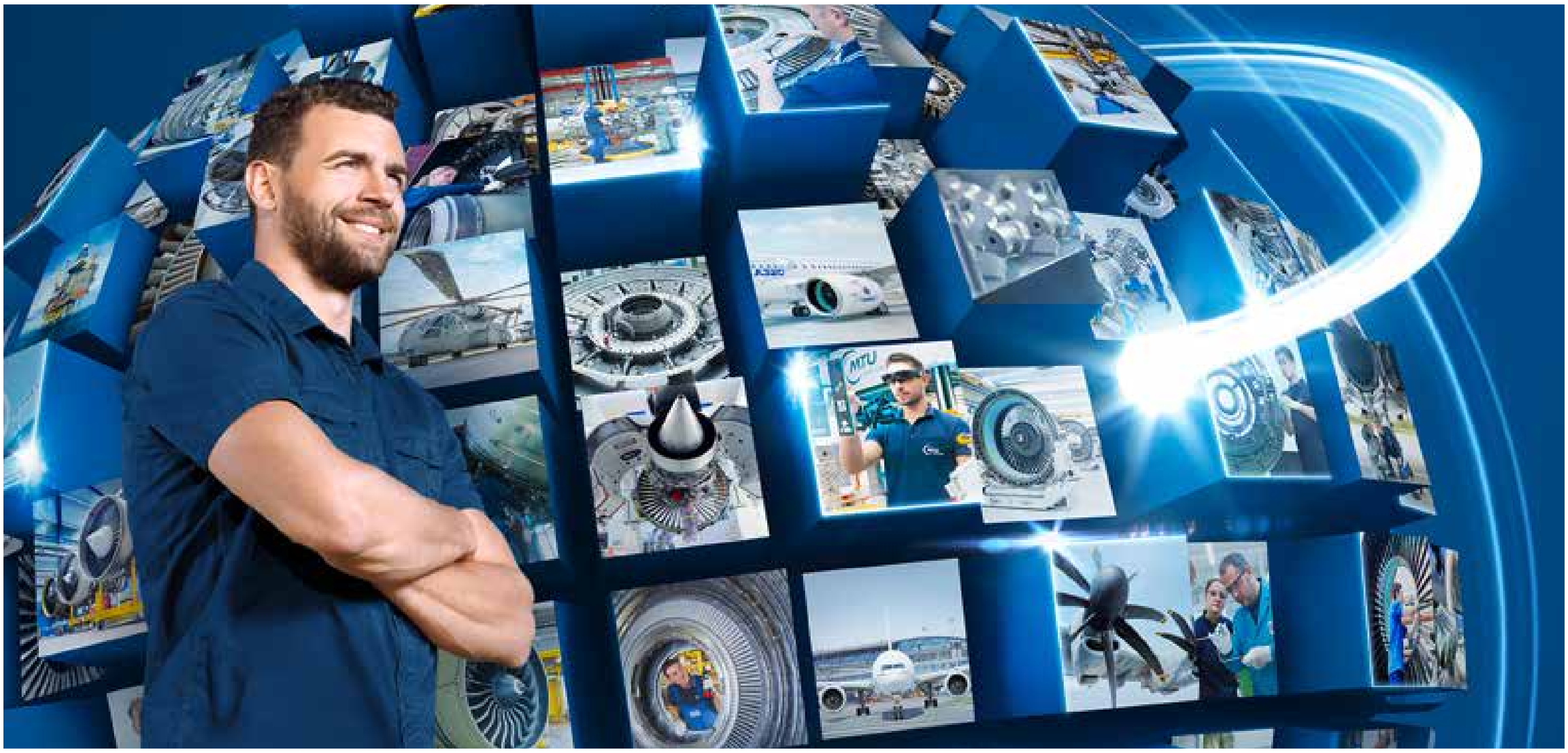

Half-Year Financial Report

January 1 to June 30, 2019

Contents

Half-Year Financial Report 2019

January 1 to June 30, 2019

Key facts and figures

Key facts and figures for the group

in € million (unless stated otherwise)	Jan. 1 - June 30, 2019	Jan. 1 - June 30, 2018	Change in € million	Change in %
Income statement				
Revenues	2,243.0	2,148.6	94.4	4.4
Gross profit	453.4	422.3	31.1	7.4
Earnings before interest and tax (EBIT)	339.5	308.9	30.6	9.9
Adjusted Earnings before interest and tax (EBIT adjusted)	365.2	334.6	30.6	9.1
Earnings before tax	321.5	304.2	17.3	5.7
Net income	229.3	218.5	10.8	4.9
Net income adjusted	261.0	237.0	24.0	10.1
Basic earnings per share (in €)	4.34	4.19	0.15	3.6
Diluted earnings per share (in €)	4.06	3.92	0.14	3.6
Revenue margins in %				
Earnings before interest and tax (EBIT)	15.1	14.4		
Adjusted Earnings before interest and tax (EBIT adjusted)	16.3	15.6		
Earnings before tax	14.3	14.2		
Net income	10.2	10.2		
Net income adjusted	11.6	11.0		
Cash flow				
Cash flow from operating activities	406.0	330.1	75.9	23.0
Cash flow from investing activities	-141.3	-199.3	58.0	29.1
Free cash flow	235.4	132.7	102.7	77.4
Cash flow from financing activities	-232.1	-147.5	-84.6	-57.4
Change in cash and cash equivalents	35.7	-19.2	54.9	>100
in € million (unless stated otherwise)	June 30, 2019	Dec. 31, 2018	Change in € million	Change in %
Balance sheet				
Intangible assets	1,113.8	1,072.7	41.1	3.8
Cash and cash equivalents	134.7	99.0	35.7	36.1
Pension provisions	988.0	879.0	109.0	12.4
Equity	2,194.3	2,144.2	50.1	2.3
Net financial debt	901.5	854.0	47.5	5.6
Order backlog	**18,487.6**	**17,572.8**	**914.8**	**5.2**
Number of employees	**10,206**	**9,731**	**475**	**4.9**
Commercial and military engine business (OEM)	6,437	6,109	328	5.4
Commercial maintenance business (MRO)	3,769	3,622	147	4.1

Interim group management report

The enterprise MTU

MTU Aero Engines AG, Munich, together with its consolidated group of companies, is Germany's leading engine manufacturer and one of the biggest international players in the industry. In the following, the MTU group is also referred to simply as MTU AG, MTU, or the group.

Research and development

Technological changes within the aviation sector take place at an extremely rapid pace and require a continuous source of innovation. Development activities at MTU are currently dominated by work on the Pratt & Whitney Geared Turbofan™ (GTF) engines and on the GE9X and PW800 engine programs.

MTU – Geared Turbofan® engine programs

Engine	MTU program share	Aircraft manufacturer	Aircraft type
PW1100G-JM	18%	Airbus	A320neo
PW1200G	15%	Mitsubishi	SpaceJet
PW1400G-JM	18%	Irkut	MC-21
PW1500G	17%	Airbus	A220
PW1700G	15%	Embraer	E-Jet E175-E2
PW1900G	17%	Embraer	E-Jet E190-E2 / E195-E2

Research and development (R&D) expenditure will remain at a high level during the financial year 2019. In the first six months of 2019, this developed as follows:

Research and development expenses

in € million	Jan. 1 - June 30, 2019	Jan. 1 - June 30, 2018	Change in € million	Change in %
Commercial engine business (OEM)	103.2	92.0	11.2	12.2
Military engine business (OEM)	4.8	5.0	-0.2	-4.0
Commercial maintenance business (MRO)	4.0	2.2	1.8	81.8
Total research and development expenditure	**112.0**	**99.2**	**12.8**	**12.9**
less: Customer-funded R&D expenditure	16.1	11.9	4.2	35.3
Company-funded R&D expenditure	**95.9**	**87.3**	**8.6**	**9.9**
Expenditure meeting recognition criteria for intangible assets				
less: Commercial engine business (OEM)	47.5	42.9	4.6	10.7
less: Commercial maintenance business (MRO)	1.4	0.3	1.1	>100
Research and development costs recognized as expense	**47.0**	**44.1**	**2.9**	**6.6**
Amortization of capitalized development costs	9.8	7.1	2.7	38.0
R&D expenditure impact on EBIT adjusted	**56.8**	**51.2**	**5.6**	**10.9**
thereof: Amounts accounted for as revenue or cost of sales	28.4	24.8	3.6	14.5
thereof: Amounts accounted for as research and development expenses	28.4	26.4	2.0	7.6

Research and development expenditure is subdivided into two categories for accounting purposes: company-funded R&D, which the group finances from its own resources, and externally funded R&D, which is contract-based and financed by the customer. Company-funded R&D expenditure is disclosed in the condensed interim consolidated financial statements (Note 3. Research and development expenses).

Costs of self-generated or externally acquired development services (for cash considerations) amounting to € 48.9 million were capitalized in the first six months of 2019 (January to June 2018: € 43.2 million). This represents 51.0 % of all company-funded R&D expenditure (January to June 2018: 49.5 %) and reflects the advanced stage of development work on engines of the GTF family and on the PW800 and GE9X programs.

An amount of € 9.8 million was recognized in profit or loss in respect of these intangible assets (January to June 2018: € 7.1 million), which primarily relate to the GTF programs that have already entered service. Consequently, the group's adjusted earnings before interest and tax (EBIT adjusted) include a total amount of € 56.8 million (January to June 2018: € 51.2 million) for expenses arising from research and development activities.

Business environment

Macroeconomic factors

The global economy has been growing at a slower rate since the end of 2018, but now seems to have stabilized at a moderate level of growth. Areas of insecurity include tense trading relations, the Iran conflict, money market risks and the slowdown in economic growth in China (source: OECD).

The U.S. economy has remained robust, with growth stimulated by the government's expansive fiscal policy and strong domestic demand. In the United States, gross domestic product (GDP) increased in the 1st quarter of 2019 by 3.2 % compared with the same quarter of the previous year (4th quarter of 2018: 3.0 %).

In the eurozone, GDP increased by 1.2 % in the first three months of 2019 compared with the 1st quarter of 2018.

The Chinese economy reported strong growth, despite the tariff war between the U.S. administration and China. According to the State Statistical Bureau in Beijing, the growth rate in the 1st quarter of 2019 was 6.4 %.

Microeconomic factors in the aviation industry

The aviation sector is doing well, with airlines worldwide operating at a profit for the tenth year in succession. However, due to the slowing global economy, the growth in passenger and freight traffic has come under pressure. Global passenger air traffic increased by 4.6 % in the first 5 months of the year.

In June 2019, the average price for a barrel of Brent crude was U.S. $ 64, which is lower than in April and May. The persisting trade disputes are suppressing global demand for oil.

Airbus and Boeing delivered a total of 589 commercial aircraft to customers in the first six months of 2019. This compares with 686 aircraft delivered in the first six months of 2018. Boeing's delivery rate has been impacted by the grounding of the 737 MAX, which is powered by LEAP engines, resulting in the postponement of deliveries. MTU Aero Engines is not involved in this engine program.

At the end of June 2019, the two manufacturers had a combined order backlog of 13,183 aircraft. In arithmetical terms, the order backlog represents a production workload of approximately 8 years.

At the 2019 Paris Air Show in le Bourget, which took place in June, Airbus launched the A321 XLR, the latest member of the A320 family. The new aircraft has a range of up to 8,700 kilometers and is intended to bolster the A320's already strong market position.

