonn

General Counsel
Representative Director Law

Chief Compliance Officer

Michael Salzmann
Düsseldorf

Kontakte

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This report contains statements and forecasts referring to the future development of the Rheinmetall Group which are based on assumptions and estimates made by the management. A number of factors, many of which are beyond Rheinmetall's control, influence the business activities, success, business strategy and results of the Company. Statements regarding the future are based on current plans, targets, estimates and forecasts and only take into account findings made up to and including the date this report was produced. If the underlying assumptions do not materialize, the actual figures may differ from such estimates. Uncertain factors include changes in the political and economic environment, changes to national and international laws and regulations, market fluctuations, the development of global market prices for commodities, exchange rate and interest rate fluctuations, the impact of rival products and competitive prices, the acceptance of and demand for new products, the effect of changes to customer structures and changes to the business strategy. Rheinmetall does not intend, nor does it undertake a particular commitment, to update statements referring to the future or to adjust these to events or developments following the publication of this annual report.

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