Financial situation

Information on exchange rates

Changes in the value of the U.S. dollar are particularly important for MTU's international business. Since the beginning of the year, the U.S. dollar has strengthened only slightly against the euro. At June 30, 2019, the euro was worth U.S. $ 1.14 (at December 31, 2018: U.S. $ 1.15). The average exchange rate for the period from January 1 to June 30, 2019 was U.S. $1.13 to the euro (January to June 2018: U.S. $ 1.21 to the euro).

Operating results

Reconciliation to adjusted key performance indicators

The adjustments applied to reconcile earnings before interest and tax with adjusted earnings before interest and tax and net income adjusted are presented below:

Reconciliation to adjusted key performance figures

in € million	Jan. 1 - June 30, 2019	Jan. 1 - June 30, 2018	Change in € million	Change in %
Earnings before interest and tax (EBIT)	**339.5**	**308.9**	**30.6**	**9.9**
Depreciation/amortization effects of purchase price allocation/IAE-V2500 stake increase	25.7	25.7		
Adjusted Earnings before interest and tax (EBIT adjusted)	**365.2**	**334.6**	**30.6**	**9.1**
Interest result	-4.4	-1.2	-3.2	<-100
Interest cost on pension provisions	-7.5	-6.8	-0.7	-10.3
Earnings before tax adjusted	**353.3**	**326.6**	**26.7**	**8.2**
Income taxes	-92.3	-89.6	-2.7	-3.0
Net income adjusted	**261.0**	**237.0**	**24.0**	**10.1**

For the financial year 2019, an average tax rate of 29.0 % has been estimated on the basis of the expected pre-tax earnings of the MTU group's German and foreign companies. Because the profit/loss of companies accounted for using the equity method is recognized as a post-tax amount, the profit/loss of these companies does not form part of the tax basis used to calculate the group tax rate. The comparative prior-period amount of income taxes is based on the average tax rate of 29.0% for 2018, which was calculated using the same method.

Order backlog

MTU's order backlog consists of firm customer orders that commit the group to delivering products or providing services, plus the contractual value of service agreements. This order backlog at June 30, 2019 amounted to approximately € 18.5 billion and corresponds to a production workload of around three-and-a-half years.

Revenues

Group revenues in the first six months of 2019 amounted to € 2,243.0 million, which is € 94.4 million (4.4%) higher than in the first six months of 2018. Revenues in the OEM segment (commercial and military engine business) increased by € 103.2 million (11.7%) to € 989.0 million, while revenues in the MRO segment (commercial maintenance business), at € 1,287.3 million, remained close to the previous year's level of € 1,288.5 million for the comparative reporting period. This minimal change in MRO revenues is not due to external factors but to changes in the contracting and invoicing processes in which shop visits previously assigned to MTU Maintenance Hannover GmbH, Langenhagen, Germany and IAE International Aero Engines AG, Zurich, Switzerland are now being handled directly by MTU Maintenance Zhuhai Co. Ltd., Zhuhai, China (see also the section "Revenues by operating segment" on page 107 of the 2018 Annual Report. Without this reattribution of costs, the MRO segment would have reported organic growth of around 7%.

Cost of sales and gross profit
In correlation to revenues, the cost of sales increased year on year by € 63.3 million (3.7 %) to € 1,789.6 million in the first six months of 2019. In the same reporting period, gross profit increased by € 31.1 million (7.4 %) to € 453.4 million, with much of this increase accounted for by the current product mix. This raised the gross profit margin to 20.2 % (January to June 2018: 19.7 %).

Earnings before interest and tax (EBIT)
Earnings before interest and tax increased by € 30.6 million (9.9%) to € 339.5 million in the first six months of 2019 (January to June 2018: € 308.9 million). Adjusted earnings before interest and tax improved to € 365.2 million (January to June 2018: € 334.6 million), resulting in an EBIT margin adjusted of 16.3% (January to June 2018: 15.6%).

Financial result
MTU's financial result for the reporting period to the end of June 2019 was a net loss of € 18.0 million (January to June 2018: a net loss of € 4.7 million). The main reasons for this outcome were exchange-rate losses from currency translation amounting to € 3.7 million (January to June 2018: exchange-rate gains of € 6.9 million) and an increase of € 2.0 million in the interest cost of lease liabilities due to the first-time application of IFRS 16.

Earnings before tax
Earnings before tax increased by € 17.3 million to € 321.5 million in the first six months of 2019 (January to June 2018: € 304.2 million).

Net income
Net income increased to € 229.3 million (January to June 2018: €218.5 million), of which € 224.4 million (January to June 2018: € 216.0 million) was allocated for distribution to the owners of MTU Aero Engines AG. Net income adjusted amounted to € 261.0 million (January to June 2018: € 237.0 million), which represents an increase of € 24.0 million compared with the first six months of 2018.

Consolidated statement of comprehensive income
In the consolidated statement of comprehensive income, net income of € 229.3 million (January to June 2018: € 218.5 million) is reconciled to the comprehensive income for the period, in the amount of € 172.9 million (January to June 2018: € 146.1 million).

Income and expenses recognized directly in other comprehensive income in the first six months of 2019, net of deferred taxes, mainly comprise fair value losses of € 1.6 million (January to June 2018 fair value losses of € 60.7 million) on financial instruments designated as cash flow hedges, net gains of € 11.0 million (January to June 2018: net losses of € 9.9 million) attributable to translation differences arising from the financial statements of foreign group companies, and actuarial losses on plan assets and pension obligations resulting from changes in the discount rate amounting to € 65.9 million (January to June 2018: € 1.8 million).

Of the total comprehensive income for the period, amounting to € 172.9 million (January to June 2018: € 146.1 million), € 167.6 million (January to June 2018: € 142.6 million) was allocated for distribution to the owners of MTU Aero Engines AG.

Financial position

The principles and objectives of financial management, as applied today and in the future by MTU, are described in the 2018 Annual Report on page 81 et seq.

The group's main borrowing sources are credit agreements, bank loans and corporate bonds and notes.

At June 30, 2019, the group had access to a revolving credit facility with five banks, totaling € 600.0 million.

A total of € 38.6 million had been drawn down under this facility at June 30, 2019 in the form of guarantees in favor of third parties (December 31, 2018: € 51.1 million, of which € 36.6 million in the form of guarantees in favor of third parties).

Free cash flow
MTU determines its free cash flow by combining its cash flow from operating activities with its cash flow from investing activities and eliminating components of the latter (cash flow adjustments) that lie outside the control of operations management and do not form part of the group's core activities. The free cash flow calculated for the first six months of 2019 excludes the following components: payments in connection with the acquisition of program assets, outgoing payments in connection with aircraft and engine financing agreements amounting to € 3.4 million (January to June 2018: € 4.3 million) and incoming payments in connection with aircraft and engine financing agreements amounting to € 32.7 million (January to June 2018: € 2.4 million).

Free cash flow in the first six months of 2019 amounted to € 235.4 million (January to June 2018: € 132.7 million).

Financial position

in € million	Jan. 1 - June 30, 2019	Jan. 1 - June 30, 2018	Change in € million	Change in %
Cash flow from operating activities	406.0	330.1	75.9	23.0
Cash flow from investing activities	-141.3	-199.3	58.0	29.1
+ Cash flow adjustments	-29.3	1.9	-31.2	<-100
Free cash flow	**235.4**	**132.7**	**102.7**	**77.4**
- Cash flow adjustments	29.3	-1.9	31.2	>100
Cash flow from financing activities	-232.1	-147.5	-84.6	-57.4
Translation differences	3.1	-2.5	5.6	>100
Change in cash and cash equivalents	**35.7**	**-19.2**	**54.9**	**>100**
Cash and cash equivalents				
at the beginning of the reporting period	99.0	106.1		
at the end of the reporting period	134.7	86.9		

Cash flow from operating activities

Cash flow from operating activities in the first six months of the financial year 2019 amounted to € 406.0 million (January to June 2018: € 330.1 million). The increase compared with the previous year was mainly attributable to positive business developments and a strong cash inflow from contracts completed in the 4th quarter of 2018.

Cash flow from investing activities

The cash outflow from investing activities in the first six months of the financial year 2019 amounted to € 141.3 million (January to June 2018: € 199.3 million). Capital expenditure on intangible assets accounted for € 57.2 million (January to June 2018: € 37.2 million), and mainly comprised company-funded development costs for components and technologies that may subsequently be used in Pratt & Whitney Geared Turbofan™ engines and the PW800 engine programs, and the acquisition of rights allowing MTU to operate as a licensed maintenance organization.

Capital expenditure on property, plant and equipment in the reporting period from January to June 2019 amounted to € 100.6 million (January to June 2018: € 92.8 million). As well as being used to purchase new plant and machinery, production resources and tools for the ramp-up to series production and in preparation for the maintenance of the Geared Turbofan™ engines, this capital expenditure also included replacement investments for existing plant and machinery. Proceeds of € 1.6 million were also recognized on the disposal of property, plant and equipment (January to June 2018: € 4.0 million).

Cash outflows for investment in financial assets amounted to € 14.7 million (January to June 2018: € 69.7 million). Of this total, 7.1 million related to payments into equity of PW1100-JM Engine Leasing LLC., East Hartford, U.S.A., the purpose of which is to support leasing activities in connection with the PW1100-JM engine program. A further € 5.1 million was spent on building up additional MRO capacity at EME Aero sp. z o. o., Jasionka, Poland.

In the first six months of 2019, an amount of € 3.3 million (January to June 2018: € 6.0 million) was utilized for the acquisition of program assets (the acquisition cost of new or additional program shares) and development assets for the commercial engine programs in which MTU is a consortium member.

The group received a cash inflow of € 32.9 million (January to June 2018: € 2.4 million) from the repayment of loans under aircraft and engine financing agreements and other financial assets.

Cash flow from financing activities

In the period from January 1 to June 30, 2019, the net cash outflow from financing activities amounted to € 232.1 million (January to June 2018: 147.5 million). The principal source of this capital outflow was the increased dividend payment for the financial year 2018, which amounted to € 147.1 million, and the repayment of lease obligations which would have been reported under cash flow from operating activities if IFRS 16 had not been applied.

Change in cash and cash equivalents

Taking the effects of currency translation into account, cash flow developments resulted in an increase in cash and cash equivalents of € 35.7 million (January to June 2018: decrease of € 19.2 million).

Net financial debt

Net financial debt serves as an indicator of the MTU group's financial position and is defined as the difference between gross financial debt and current financial assets. MTU's net financial debt at June 30, 2019 increased by € 47.5 million to € 901.5 million (December 31, 2018: € 854.0 million). This is partly due to the addition of lease liabilities amounting to € 127.2 million in connection with the first-time application of IFRS 16 as of January 1, 2019.

Net financial debt

			Change	
in € million	June 30, 2019	Dec. 31, 2018	in € million	in %
Registered bond	98.4	100.2	-1.8	-1.8
Convertible bond	484.2	482.5	1.7	0.4
Financial liabilities to banks	40.0	54.4	-14.4	-26.5
thereof: Note purchase agreement	30.1	30.1		
thereof: Revolving credit facility		14.5	-14.5	-100.0
thereof: Other liabilities to banks	9.9	9.8	0.1	1.0
Loans	0.7	34.7	-34.0	-98.0
Lease liabilities	138.6	10.0	128.6	>100
Financial liabilities arising from increased or new stakes in engine programs	323.6	350.4	-26.8	-7.6
thereof: Financial liabilities arising from IAE-V2500 stake increase	283.8	301.9	-18.1	-6.0
Gross financial debt	**1,085.5**	**1,032.2**	**53.3**	**5.2**
less:				
Cash and cash equivalents	134.7	99.0	35.7	36.1
Loans to third parties	48.7	59.7	-11.0	-18.4
Loans to related companies	0.6	19.5	-18.9	-96.9
Financial assets	**184.0**	**178.2**	**5.8**	**3.3**
Net financial debt	**901.5**	**854.0**	**47.5**	**5.6**

For more detailed information on the corporate bonds, the note purchase agreement and the financial liabilities arising from the IAE-V2500 stake increase, please refer to page 187 et seq. of the MTU Aero Engines AG Annual Report 2018.

Net assets

Changes in balance sheet items

The group's total assets, equity and liabilities increased by € 394.4 million from € 6,850.8 million at December 31, 2018 to € 7,245.2 million at June 30, 2019. Contributing factors were the higher volume of business and the changed timing of expense recognition resulting from the first-time application of IFRS 16. For more detailed information, please refer to the section headed "General information" that precedes the Notes to the consolidated interim financial statements, under the heading "IFRS 16, Leases."

Compared with the reported amounts at December 31, 2018, non-current assets increased by € 225.6 million to € 3,941.5 million while current assets increased by € 168.8 million to € 3,303.7 million.

In the first six months of 2019, the group capitalized intangible assets totaling € 57.9 million (January to June 2018: € 34.7 million). The additions mainly relate to capitalized, self-generated development costs in connection with the PW800 engine program and the Pratt & Whitney Geared Turbofan™ engines. A further amount of € 21.4 million was capitalized in connection with the purchase of maintenance licenses.

Additions to property, plant and equipment in the first six months of 2019 amounted to € 122.4 million (January to June 2018: € 92.9 million).

Acquired program assets, capitalized development costs and other assets decreased only slightly by € 3.6 million to € 1,248.5 million, because additions were almost entirely balanced by exchange rate influences and scheduled amortization charges.

In the first six months of 2019, inventories increased by € 58.7 million to € 1,054.5 million, trade receivables by € 83.2 million to € 1,134.4 million, contract assets by € 18.3 million to € 882.6 million, other current financial assets by € 5.5 million to € 46.1 million, and cash and cash equivalents by € 35.7 million to € 134.7 million. By contrast, income tax receivables decreased by € 14.7 million to € 28.5 million and other current assets by € 17.9 million to € 22.9 million.

Between December 31, 2018 and June 30, 2019, group equity increased by € 50.1 million to € 2,194.3 million.

Factors that contributed to the increase in equity in the first six months of 2019 included higher net income, which amounted to € 229.3 million (January to June 2018: € 218.5 million).

The sale of treasury shares through the MAP employee stock option program generated proceeds of € 18.8 million (January to June 2018: € 16.3 million), while a further amount of € 5.0 million (January to June 2018: € 4.5 million) was added to equity through the sale of treasury shares under the Restricted Stock Plan. Translation differences arising from the financial statements of international group companies, amounting to a net gain of € 11.0 million (January to June 2018: a net loss of € 9.9 million) also contributed to the increase in equity. Fair-value losses on financial instruments designated as cash-flow hedges, amounting to € 1.6 million (January to June 2018: fair-value losses of € 60.7 million), along with actuarial losses on plan assets and pension obligations resulting from changes in the discount rate amounting to € 65.9 million (January to June 2018: actuarial losses of € 1.8 million), led to a corresponding reduction in equity, as did the dividend payment for the financial year 2018, amounting to € 147.1 million (dividend payment for the financial year 2017: € 118.4 million).

The equity ratio was 30.3 % (December 31, 2018: 31.3 %).

Pension provisions increased by € 109.0 million compared with December 31, 2018, owing to the lower discount rate applicable in the reporting period and to the allocation of service costs. The decrease of € 14.4 million in other provisions to € 210.6 million is primarily due to the reduction in provisions for bonuses and one-time payments owing to the reduced period over which they can be deferred.

Compared with the amount reported at December 31, 2018, financial liabilities increased overall by € 79.5 million to € 1,243.0 million. While a lower amount was drawn down under the revolving credit facility and financial liabilities arising from the IAE-V2500 stake increase were repaid, there were substantial additions resulting from the first-time application of IFRS 16.

Trade payables amounted to € 193.7 million at June 30, 2019, which is € 36.9 million lower than at December 31, 2018.

Contract liabilities increased between December 31, 2018 and June 30, 2019 by € 172.9 million to € 748.9 million. This increase is mainly attributable to the higher amount of advance payments from customers. Such payments are recognized as contract liabilities insofar as they exceed the corresponding amount of contract assets.

Other liabilities, at € 76.8 million, remained almost unchanged, decreasing only slightly by € 0.9 million compared with the amount reported at December 31, 2018.

Employees
MTU's workforce comprised 10,206 employees at June 30, 2019 (December 31, 2018: 9,731).

Subsequent events

Events after the end of the interim reporting period (June 30, 2019)

MTU Maintenance Serbia d.o.o., Beograd-Novi Beograd, Serbia was created on July 3, 2019. The purpose of this company is to provide additional capacity for aircraft engine maintenance. It is wholly owned by MTU Aero Engines AG, and will therefore be treated as a fully consolidated company.

On July 23, 2019, MTU and its long-standing partner jetBlue Airways signed an exclusive contract for the maintenance of the airline's pre-select fleet of V2500 engines. The contract has a term of 13 years and covers the maintenance, repair and overhaul of these engines from 2020 to 2033.

No other significant events with a material impact on the net assets, financial position or operating results of the MTU group have occurred after the end of the interim reporting period and prior to the date this half-year financial report was drawn up (July 22, 2019).

Report on forecasts, risks and opportunities

In order to take best advantage of market opportunities and to identify and manage the risks involved, the Executive Board has set up an integrated opportunity and risk management system, which is linked to the group's value-oriented performance indicators and its organizational structure. The system is based on the internationally recognized COSO II Enterprise Risk Management Framework. It also incorporates the group's internal control system with respect to financial reporting processes pursuant to Sections 289 (5) and 315 (2) no. 5 of the German Commercial Code (HGB). For a detailed description of the main features of the system and the methods used, please refer to page 109 et seq. of the Annual Report 2018.

Forecasts

Macroeconomic factors

According to the forecast published by the Economist Intelligence Unit (EIU) in July, global economic performance is expected to grow by 2.5 % in 2019.

The EIU predicts that the U.S. economy will expand by 2.2 %. Household spending in the U.S., which represents more than two thirds of the country's GDP, has been rising significantly. Moreover, the trade gap between imports and exports, which represents the remaining one third of GDP, has been narrowing.

The European economy has stood up well against the vagaries of a deteriorating trading environment. The EIU expects to see moderate growth of 1.2 % in this region.

Economic growth in China is expected to reach 6.3 % according to the EIU. Tax cuts and other measures introduced by the Chinese government to stimulate the domestic economy are expected to have the desired effect and help to offset the negative impact of the ongoing trade war between the U.S. and China.

The International Monetary Fund (IMF) sees these trade disputes and burgeoning public debt, courtesy of low interest rates, as the greatest threats to the global economy. Moreover, the IMF warns that the standoff between the world's two largest trading nations, the U.S. and China, who keep retaliating with punitive tariffs, is a serious obstacle to free trade on a global level.

Microeconomic factors in the aviation industry
Rising costs and declining growth in demand are beginning to have an impact on the global aviation industry. Whereas six months ago, the International Air Transport Association (IATA) expected airline profits to grow to U.S. $ 36 billion this year, its latest forecast, published in June, has scaled this down to U.S. $ 28 billion.

According to IATA, the biggest risk faced by the aviation industry is the negative impact of the increasingly contentious trade disputes on air freight traffic, which is not expected to grow this year. Nonetheless, airlines can expect to see a robust increase in passenger traffic in the region of 5%.

For aircraft manufacturers, full order books and rising production output will continue to boost the market in the medium term. Airlines are continuing to invest in fleet modernization. Of this year's planned deliveries of 1,750 new aircraft (source: IATA), around one half are destined to replace existing, older aircraft, thus improving overall fleet efficiency.

Whereas the price for a barrel of Brent crude averaged U.S. $ 71 in April and May, it has since fallen to U.S. $ 64. In July, the members of OPEC and their allies agreed to throttle oil production for a further 9 months. The EIA expects the average price per barrel to level out at U.S. $ 67 in the course of 2019.

Future development of MTU
MTU has firmed up its forecasts for the financial year 2019 compared to the outlook presented in the Annual Report 2018.

For the group as a whole, assuming an exchange rate of U.S. $ 1.15 to the euro, MTU has maintained its forecast for an increase in revenues to approximately € 4,700 million (2018: € 4,567.1 million).

These revenue forecasts are based on the following unchanged assumptions:

In the commercial engine business, MTU expects to see an increase in revenues in 2019, both from series production and from spare parts sales. All in all, it is expected that this area of business will grow organically by a high single-digit percentage.

Growth in the commercial engine business depends above all on a further increase of deliveries for the new Geared Turbofan™ programs, whereas deliveries of the V2500 predecessor are expected to decline.

Revenues in the military engine business are expected to grow by approximately 10% in 2019.

Revenues from spare parts sales are projected to grow by a mid-to-high single-digit percentage, driven principally by the V2500 program.

MTU's full-year forecast for its commercial maintenance business is for revenues to grow organically by a high single-digit percentage. However, reported revenues will remain stable as the result of a change in process. For an explanation of the change in process, please refer to page 107 of the 2018 Annual Report.

MTU now expects the group's operating profit margin (EBIT adjusted) for 2019 to increase by around 16% (2018: 14.7%). Previously, an adjusted EBIT margin of around 15.5% was expected.

Changes in the product mix and a higher-than-expected contribution to earnings by MTU Maintenance Zhuhai Co. Ltd. are the reason for this increase in the earnings forecast.

MTU maintains its expectation that net income adjusted will grow in line with EBIT adjusted in 2019.

2019 will again be another year of substantial investment spending. However, MTU plans to compensate for these effects through its operating activities and achieve a higher cash conversion rate (ratio of free cash flow to net income adjusted) compared with 2018. The current forecast foresees a cash conversation rate in the order of 65 to 70% (2018: 42%). At the beginning of the year, a cash conversion rate in the region of 50 to 60% was expected. This forecast was raised to 55 to 60% in the interim report for the 1st quarter of 2019. This was based on a higher cash conversion rate resulting from the implementation of the new IFRS 16 reporting standard in 2019, leading to a higher reported amount of free cash flow. One of the reasons was the repayment of obligations arising from lease liabilities, which would have been reported under cash flow from operating activities if IFRS 16 had not been applied, and therefore had a negative impact on free cash flow. By recognizing these payments under cash flow from financing activities according to IFRS 16, they no longer affect free cash flow.

In its half-year report, MTU increased its forecast for the cash conversion rate to a percentage in the order of 65 to 70%. This higher forecast reflects the better-than-expected free cash flow performance in the first half year.

Risks

MTU's operating environment in the global market, economic and political factors and relationships with business partners and consortia give rise to risks that could have an impact on the group's business performance. The market launch of new engine programs (e.g. the GTF programs) not only involves up-front investments to set up and stabilize the entire supply chain but also typically entails technical risks which in turn call for continuous product development. However, the deliberately chosen portfolio approach with engines in various lifecycle phases (e.g. V2500, GEnx) enables MTU to reduce risk exposure over the group as a whole.

In addition to the introduction of new products in the commercial engine business, the transformation of the commercial maintenance business continues apace. The changing nature of the MRO market, which is moving away from separate, independent providers of maintenance services and toward closer ties between engine manufacturers and downstream maintenance services, presents MTU with both risks and opportunities. Whereas it will be necessary for MTU to offer greater price concessions in its OEM business, in order to maintain its market share, this situation also creates advantages in the form of higher capacity utilization of MRO locations, and the financial benefits of belonging to a worldwide MRO network.

Beyond these, the areas of risk to which MTU is exposed are the same as those presented in the Annual Report 2018. For a detailed description of these risks, please refer to pages 109 et seq. (Risk report) and page 119 (SWOT analysis) of the Annual Report 2018.

Opportunities

MTU's balanced product portfolio combined with a business model that rests securely on three pillars, namely commercial engines, military engines and commercial maintenance, ensures that the company remains well positioned in the market. At the same time, MTU opens up new opportunities through a policy of continuous investment in research, development and new technologies, increasing its stakes in risk- and revenue-sharing partnerships, and expanding its maintenance business.

In the commercial engine business, MTU sees opportunities for benefiting from the growth of the aviation industry. By constantly enhancing its products and as one of the early adopters of Geared Turbofan™ (GTF) technology, MTU has been able to build up a wealth of technological expertise that can be exploited for the development of new generations of aircraft engines.

In the military engine business, export campaigns for engine programs present opportunities to benefit from additional sales and from the ensuing maintenance business.

In the commercial maintenance business, the steadily increasing volume of air traffic offers opportunities for MTU to intensify existing customer relationships, expand its range of services and form new partnerships.

Over and above these specific cases, MTU's current assessment of its potential opportunities is the same as that presented in the Annual Report 2018. For a detailed description of these opportunities, please refer to page 116 et seq. (Opportunities report) and page 119 (SWOT analysis) of the Annual Report 2018.

Overall assessment of MTU's risk exposure and potential opportunities

Thanks to its integrated risk and opportunity management system, MTU is in a position to identify areas of risk and potential opportunities at an early stage and take suitable proactive measures to address them.

The MTU group's risk exposure and potential opportunities have changed only insignificantly compared with the assessment made at December 31, 2018. Additional risks have arisen in particular from the wider-scale ramp-up of new engine programs. However, due to the portfolio approach in the product mix, these risks are countered by short-term opportunities for spare parts sales in programs at a late stage in their lifecycle. These risks therefore remain limited and manageable. From the present vantage point, the MTU group's continuing existence as a going concern is not endangered.

Significant transactions with related parties

Information regarding significant transactions with related companies and persons is provided in Note 38 to the condensed interim consolidated financial statements (Transactions with related companies and persons.)

Condensed interim consolidated financial statements

Consolidated income statement

Consolidated income statement (unaudited)

in € million	(Note)	Jan. 1 - June 30, 2019	Jan. 1 - June 30, 2018
Revenues	**(1.)**	**2,243.0**	**2,148.6**
Cost of sales	(2.)	-1,789.6	-1,726.3
Gross profit		**453.4**	**422.3**
Research and development expenses	(3.)	-28.4	-26.4
Selling expenses	(4.)	-62.0	-55.8
General administrative expenses	(5.)	-42.5	-41.4
Other operating income		4.1	4.3
Other operating expenses		-21.5	-12.4
Profit/loss of companies accounted for using the equity method	(7.)	34.9	17.8
Profit/loss of equity investments		1.5	0.5
Earnings before interest and tax (EBIT)		**339.5**	**308.9**
Interest result	(8.)	-4.4	-1.2
Financial result on other items	(9.)	-13.6	-3.5
Financial result		**-18.0**	**-4.7**
Earnings before tax		**321.5**	**304.2**
Income taxes	(10.)	-92.2	-85.7
Net income		**229.3**	**218.5**
thereof:			
Owners of MTU Aero Engines AG		224.4	216.0
Non-controlling interests		4.9	2.5
Earnings per share in €			
Basic (EPS)	(11.)	4.34	4.19
Diluted (DEPS)	(11.)	4.06	3.92

Consolidated statement of comprehensive income

Consolidated statement of comprehensive income (unaudited)

in € million	(Note)	Jan. 1 - June 30, 2019	Jan. 1 - June 30, 2018
Net income		**229.3**	**218.5**
Translation differences arising from the financial statements of international entities		11.0	-9.9
Financial instruments designated as cash flow hedges		-1.6	-60.7
Items that may subsequently be recycled to profit or loss		9.4	-70.6
Actuarial gains and losses on pension obligations and plan assets		-65.9	-1.8
Fair value gains and losses on equity investments		0.1	
Items that will not be recycled to profit or loss		-65.8	-1.8
Other comprehensive income, net of tax	**(24.)**	**-56.4**	**-72.4**
Total comprehensive income		**172.9**	**146.1**
thereof:			
Owners of MTU Aero Engines AG		167.6	142.6
Non-controlling interests		5.3	3.5

Consolidated balance sheet – assets

Assets (unaudited)

in € million	(Note)	June 30, 2019	Dec. 31, 2018
Non-current assets			
Intangible assets	(14.)	1,113.8	1,072.7
Property, plant and equipment	(15.)	968.5	799.3
Financial assets accounted for using the equity method	(16.)	452.0	426.9
Other financial assets	(16.)	75.3	104.4
Acquired program assets, capitalized development costs and other assets	(17.)	1,248.5	1,252.1
Deferred tax assets		83.4	60.5
Total non-current assets		**3,941.5**	**3,715.9**
Current assets			
Inventories	(19.)	1,054.5	995.8
Trade receivables	(20.)	1,134.4	1,051.2
Contract assets	(21.)	882.6	864.3
Income tax receivables		28.5	43.2
Other financial assets	(16.)	46.1	40.6
Other financial assets	(17.)	22.9	40.8
Cash and cash equivalents	(23.)	134.7	99.0
Total current assets		**3,303.7**	**3,134.9**
Total assets		**7,245.2**	**6,850.8**

Consolidated balance sheet – equity and liabilities

Equity and liabilities (unaudited)

in € million	(Note)	June 30, 2019	Dec. 31, 2018
Equity	**(24.)**		
Subscribed capital		52.0	52.0
Capital reserves		484.1	465.8
Revenue reserves		1,906.7	1,829.0
Treasury shares		−11.4	−16.9
Accumulated other comprehensive income		−316.5	−259.7
Owners of MTU Aero Engines AG		**2,114.9**	**2,070.2**
Non-controlling interests		79.4	74.0
Total equity		**2,194.3**	**2,144.2**
Non-current liabilities			
Pension provisions		962.2	853.2
Other provisions	(27.)	53.5	47.7
Refund liabilities	(31.)	20.4	30.3
Financial liabilities	(28.)	996.3	935.0
Contract liabilities	(30.)	27.0	27.0
Other liabilities	(32.)	0.6	0.7
Deferred tax liabilities		0.4	8.4
Total non-current liabilities		**2,060.4**	**1,902.3**
Current liabilities			
Pension provisions		25.8	25.8
Income tax liabilities		12.0	9.9
Other provisions	(27.)	157.1	177.3
Refund liabilities	(31.)	1,557.1	1,506.2
Financial liabilities	(28.)	246.7	228.5
Trade payables		193.7	230.6
Contract liabilities	(30.)	721.9	549.0
Other liabilities	(32.)	76.2	77.0
Total current liabilities		**2,990.5**	**2,804.3**
Total equity and liabilities		**7,245.2**	**6,850.8**

Consolidated statement of changes in equity

For more information on equity components, please refer to Note 24 of the selected explanatory notes (Equity).

in € million	Sub-scribed capital	Capital reserves	Revenue reserves	Treasury shares	Accumulated other equity				**Owners of MTU Aero Engines AG**	Non-controlling interests	Total equity
					Translation differences arising from the financial statements of international entities	Fair value gains and losses on equity investments	Actuarial gains and losses [1]	Financial instruments designated as cash flow hedges			
Carrying amount at Jan. 1, 2018	**52.0**	**451.2**	**1,500.4**	**–23.1**	**16.1**	**9.8**	**–245.9**	**51.7**	**1,812.2**	**36.3**	**1,848.5**
Net income			216.0						216.0	2.5	218.5
Other comprehensive income					–10.9		–1.8	–60.7	–73.4	1.0	–72.4
Total comprehensive income			**216.0**		**–10.9**		**–1.8**	**–60.7**	**142.6**	**3.5**	**146.1**
Dividend payment			–118.4						–118.4		–118.4
Restricted Stock Plan		2.9		1.6					4.5		4.5
MAP employee stock option program		11.7		4.6					16.3		16.3
Carrying amount at June 30, 2018	**52.0**	**465.8**	**1,598.0**	**–16.9**	**5.2**	**9.8**	**–247.7**	**–9.0**	**1,857.2**	**39.8**	**1,897.0**
Carrying amount at Jan. 1, 2019 as reportetd	**52.0**	**465.8**	**1,829.0**	**–16.9**	**9.4**	**12.3**	**–249.9**	**–31.5**	**2,070.2**	**74.0**	**2,144.2**
Effect of first-time application of IFRS 16			0.4						0.4	0.1	0.5
Carrying amount at Jan. 1, 2019	**52.0**	**465.8**	**1,829.4**	**–16.9**	**9.4**	**12.3**	**–249.9**	**–31.5**	**2,070.6**	**74.1**	**2,144.7**
Net income			224.4						224.4	4.9	229.3
Other comprehensive income					10.6	0.1	–65.9	–1.6	–56.8	0.4	–56.4
Total comprehensive income			**224.4**		**10.6**	**0.1**	**–65.9**	**–1.6**	**167.6**	**5.3**	**172.9**
Dividend payment			–147.1						–147.1		–147.1
Restricted Stock Plan		3.9		1.1					5.0		5.0
MAP employee stock option program		14.4		4.4					18.8		18.8
Carrying amount at June 30, 2019	**52.0**	**484.1**	**1,906.7**	**–11.4**	**20.0**	**12.4**	**–315.8**	**–33.1**	**2,114.9**	**79.4**	**2,194.3**

[1] Refers to pension obligations and plan assets

Consolidated cash flow statement

Consolidated cash flow statement (unaudited)

in € million	(Note)	Jan. 1 - June 30, 2019	Jan. 1 - June 30, 2018
Operating activities			
Net income		**229.3**	**218.5**
Non-cash accounting adjustments to capitalized program assets and acquired development assets		26.3	24.4
Depreciation/appreciation, amortization and impairment of non-current assets		94.5	71.2
Profit/loss of companies accounted for using the equity method	(7.)	-34.9	-17.8
Profit/loss of equity investments		-1.5	-0.5
Gains/losses on the disposal of assets		-0.1	-0.2
Change in pension provisions		11.8	13.7
Change in other provisions	(27.)	-14.4	-5.7
Change in refund liabilities (not included in working capital)		79.8	28.0
Change in working capital		-40.7	-52.1
Other non-cash items		25.3	14.6
Interest result	(8.)	4.4	1.2
Interest paid		-9.8	-6.0
Interest received		3.6	2.5
Dividends received		12.2	19.4
Income taxes	(10.)	92.2	85.7
Income taxes paid		-72.0	-66.8
Cash flow from operating activities		**406.0**	**330.1**
Investing activities			
Capital expenditure on:			
Intangible assets	(14.)	-57.2	-37.2
Property, plant and equipment	(15.)	-100.6	-92.8
Financial assets	(16.)	-14.7	-69.7
Acquired program assets and development assets	(17.)	-3.3	-6.0
Proceeds from disposal of:			
Intangible assets/property, plant and equipment	(14.)/(15.)	1.6	4.0
Financial assets	(16.)	32.9	2.4
Cash flow from investing activities		**-141.3**	**-199.3**
Financing activities			
Repayment of leasing liabilities	(28.)	-20.4	-0.8
Increase in/Repayment of liabilities to banks	(28.)	-14.5	21.9
Dividend payment		-147.1	-118.4
Settlement of purchase price liabilities for shares in IAE-V2500 program	(28.)	-33.9	-49.0
Sale of treasury shares under the MAP employee stock option program		18.8	16.3
Increase in/Repayment of other financial liabilities	(28.)	-35.0	-17.5
Cash flow from financing activities		**-232.1**	**-147.5**
Net change in cash and cash equivalents during the period		**32.6**	**-16.7**
Effect of translation differences on cash and cash equivalents		3.1	-2.5
Cash and cash equivalents at beginning of the year (January 1)		99.0	106.1
Cash and cash equivalents at end of period (June 30)		**134.7**	**86.9**

[1] Net of transaction costs

Notes to the interim consolidated financial statements

Reporting by operating segment

Segment information

A description of the activities of the individual operating segments is provided on page 215 of the Annual Report 2018. No changes were made to the composition of the operating segments during the first six months of 2019.

Up until December 31, 2018, revenues from the maintenance, repair and overhaul of commercial engines were attributed to the OEM segment, because the corresponding job orders were issued by MTU Aero Engines AG. But because, strictly speaking, these are maintenance activities, the revenues have been allocated to the MRO operating segment as of January 1, 2019. The prior-year data has been adjusted accordingly.

Segment information was as follows:

Reporting by operating segment – Prior year amounts adjusted

	Commercial and military engine business (OEM)		Commercial maintenance business (MRO)		Total reportable segments		Consolidation/ reconciliation		MTU group	
in € million	Jan. 1 - June 30, 2019	Jan. 1 - June 30, 2018	Jan. 1 - June 30, 2019	Jan. 1 - June 30, 2018	Jan. 1 - June 30, 2019	Jan. 1 - June 30, 2018	Jan. 1 - June 30, 2019	Jan. 1 - June 30, 2018	Jan. 1 - June 30, 2019	Jan. 1 - June 30, 2016
External revenues	969.0	868.3	1,274.0	1,280.3	2,243.0	2,148.6			2,243.0	2,148.6
Revenues from intersegment sales	20.0	17.5	13.3	8.2	33.3	25.7	-33.3	-25.7		
Total revenues	**989.0**	**885.8**	**1,287.3**	**1,288.5**	**2,276.3**	**2,174.3**	**-33.3**	**-25.7**	**2,243.0**	**2,148.6**
Gross profit	**300.7**	**286.5**	**152.2**	**135.5**	**452.9**	**422.0**	**0.5**	**0.3**	**453.4**	**422.3**
Amortization	17.0	14.7	3.3	3.4	20.3	18.1			20.3	18.1
Non-cash amortization of capitalized program assets and acquired development costs	26.3	24.4			26.3	24.4			26.3	24.4
Depreciation	43.9	40.0	30.3	13.1	74.2	53.1			74.2	53.1
Total depreciation/ amortization/impairment losses	**87.2**	**79.1**	**33.6**	**16.5**	**120.8**	**95.6**			**120.8**	**95.6**
Earnings before interest and tax (EBIT)	**218.0**	**204.4**	**121.1**	**104.3**	**339.1**	**308.7**	**0.4**	**0.2**	**339.5**	**308.9**
Exceptional effect of purchase price allocation	9.3	9.3	1.2	1.2	10.5	10.5			10.5	10.5
Exceptional effect of IAE-V2500 stake increase	15.2	15.2			15.2	15.2			15.2	15.2
Adjusted Earnings before interest and tax (EBIT adjusted)	**242.5**	**228.9**	**122.3**	**105.5**	**364.8**	**334.4**	**0.4**	**0.2**	**365.2**	**334.6**
Profit/loss of companies accounted for using the equity method	13.9	4.4	21.0	13.4	34.9	17.8			34.9	17.8
Carrying amount of companies accounted for using the equity method (June 30, 2019, Dec. 31, 2018)	273.7	250.6	178.3	176.3	452.0	426.9			452.0	426.9
Assets (June 30, 2019/ Dec. 31, 2018)	**6,200.7**	**6,034.5**	**2,000.8**	**1,845.9**	**8,201.5**	**7,880.4**	**-956.3**	**-1,029.6**	**7,245.2**	**6,850.8**
Liabilities (June 30, 2019/ Dec. 31, 2018)	**4,296.4**	**4,118.2**	**1,370.3**	**1,277.2**	**5,666.7**	**5,395.4**	**-615.8**	**-688.8**	**5,050.9**	**4,706.6**
Significant non-cash items	**18.6**	**17.8**	**6.6**	**-3.1**	**25.2**	**14.7**	**0.1**	**-0.1**	**25.3**	**14.6**
Capital expenditure:										
Intangible assets	35.2	34.3	22.7	0.4	57.9	34.7			57.9	34.7
Property, plant and equipment	71.1	53.1	51.3	39.8	122.4	92.9			122.4	92.9
Acquired program assets and development assets	15.9	12.3			15.9	12.3			15.9	12.3
Total capital expenditure	**122.2**	**99.7**	**74.0**	**40.2**	**196.2**	**139.9**			**196.2**	**139.9**
Key segment data:										
EBIT in % of revenues	22.0	23.1	9.4	8.1	14.9	14.2	1.2	0.8	15.1	14.4
EBIT adjusted in % of revenues	24.5	25.8	9.5	8.2	16.0	15.4	1.2	0.8	16.3	15.6

The significant non-cash items relate in particular to gains and losses arising from foreign currency translation, which have no impact on cash flows.

Reconciliation to MTU consolidated earnings before tax

in € million	Jan. 1 - June 30, 2019	Jan. 1 - June 30, 2018
Earnings before interest and tax (EBIT)	**339.5**	**308.9**
Interest income	3.6	3.2
Interest expenses	-8.0	-4.4
Financial result on other items	-13.6	-3.5
Earnings before tax	**321.5**	**304.2**

General information

MTU Aero Engines AG, Munich, together with its consolidated group of companies, counts among the world's largest manufacturers of engine modules and components, and is one of the world's leading providers of maintenance services for commercial aircraft engines.

The group's business activities encompass the entire lifecycle of an engine program - from development, structural design, testing and manufacturing of new commercial and military engines and spare parts through to the maintenance, repair and overhaul of commercial and military engines. MTU divides its activities into two operating segments: the commercial and military engine business (OEM) and the commercial maintenance business (MRO).

MTU's commercial and military engine business, or OEM segment, covers the development and manufacturing of modules, components and spare parts for engine programs, and in some cases final assembly. The military engine business additionally includes the provision of maintenance services. The MRO segment consists of the commercial maintenance business, which covers all activities relating to the maintenance, repair and overhaul of commercial engines and associated logistical support.

The parent company, MTU Aero Engines AG, registered office Dachauer Str. 665, 80995 Munich, is registered under reference HRB 157206 in the commercial registry of the district court of Munich.

The condensed interim consolidated financial statements were approved for publication by the Executive Board of MTU Aero Engines AG on July 22, 2019.

Financial reporting

In accordance with the provisions of Section 115 of the German Securities Trading Act (WpHG), MTU's half-year financial report consists of condensed interim consolidated financial statements, an interim group management report and a statement by the legal representatives. The unaudited condensed interim consolidated financial statements have been prepared in accordance with International Financial Reporting Standards (IFRSs) relevant for interim financial reporting, as endorsed by the European Union (EU). The interim group management report has been drawn up in accordance with the applicable provisions of the German Securities Trading Act (WpHG).

Statement of compliance

The condensed interim consolidated financial statements at June 30, 2019 have been drawn up in compliance with IAS 34 Interim Financial Reporting. In preparing these statements, MTU has applied all International Financial Reporting Standards (IFRSs) issued by the International Accounting Standards Board (IASB) and effective at the date on which the condensed interim consolidated financial statements were approved for publication, insofar as they have been endorsed by the European Commission for use in the EU.

The accounting methods applied when preparing the condensed interim consolidated financial statements are the same as those used to prepare the annual consolidated financial statements at December 31, 2018, and additionally the following new and amended standards and interpretations:

New and amended standards and interpretations

Standard	Titel
IFRS 9	Amendment: Prepayment Features with Negative Compensation
IFRS 16	Leases
IAS 19	Amendment: Plan Amendment, Curtailment or Settlement
IAS 28	Amendment: Long-term Interests in Associates and Joint Ventures
IFRIC 23	Uncertainty over Income Tax Treatments
Annual improvements to IFRSs 2015 – 2017:	IFRS 3 Business Com inations and IFRS 11 Joint Arrangements IAS 12 Income Taxes IAS 23 Borrowing Costs

These standards and interpretations are effective for annual periods beginning on or after January 1, 2019. However, except in the case of the transition to IFRS 16, they had no significant impact on MTU's condensed interim consolidated financial statements. The effects of the transition to IFRS 16 are described below.

The condensed interim consolidated financial statements do not contain all the information and disclosures required for year-end consolidated financial statements and should therefore be read in conjunction with the MTU consolidated financial statements at December 31, 2018.

In the opinion of management, the half-year financial report contains all customary accounting adjustments necessary for a fair presentation of the group's operating results, financial position and net assets. The accounting policy and measurement methods applied when preparing the consolidated financial statements are described on page 153 et. seq. of the 2018 Annual Report.

IFRS 16, Leases

IFRS 16 redefines how to recognize, measure, present and disclose lease arrangements. The new standard was endorsed for use in the European Union on November 9, 2017. IFRS 16 replaces the following standards and interpretations: IAS 17 Leases, SIC 15 Operating Leases - Incentives, SIC 27 Evaluating the Substance of Transactions in the Legal Form of a Lease, and IFRIC 4 Determining Whether an Arrangement Contains a Lease.

The main change in the accounting treatment of leases is that, from now on, lessees are required to recognize assets and liabilities for all leasing arrangements unless the lease term is 12 months or less or the underlying asset has a low value. As a result, from a lessee's perspective, the previous differentiation between finance leases and operating leases, as required by IAS 17, is no longer applicable. This means that right-of-use assets and lease liabilities must be recognized in the balance sheet for all leases, insofar as they exceed the immateriality thresholds set by the legislator. MTU has elected not to separate non-lease components from lease components and instead account for all components as a lease, as allowed by IFRS 16. Right-of-use assets are measured at the present value of the corresponding lease liability. Right-of-use assets are depreciated over the term of the lease with corresponding allocations to functional costs, in accordance with IFRS 16.

The difference between the lease liability and the discounted lease liability is recognized under interest expenses. By contrast, IAS 17 required costs in connection with operating leases to be accounted for in full as functional costs.

The effect of applying IFRS 16 to leasing arrangements in which MTU is the lessor has resulted in no significant changes compared with accounting according to IAS 17.

MTU intends to apply the new standard as of the effective date of January 1, 2019, using the modified retrospective approach. To decide whether any of these leases represent onerous contracts as defined in IAS 37 Provisions, Contingent Liabilities and Contingent Assets, they were compared with their status at December 31, 2018. In the case of leases with a remaining term of less than twelve months, even if their original term had been longer, the recognition exemption for short-term leases was applied. In the case of operating leases, their right-of-use assets were valued at the same amount as the corresponding lease liabilities for the purpose of the transition to IFRS 16. In this context of first-time implementation as of January 1, 2019, an incremental borrowing rate of 3.3 % was applied.

The cumulative effect of these changes resulting from the first-time application of IFRS 16 was recognized in equity at January 1, 2019. No adjustments were made with respect to the previous year's data. MTU as lessor recognized a total of € 132.1 million in equity for right-of-use assets, of which € 7.3 million represents the carrying amount of arrangements classified under IAS 17 as finance leases at December 31, 2018. The table below shows the allocation of right-of-use assets to asset classes.

Right-of-use assets at January 1, 2019

in € million	Land and buildings	Plant and machinery	Office and other equipment	Total
Capitalized right-of-use assets at January 1, 2019	**21.0**	**0.4**	**110.7**	**132.1**
of which carrying amount of finance leases at December 31, 2018	**5.6**	**0.4**	**1.3**	**7.3**

The reconciliation of off-balance-sheet lease liabilities at December 31, 2018 to the lease liabilities recognized at January 1, 2019 is as follows:

Reconciliation of lease liabilities to IFRS 16

in € million	2018
Other financial obligations arising from lease arrangements accounted for under IAS 17 at December 31, 201	**89.7**
Recognition exemption for short-term leases with a lease term of 12 months or less	-8.8
Recognition exemption for leases of low-value assets	-0.6
Payments for renewal and termination options	62.2
Payments for non-lease components	-2.7
Other payments	-2.4
Operating lease commitments (undiscounted)	**137.4**
Effect of discount rate	-10.2
Operating lease commitments (discounted)	**127.2**
Carrying amount of finance lease liabilities at December 31, 2018 (application of IAS 17)	10.0
Carrying amount of lease liabilities at January 1, 2019 (application of IFRS 16)	**137.2**

In the first six months of 2019, as a result of the first-time application of IFRS 16, an amount of € 19.4 million was recognized under cash flow from financing activities in respect of repaid lease liabilities and an amount of € 2.2 million was recognized under cash flow from operating activities in respect of interest paid. If IFRS 16 had not been applied, an amount of € 21.6 million would have been charged to cash flow from operating activities in respect of payments in connection with operating leases.

Group reporting entity

At June 30, 2019, the MTU group including MTU Aero Engines AG, Munich, comprised interests in 32 companies.

There were no changes in the group reporting entity during the reporting period.

Notes to the consolidated income statement

1. Revenues

Revenues – Prior year amounts adjusted

in € million	Revenues recognized at a point in time	Revenues recognized over time	Jan. 1 - June 30, 2019	Revenues recognized at a point in time	Revenues recognized over time	Jan. 1 - June 30, 2018
Commercial engine business	773.0		773.0	687.0		687.0
Military engine business	143.4	72.6	216.0	129.2	69.6	198.8
Commercial and military engine business (OEM)	**916.4**	**72.6**	**989.0**	**816.2**	**69.6**	**885.8**
Commercial maintenance business (MRO)	**42.4**	**1,244.9**	**1,287.3**	**37.4**	**1,251.1**	**1,288.5**
Consolidation	-20.0	-13.3	-33.3	-17.5	-8.2	-25.7
Total revenues	**938.8**	**1,304.2**	**2,243.0**	**836.1**	**1,312.5**	**2,148.6**

For information on adjustments to prior-year data, please refer to the section Reporting by operating segment on page 23.

2. Cost of sales

Cost of sales

in € million	Jan. 1 - June 30, 2019	Jan. 1 - June 30, 2018
Cost of materials	-1,327.6	-1,381.9
Personnel expenses	-376.0	-321.5
Depreciation and amortization	-92.4	-69.2
Other cost of sales	-41.1	3.4
Capitalized development costs	47.5	42.9
Total cost of sales	**-1,789.6**	**-1,726.3**

The change in cost of sales relates to growth in revenues in the reporting period and is affected by the current product mix.

The amount stated under other cost of sales mainly derives from the increase in inventories of work in progress and finished products, the effect of translation differences, and the adjustment of accruals in respect of outstanding cost-of-sales items.

The amount of capitalized development costs corresponds to company-funded expenditure incurred in the OEM segment in connection with engine programs in which MTU is a shareholder.

3. Research and development expenses

Research and development expenses

in € million	Jan. 1 - June 30, 2019	Jan. 1 - June 30, 2018
Cost of materials	-14.4	-11.9
Personnel expenses	-13.2	-13.0
Depreciation and amortization	-0.6	-0.6
Other development costs	-1.6	-1.2
Company-funded research and development expenditure	**-29.8**	**-26.7**
Capitalized development costs	**1.4**	**0.3**
Research and development costs recognized as expense	**-28.4**	**-26.4**

4. Selling expenses

Selling expenses

in € million	Jan. 1 - June 30, 2019	Jan. 1 - June 30, 2018
Cost of materials	-10.0	-10.7
Personnel expenses	-36.7	-37.4
Depreciation and amortization	-0.5	-0.6
Other selling expenses	-14.8	-7.1
Total selling expenses	**-62.0**	**-55.8**

In addition to marketing and advertising costs, selling expenses comprise costs incurred in connection with air shows, trade fairs, exhibitions and press costs as well as allowances and impairments on receivables from customers.

5. General administrative expenses

General administrative expenses

in € million	Jan. 1 - June 30, 2019	Jan. 1 - June 30, 2018
Cost of materials	-2.6	-3.7
Personnel expenses	-30.4	-32.2
Depreciation and amortization	-0.8	-0.8
Other administrative expenses	-8.7	-4.7
Total general administrative expenses	**-42.5**	**-41.4**

General administrative expenses are expenses incurred in connection with administrative activities unrelated to development, production or sales activities.

7. Profit / loss of companies accounted for using the equity method

Profit/loss of companies accounted for using the equity method

in € million	Jan. 1 - June 30, 2019	Jan. 1 - June 30, 2018
Associated companies	13.8	4.2
Joint ventures	21.1	13.6
Profit/loss of companies accounted for using the equity method	**34.9**	**17.8**

8. Interest result

Interest result

in € million	Jan. 1 - June 30, 2019	Jan. 1 - June 30, 2018
Interest income	**3.6**	**3.2**
Interest expense on		
Registered bond	-1.8	-1.9
Convertible bond	-2.3	-2.3
Liabilities to banks	-0.7	-0.4
Lease liabilities	-2.2	-0.2
Other interest expenses	-2.7	-1.3
Capitalized borrowing costs for qualifying assets	1.7	1.7
Interest expenses	**-8.0**	**-4.4**
Interest result	**-4.4**	**-1.2**

The increased interest expense is mainly attributable to interest paid in connection with lease liabilities, recognized in this line item due to the first-time application of IFRS 16.

9. Financial result on other items

Financial result on other items

in € million	Jan. 1 - June 30, 2019	Jan. 1 - June 30, 2018
Effects of currency translation: exchange rate gains/losses on		
Currency holdings	-3.2	4.5
Financing transactions	0.3	2.4
Lease liabilities	-0.8	
Fair value gains/losses on derivatives		
Currency and interest rate derivatives	3.2	1.8
Forward commodity sales contracts	0.7	0.7
Interest portion included in measurement of assets and liabilities		
relating to pensions funds	-7.5	-6.8
Receivables, other provisions and liabilities	-6.5	-6.0
Financial result on sundry other items	0.2	-0.1
Financial result on other items	**-13.6**	**-3.5**

10. Income taxes

Analysis of current and deferred tax expenses

in € million	Jan. 1 - June 30, 2019	Jan. 1 - June 30, 2018
Current tax expense	-89.5	-69.8
Deferred tax income/expense	-2.7	-15.9
Recognized tax expense	**-92.2**	**-85.7**

11. Earnings per share

Diluted earnings per share are calculated by dividing net income by the sum obtained when the number of common shares that could potentially be issued through the granting of equity instruments is added to the weighted average number of outstanding shares.

In the first six months of 2019, the amount of net income available for distribution to the owners of MTU Aero Engines AG was € 224.4 million (January to June 2018: € 216.0 million). In the reporting period from January to June 2019, the weighted average number of outstanding shares was 51,658,754 (January to June 2018: 51,527,630 shares). These combined parameters resulted in a value of € 4.34 for basic earnings per share in the first six months of 2019 (January to June 2018: € 4.19).

Diluted earnings per share came to € 4.06 (January to June 2018: € 3.92) due to the unchanged dilutive effect of the 4,007,370 shares that could potentially be issued in connection with the convertible bond placed in May 2016.

Notes to the consolidated balance sheet

14. Intangible assets

Intangible assets comprise program-independent technologies, acquired development assets, software for engineering applications, and acquired goodwill.

In the first six months of 2019, the group capitalized intangible assets totaling € 57.9 million (January to June 2018: € 34.7 million). Of this amount, € 35.4 million (January to June 2018: € 32.8 million) relates to self-generated development costs and allocable borrowing costs and € 21.4 million (January to June 2018: € 0.0 million) relates to maintenance licenses for gas turbines.

The amortization expense for intangible assets in the first six months of 2019 amounted to € 20.3 million (January to June 2018: € 18.1 million).

15. Property, plant and equipment

Additions to property, plant and equipment in the period from January 1 to June 30, 2019 amounted to € 122.4 million (January to June 2018: € 92.9 million), and related mainly to technical equipment, plant and machinery, operational and office equipment, and corresponding advance payments. The depreciation expense on property, plant and equipment in the first six months of 2019 amounted to € 74.2 million (January to June 2018: € 53.1 million). In both cases, these changes are primarily attributable to the first-time application of IFRS 16.

16. Financial assets

Financial assets accounted for using the equity method

For information on the financial assets accounted for using the equity method, please refer to page 173 et seq. of the Annual Report 2018.

Other financial assets

Composition of other financial assets

	Total		Non-current		Current	
in € million	June 30, 2019	Dec. 31, 2018	June 30, 2019	Dec. 31, 2018	June 30, 2019	Dec. 31, 2018
Financial assets measured at cost	**99.1**	**117.3**	**55.2**	**86.0**	**43.9**	**31.3**
Loans to third parties[1]	48.7	59.7	48.7	59.7		
Loans to related companies[1]	0.6	19.5	0.6	19.5		
Receivables from employees	2.2	1.0			2.2	1.0
Receivables from suppliers	3.0	1.1			3.0	1.1
Sundry other financial assets	44.6	36.0	5.9	6.8	38.7	29.2
Financial assets measured at fair value through profit or loss	**16.5**	**16.4**	**16.5**	**16.4**		
Other interests in related companies	16.5	16.4	16.5	16.4		
Derivatives without hedging relationship	**0.3**	**0.3**	**0.1**		**0.2**	**0.3**
Derivatives with hedging relationship	**5.5**	**11.0**	**3.5**	**2.0**	**2.0**	**9.0**
Total other financial assets	**121.4**	**145.0**	**75.3**	**104.4**	**46.1**	**40.6**

[1] Included in net financial debt

The main reason for the decrease in the carrying amount of other financial assets was the repayment of loans to third parties and related companies.

17. Acquired program assets, acquired development assets and other assets

In the reporting period, MTU spent € 1.5 million (January to June 2018: € 1.0 million) on the acquisition of program assets. The total amount of acquired program assets recognized in profit or loss at the reporting date was € 22.5 million (January to June 2018: € 21.6 million).

In the first six months of 2019, MTU acquired development assets to the value of € 14.4 million (January to June 2018: € 11.3 million). During the reporting period, an amount of € 3.8 million (January to June 2018: € 2.8 million) was offset against revenues in respect of payments to the consortium leader (OEM) in consideration of acquired development assets.

Other assets comprise recoverable tax payments as well as maintenance fees paid in advance, insurance premiums and rental payments.

19. Inventories

Inventories

in € million	June 30, 2019	Dec. 31, 2018
Raw materials and supplies	476.5	422.3
Work in progress	377.3	385.7
Finished goods	184.6	167.9
Advance payments	16.1	19.9
Total inventories	**1,054.5**	**995.8**

20. Trade receivables

Trade receivables

in € million	June 30, 2019	Dec. 31, 2018
Third parties	485.1	447.7
Related companies	649.3	603.5
Total trade receivables	**1,134.4**	**1,051.2**

21. Contract assets

The contract assets result from performance obligations that have been satisfied and for which MTU's right to consideration is conditional on the customer's acceptance of the performance obligation in question and on the passage of time. The changes in the reporting period are attributable to ongoing business operations.

23. Cash and cash equivalents

Cash and cash equivalents comprise cash in hand and bank deposits. This item also includes foreign-currency holdings with an equivalent value of € 119.9 million (December 31, 2018: € 92.8 million).

24. Equity

Changes in equity are presented in the consolidated statement of changes in equity.

The company's subscribed capital (capital stock) is unchanged at € 52.0 million and is divided into 52.0 million non-par bearer shares.

Capital reserves include premiums from the issue of shares and the equity component (net of proportional transaction costs and taxes) of the bond issued in 2007 and repaid / converted in the 1st quarter of 2012, as well as of the new convertible bond issued in 2016. Also included are the measurement effects from senior management share-based compensation as well as an amount representing the difference between the proceeds of treasury shares sold under the MAP employee stock option program and their original acquisition cost.

A total of 51,756,930 MTU Aero Engines AG, Munich, shares (June 30, 2018: 51,634,227 shares) were in issue at June 30, 2019. The company held 243,070 treasury shares at June 30, 2019 (June 30, 2018: 365,773 treasury shares).

27. Other provisions

Other provisions mainly comprise outstanding warranty expenses, personnel-related liabilities, and outstanding purchase invoices – in particular subsequent costs. The decrease of € 14.4 million in other provisions to € 210.6 million is primarily due to the reduction in provisions for bonuses and one-time payments owing to the reduced period over which they can be deferred.

28. Financial liabilities

Financial liabilities

in € million	Total June 30, 2019	Total Dec. 31, 2018	Non-current June 30, 2019	Non-current Dec. 31, 2018	Current June 30, 2019	Current Dec. 31, 2018
Registered bond	98.4	100.2	98.3	98.2	0.1	2.0
Convertible bond	484.2	482.5	484.1	482.1	0.1	0.4
Financial liabilities arising from increased or new stakes in engine programs	323.6	350.4	232.3	251.1	91.3	99.3
Financial liabilities to banks						
Note purchase agreement	30.1	30.1	30.0	30.0	0.1	0.1
Revolving credit facility		14.5				14.5
Other liabilities to banks	9.9	9.8	9.9	9.8		
Loans	0.7	34.7			0.7	34.7
Lease liabilities	138.6	10.0	97.6	8.6	41.0	1.4
Total gross financial debt	**1,085.5**	**1,032.2**	**952.2**	**879.8**	**133.3**	**152.4**
Derivatives without hedging relationship	0.4	0.4		0.1	0.4	0.3
Derivatives with hedging relationship	44.1	33.2	3.1	8.9	41.0	24.3
Personnel-related financial liabilities	67.8	59.6	37.4	39.6	30.4	20.0
Repayment of grants toward development costs	10.4	14.2	3.2	6.3	7.2	7.9
Sundry other financial liabilities	34.8	23.9	0.4	0.3	34.4	23.6
Total other financial liabilities	**157.5**	**131.3**	**44.1**	**55.2**	**113.4**	**76.1**
Total financial liabilities	**1,243.0**	**1,163.5**	**996.3**	**935.0**	**246.7**	**228.5**

Registered bond
For detailed information on the registered bond, issued for a nominal amount of € 100.0 million, please refer to page 187 of the Annual Report 2018.

Convertible bond
With effect of May 17, 2016, MTU Aero Engines AG issued a convertible bond in the form of a preferential unsecured debenture, for a total nominal amount of € 500.0 million. This bond is convertible into new and/or existing registered non-par-value shares in the issuing company.

For a detailed description of the convertible bond, please refer to page 187 of the Annual Report 2018.

Financial liabilities arising from increased or new stakes in engine programs
Financial liabilities arising from the IAE-V2500 stake increase
The agreement signed by MTU in the financial year 2012 in order to increase its share in the V2500 engine program by five percentage points to 16 % included a deferred purchase price component contingent upon the number of flight hours performed over the next 15 years by the V2500 engine fleet in service at time of the stake increase.

Financial liabilities arising from the acquisition of stakes in other programs
The financial liabilities arising from the acquisition of stakes in other programs mainly relate to financial liabilities in connection with program-lifetime-related payments for the acquisition of shares in Pratt & Whitney and GE engine programs.

Note purchase agreement
For detailed information on the note purchase agreement issued for a nominal amount of € 30.0 million, please refer to page 188 of the Annual Report 2018.

Revolving credit facility
The company has access to a revolving credit facility of € 600.0 million with five banks, which runs until October 28, 2023. A total of € 38.6 million had been drawn down under this facility at June 30, 2019 in the form of guarantees in favor of third parties (December 31, 2018: € 51.1 million, of which € 36.6 million in the form of guarantees in favor of third parties). Any credit utilized is subject to interest at the customary market reference rates plus an additional margin. Unused credit facilities are subject to a loan commitment fee.

Lease liabilities
Lease liabilities represent obligations under finance lease arrangements that are capitalized and amortized using the effective interest method. For information on significant leased assets, please refer to pages 173 and 210 of the Annual Report 2018. For information on the effects of first-time application of IFRS 16, please refer to page 26 of this interim report, under the heading "General information."

Liabilities arising out of derivatives
The derivative financial instruments with and without hedging relationship, which amounted to € 44.5 million at the interim reporting date (December 31, 2018: € 33.6 million) and are reported on the liabilities side of the balance sheet, are held for the purpose of hedging exchange-rate and commodity-price risks. The increase in liabilities corresponds to the hedging rates for derivatives in the portfolio at the reporting date, relative to the U.S. $ exchange rate to the euro.

Personnel-related financial liabilities
Personnel-related financial liabilities mainly comprise obligations relating to company pensions and the Christmas bonus. One-time capital payments and payments by installment relating to the company pension scheme amounted to € 37.9 million (December 31, 2018: € 45.6 million). Personnel-related financial liabilities also include liabilities to group employees under the MAP employee stock option program amounting to € 4.7 million (December 31, 2018: € 7.8 million). The total expense for payments under the MAP in the first six months of 2019 amounted to € 3.8 million (January to June 2018: € 3.5 million).

Repayment of grants toward development costs
In the financial years from 1976 through 1991, MTU received grants from the German Federal Ministry of Economics and Technology toward the development costs of the PW2000 engine. Once the sales figures of PW2000 production engines for the Boeing 757 and C-17 as set down in the grant notice have been reached, MTU is obliged to reimburse the full sum of the grants received within a timeframe of ten years. In the financial years 2011 through 2018, a total amount of € 52.4 million was repaid, followed by a further € 4.0 million in the first six months of 2019.

Sundry other financial liabilities
The sundry other financial liabilities totaling € 34.8 million (December 31, 2018: € 23.9 million) include customer credit balances amounting to € 6.9 million (December 31, 2018: € 3.7 million) and numerous other smaller amounts relating to diverse contractual obligations.

30. Contract liabilities
Contract liabilities include advance payments for the delivery of engine modules and components and for maintenance services. Where corresponding contract assets exist, they are offset according to the provisions of IFRS 15 Revenue from Contracts with Customers. The changes in the reporting period are attributable to ongoing business operations. In the reporting period, contract liabilities amounting to € 224.0 million (December 31, 2018: € 246.7 million) were offset against the corresponding contract assets.

31. Refund liabilities

Refund liabilities

in € million	Total		Non-current		Current	
	June 30, 2019	Dec. 31, 2018	June 30, 2019	Dec. 31, 2018	June 30, 2019	Dec. 31, 2018
Warranty and liability risks	450.7	390.0			450.7	390.0
Invoice corrections	496.2	453.5			496.2	453.5
Subsequent costs	630.6	693.0	20.4	30.3	610.2	662.7
Total refund liabilities	**1,577.5**	**1,536.5**	**20.4**	**30.3**	**1,557.1**	**1,506.2**

The refund liabilities in respect of warranty and liability risks represent customers' rights to compensation for unsatisfied performance obligations and/or similar payments made to the consortium leader (OEM) in risk- and revenue-sharing partnerships.

Invoice corrections relate to retrospective price adjustments in contracts with customers.

The increase in the reporting period is consistent with the revenues realized from spare parts sales, which due to accounting factors are regularly subject to retrospective price adjustments in the context of MTU's partnerships in commercial engine programs.

The amount recognized in this item corresponds to the outstanding portion of such price adjustments at the reporting date.

Subsequent costs mainly relate to MTU's share of discounts on list prices granted to customers by the OEM in cases where the invoiced amount has not been fully recognized and an allowance for these discounts has already been recognized in profit or loss.

32. Other liabilities

Other liabilities

in € million	Total		Non-current		Current	
	June 30, 2019	Dec. 31, 2018	June 30, 2019	Dec. 31, 2018	June 30, 2019	Dec. 31, 2018
Personnel-related liabilities						
Social security	1.3	1.0			1.3	1.0
Other personnel-related liabilities	54.5	38.3			54.5	38.3
Other tax liabilities	18.5	35.6			18.5	35.6
Sundry other liabilities	2.5	2.8	0.6	0.7	1.9	2.1
Total other liabilities	**76.8**	**77.7**	**0.6**	**0.7**	**76.2**	**77.0**

Personnel-related liabilities

Other personnel-related liabilities principally concern vacation entitlements and flex-time credits.

Other tax liabilities

Other tax liabilities amounting to € 18.5 million (December 31, 2018: € 35.6 million) comprise outstanding personal income tax and church tax payments, solidarity surcharges and domestic and foreign transactional taxes.

33. Additional disclosures relating to financial instruments

Carrying amounts, measurement / recognition methods and fair values

The following tables present the carrying amounts of financial instruments, irrespective of whether or not they fall within the scope of IFRS 7 or IFRS 9. Additionally, the carrying amounts are set opposite the fair values for comparison.

Disclosures relating to financial instruments
Carrying amounts, measurement/recognition methods and fair values at June 30, 2019

in € million	Carrying amount June 30, 2019	Amount carried in balance sheet: Measured at amortized cost	Amount carried in balance sheet: Fair value recognized in other comprehen-sive income	Amount carried in balance sheet: Fair value recognized in income statement	Amount carried in balance sheet IFRS 16	Financial instruments not within the scope of IFRS 9 or IFRS 7	Total	Fair value June 30, 2019
ASSETS								
Other financial assets								
Loans and receivables	99.1	93.2				5.9	99.1	99.1
Other interests in related companies	16.5		16.5				16.5	16.5
Trade receivables	1,134.4	1,134.4					1,134.4	1,134.4
Derivative financial assets								
Derivatives without hedging relationship	0.3			0.3			0.3	0.3
Derivatives with hedging relationship	5.5		5.5				5.5	5.5
Cash and cash equivalents	134.7	134.7					134.7	134.7
EQUITY AND LIABILITIES								
Refund liabilities	1,577.5	1,577.5					1,577.5	1,577.7
Trade payables	193.7	193.7					193.7	193.7
Financial liabilities								
Bonds and notes	98.4	98.4					98.4	120.5
Convertible bond	484.2	484.2					484.2	850.5
Financial liabilities arising from increased or new stakes in engine programs	323.6	323.6					323.6	327.3
Financial liabilities to banks	40.0	40.0					40.0	40.0
Loans	0.7	0.7					0.7	0.7
Lease liabilities	138.6				138.6		138.6	138.6
Derivative financial liabilities								
Derivatives without hedging relationship	0.4			0.4			0.4	0.4
Derivatives with hedging relationship	44.1		44.1				44.1	44.1
Other financial liabilities	113.0	45.2				67.8	113.0	113.3

Disclosures relating to financial instruments
Carrying amounts, measurement/recognition methods and fair values 2018

in € million	Carrying amount Dec. 31, 2018	Amount carried in balance sheet			Amount carried in balance sheet IAS 17	Financial instruments not within the scope of IFRS 9 or IFRS 7	Total	Fair value Dec. 31, 2018
		Measured at amortized cost	Fair value recognized in equity	Fair value recognized in income statement				
ASSETS								
Other financial assets								
Loans and receivables	117.3	112.2				5.1	117.3	117.3
Other interests in related companies	16.4		16.4				16.4	16.4
Trade receivables	1,051.2	1,051.2					1,051.2	1,051.2
Derivative financial assets								
Derivatives without hedging relationship	0.3			0.3			0.3	0.3
Derivatives with hedging relationship	11.0		11.0				11.0	11.0
Cash and cash equivalents	99.0	99.0					99.0	99.0
EQUITY AND LIABILITIES								
Refund liabilities	1,536.5	1,536.5					1,536.5	1,536.5
Trade payables	230.6	230.6					230.6	230.6
Financial liabilities								
Bonds and notes	100.2	100.2					100.2	113.4
Convertible bond	482.5	482.5					482.5	696.3
Financial liabilities arising from increased or new stakes in engine programs	350.4	350.4					350.4	344.2
Financial liabilities to banks	54.4	54.4					54.4	54.4
Loans	34.7	34.7					34.7	34.7
Finance lease liabilities	10.0				10.0		10.0	10.0
Derivative financial liabilities								
Derivatives without hedging relationship	0.4			0.4			0.4	0.4
Derivatives with hedging relationship	33.2		33.2				33.2	33.2
Other financial liabilities	97.7	38.1				59.6	97.7	98.2

Financial instruments not within the scope of IFRS 7 or IFRS 9 mainly relate to personnel-related liabilities and the corresponding plan assets accounted for in accordance with IAS 19.

Cash and cash equivalents, trade receivables, and other receivables are generally due within a short time. The same is usually true for trade payables and other liabilities as well; the carrying amounts of these assets and liabilities therefore correspond approximately to their fair value.

With the exception of the convertible bond, which is traded on the stock market and therefore allocated to level 1 of the fair-value hierarchy, all other financial instruments are allocated to levels 2 or 3.

Classification of fair-value measurements of financial assets and liabilities according to the fair-value hierarchy

In order to evaluate the relevance of the parameters used when measuring financial assets and liabilities at their fair value, MTU assigns these assets and liabilities to three levels of a fair-value hierarchy.

The three levels of the fair-value hierarchy are described below, together with their utilization when measuring financial assets and liabilities.

Level 1 Quoted prices in active markets for identical assets or liabilities (unadjusted input);

Level 2 Prices of assets or liabilities that can be observed directly or indirectly (derived);

Level 3 Unobservable inputs used to measure prices of assets or liabilities.

The following tables show the allocation of financial assets and liabilities measured at fair value to the three levels of the fair-value hierarchy for 2019 and 2018:

Classification within the fair-value hierarchy at June 30, 2019

in € million	Level 1	Level 2	Level 3	Total
Financial assets measured at fair value				
Derivative financial instruments		5.8		5.8
Other interests in related companies			16.5	16.5
Total financial assets		**5.8**	**16.5**	**22.3**
Financial liabilities measured at fair value				
Derivative financial instruments		44.5		44.5
Total financial liabilities		**44.5**		**44.5**

Classification within the fair-value hierarchy for the financial year 2018

in € million	Level 1	Level 2	Level 3	Total
Financial assets measured at fair value				
Derivative financial instruments		11.3		11.3
Other interests in related companies			16.4	16.4
Total financial assets		**11.3**	**16.4**	**27.7**
Financial liabilities measured at fair value				
Derivative financial instruments		33.6		33.6
Total financial liabilities		**33.6**		**33.6**

The fair value of the derivative financial instruments and securities assigned to level 2 is measured using the discounted cash flow (DCF) method. Equity investments, which are allocated to level 3, are also measured using the discounted cash flow (DCF) method, based on internal planning figures.

Within the scope of its partnerships as a consortium member in commercial engine programs, MTU is a party to aircraft financing agreements for the purpose of promoting sales. Such loan commitments are only ever entered into jointly with other consortium partners and concluded by the consortium leader (OEM). They are provided in two basic forms: predelivery payment (PDP) and backstop commitments. In both cases, any funds made available to the purchaser are always transferred directly to the aircraft manufacturer solely by the consortium leader.

MTU classifies loan commitments offered up to the reporting date totaling a nominal amount, translated into euros, of € 843.0 million (December 31, 2018: € 832.0 million) as part of its gross risk in accordance with the requirements of IFRS 7. However, based on experience, it is considered to be very unlikely that these notional loan amounts will actually be utilized to their full extent. In the event that loan commitments are utilized, MTU considers the associated liquidity and credit risks to be manageable. For more information, especially concerning the terms of the loan agreements, please refer to page 196 of the Annual Report 2018.

37. Contingent liabilities and other financial obligations

At June 30, 2019, contingent liabilities amounted to € 93.9 million (December 31, 2018: € 92.0 million).

Contingent liabilities and other financial obligations are not material to the financial position of the MTU group. As in previous periods, no amounts fell due for payment during the reporting period, with the exception of certain obligations in connection with leasing arrangements, which were still outstanding at December 31, 2018. Similarly, no significant amounts are expected to be paid during the rest of the financial year 2019. For information concerning the composition and nature of contingent liabilities and other financial obligations, please refer to page 209 of the Annual Report 2018 (which however does not deal with the changes resulting from the first-time application of IFRS 16).

Purchase commitments for intangible assets and property, plant and equipment amounted to € 123.9 million at June 30, 2019 (December 31, 2018: € 107.4 million).

38. Transactions with related companies and persons

Related companies

Transactions between group companies and joint ventures or associated companies were, without exception, conducted in the context of their normal business activities and made on terms equivalent to those that prevail in arm's length transactions.

Business transactions between companies included in the consolidated financial statements were eliminated in the course of consolidation and are therefore not subject to any separate disclosure.

Business with related companies

During the course of the reporting period, intra-group transactions involving the supply of goods and services were conducted by group companies as part of their normal operating activities (e.g. development, repairs, assembly, IT support).

Trade receivables from these companies at June 30, 2019 amounted to € 649.3 million (December 31, 2018: € 603.5 million), while trade payables totaled € 0.2 million (December 31, 2018: € 0.2 million). Income arising from intra-group transactions in the first six months of 2019 amounted to € 899.1 million (January to June 2018: € 1,045.1 million), and the corresponding expenses amounted to € 446.0 million (January to June 2018: € 515.7 million).

Related persons

No group company has conducted any significant transactions with members of the group's Executive Board or Supervisory Board, or with any other individuals holding key management positions, or with companies in which these persons hold a seat on the managing or supervisory board. The same applies to close members of the families of those persons.

Events after the end of the interim reporting period (June 30, 2019)

MTU Maintenance Serbia d.o.o., Beograd-Novi Beograd, Serbia was created on July 3, 2019. The purpose of this company is to provide additional capacity for aircraft engine maintenance. It is wholly owned by MTU Aero Engines AG and will therefore be treated as a fully consolidated company.

On July 23, 2019, MTU and its long-standing partner jetBlue Airways signed an exclusive contract for the maintenance of the airline's pre-select fleet of V2500 engines. The contract has a term of 13 years and covers the maintenance, repair and overhaul of these engines from 2020 to 2033.

No other significant events with a material impact on the net assets, financial position or operating results of the MTU group have occurred after the end of the interim reporting period and prior to the date this half-year financial report was drawn up (July 22, 2019).

Publication of the half-year financial report

The half-year financial report of MTU Aero Engines AG, Munich, for the period from January 1 to June 30, 2019 was published on the company's website on July 25, 2019.

Sworn statement by the legal representatives

We hereby affirm that, to the best of our knowledge, the condensed interim consolidated financial statements present a true and fair view of the group's net assets, financial position and operating results in accordance with the applicable financial reporting standards, and that the interim group management report provides a faithful and accurate review of the group's business performance, including operating results and situation, and outlines the significant risks and opportunities of the group's likely future development.

Munich, July 22, 2019

Reiner Winkler
Chief Executive Officer

Peter Kameritsch
Chief Financial Officer and
Chief Information Officer

Michael Schreyögg
Chief Program Officer

Lars Wagner
Chief Operating Officer

Auditor's review report

Addressed to: MTU Aero Engines AG

We have reviewed the condensed interim consolidated financial statements prepared by MTU Aero Engines AG, Munich, comprising the Consolidated Income Statement, the Consolidated Statement of Comprehensive Income, the Consolidated Balance Sheet, the Consolidated Statement of Changes in Equity, the Consolidated Cash Flow Statement and selected explanatory notes, together with the interim group management report similarly prepared by MTU Aero Engines AG, Munich, for the interim reporting period from January 1, 2019 to June 30, 2019. These documents form part of the half-year report pursuant to Section 115 of the German Securities Trading Act (WpHG). The preparation of the condensed interim consolidated financial statements in accordance with IFRSs as endorsed for application in the EU, and the preparation of the interim group management report in accordance with the applicable requirements of the German Securities Trading Act (WpHG), are the responsibility of the group's legal representatives. Our responsibility is to confirm that we have reviewed the condensed interim consolidated financial statements and the interim group management report in accordance with our mandate.

We conducted our review of the condensed interim consolidated financial statements and of the interim group management report in accordance with German generally accepted standards for the auditing of financial statements promulgated by the Institute of Public Auditors in Germany (IDW). Those standards require that we plan and perform the review such that we obtain reasonable assurance that the condensed interim consolidated financial statements do not deviate significantly from the IFRS requirements concerning the presentation of interim reports, as endorsed for application in the EU, and that the interim group management report does not deviate from the applicable requirements of the German Securities Trading Act (WpHG), based on our critical evaluation of these documents. In a review as opposed to a full audit, our evaluation is based principally on interviews with employees of the company and on analytical assessments. Its findings are therefore less reliable than those of a full audit. Since our review does not constitute an audit in the strict legal sense, we are unable to pronounce a certified opinion.

Nonetheless, based on our review, no findings have come to light that might lead us to conclude that the condensed interim consolidated financial statements do not comply with the IFRS requirements for interim financial reporting, as endorsed for application in the EU, nor that the interim group management report does not comply with the applicable requirements of the German Securities Trading Act (WpHG).

Munich, July 23, 2019

Ernst & Young GmbH

Wirtschaftsprüfungsgesellschaft

Keller	Westermeier
German Public Auditor	German Public Auditor

Additional information

Financial calendar

Contacts

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MTU Aero Engines AG online

- For more information about MTU Aero Engines AG, please visit our website at www.mtu.de
- For direct access to the section devoted to investor relations, follow this link: www.mtu.de/de/investor-relations
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