MTU Aero Engines

23

Half-Year Financial Report

MTU AERO ENGINES AG

FINANCIAL YEAR 2023

Table of contents

Half-Year Financial Report 2023

January 1 to June 30, 2023

Key facts and figures

Key facts and figures for the Group

in € million (unless stated otherwise)	Jan. 1 - June 30, 2023	Jan. 1 - June 30, 2022	Year-on-year change in € million	Year-on-year change in %
Income statement				
Revenue	3,093	2,469	624	25.3
Gross profit	520	351	169	48.2
Earnings before interest and taxes (EBIT)	383	183	200	>100
Adjusted earnings before interest and taxes (adjusted EBIT)	405	290	115	39.8
Earnings before tax	362	166	196	>100
Net income	256	120	136	>100
Adjusted net income	300	207	94	45.2
Basic earnings per share (in €)	4.75	2.23	2.52	>100
Diluted earnings per share (in €)	4.65	2.19	2.46	>100
Revenue margins in %				
Earnings before interest and taxes (EBIT)	12.4	7.4		
Adjusted earnings before interest and taxes (adjusted EBIT)	13.1	11.7		
Earnings before tax	11.7	6.7		
Net income	8.3	4.9		
Adjusted net income	9.7	8.4		
Cash flow				
Cash flow from operating activities	307	318	-12	-3.7
Cash flow from investing activities	-177	-155	-22	-14.3
Free cash flow	135	168	-32	-19.2
Cash flow from financing activities	-181	-158	-23	-14.5
Change in cash and cash equivalents	-52	12	-63	<-100

in € million (unless stated otherwise)	June 30, 2023	Dec 31, 2022	Year-on-year change in € million	Year-on-year change in %
Balance sheet				
Intangible assets	1,154	1,151	3	0.3
Cash and cash equivalents	771	823	-52	-6.3
Pension provisions	721	707	14	2.0
Equity	3,268	3,107	161	5.2
Net financial debt	777	753	24	3.2
Order backlog	**21,923**	**22,273**	**-350**	**-1.6**
Number of employees	**11,823**	**11,273**	**550**	**4.9**
Commercial and military engine business (OEM)	7,327	6,973	354	5.1
Commercial maintenance business (MRO)	4,496	4,300	196	4.6

Interim Group management report

The MTU Group

MTU's portfolio covers the entire lifecycle of commercial and military aircraft engines and aero-derivative industrial gas turbines. The company's activities range from development, manufacturing and marketing to maintenance.

Research and development

The pace of technological development in the aviation sector is very high and requires continual innovation. Alongside ongoing development of the commercial and military engine programs in which MTU is currently involved, development work at MTU includes work on German and EU development programs for future engine programs.

Research and development expenses developed as follows in the reporting period:

Research and development expenses

in € million	Jan. 1 - June 30, 2023	Jan. 1 - June 30, 2022	Year-on-year change in € million	Year-on-year change in %
Commercial engine business (OEM)	122	107	15	14.2
Military engine business (OEM)	28	19	10	51.2
Commercial maintenance business (MRO)	7	9	-2	-25.9
Total research and development expenses	**158**	**135**	**23**	**16.7**
Refund of research and development expenses	39	34	5	13.7
Research and development expenses - own contribution	**119**	**101**	**18**	**17.7**
Expenditure meeting recognition criteria for intangible assets				
commercial and military engine business (OEM)	47	37	10	25.9
commercial maintenance business (MRO)				
Research and development costs recognized as expense	**71**	**63**	**8**	**12.9**
Amortization of previously capitalized development costs	15	15	-0	-0.6
Impairments		63	-63	-100.0
Research and development expenses - effect on profit or loss	**86**	**141**	**-55**	**-38.9**
thereof: in gross profit	32	94	-62	-65.7
thereof: in functional costs - research and development	54	47	7	14.1

A distinction is made between company- and customer-funded research and development expenses. Company-funded projects are funded out of the Group's own resources, while customer-funded projects are ordered and paid for by customers. The company-funded research and development expenses are presented in *Note 3 to the condensed consolidated interim financial statements ("Research and development expenses")*. On the other hand, the customer-funded projects and the compensation payments made in connection with stakes in commercial engine programs are reported within revenue.

In the reporting period, no additional impairment losses were recognized in this connection. The impairment losses that had been recognized in the prior-year period related to capitalized development costs and acquired development work in connection with the PW1400G-JM and GE T408 engine programs. Further information on the special items in the impairment losses can be found in *Note 12 "Additional disclosures relating to the income statement".*

Economic report

Macroeconomic conditions

The Organization for Economic Co-operation and Development (OECD) and the International Monetary Fund see the global economy on a slow course of recovery from the effects of the pandemic and the Russian invasion of Ukraine. It is remarkable that the economies of the industrialized nations in particular are expanding at only a slow pace. The negative impact of heavy inflation and higher interest rates is becoming increasingly apparent in this context. Despite central banks' restrictive monetary policies, inflation is not subsiding as quickly as initially forecast.

Economic growth in the United States lost further momentum at the beginning of the year. However, high consumer spending was able to prevent a recession. The U.S. economy expanded by 0.5% in the first quarter (source: OECD, OECD.Stat Quarterly GDP Q1 2023). On the other hand, economic output in the Eurozone contracted by 0.1% in the first quarter of the current year. In particular, it is feeling the effects of inflation in the wake of the Ukraine war, which is placing a damper on consumer spending. The Chinese economy has embarked on an economic recovery since the beginning of the year following the abrupt abandonment of the zero-Covid policy in December. It grew by 2.2% year-on-year in the first quarter.

The OECD warns that despite the evidence of a recovery there are a number of downside risks, including the further course of the war in Ukraine, uncertainty in the energy markets and the consequences of further increases in interest rates, which are difficult to assess. Although the latter is placing a damper on inflation, it may also stall growth. Moreover, the current monetary policy characterized by rising key rates could cause further risks in the financial and banking sector.

Sector-specific conditions within the aviation industry

Whereas underlying macroeconomic conditions are improving only slowly, the aviation industry is continuing to recover swiftly and is approaching its pre-crisis level. In particular, the lifting of Covid-19-related travel restrictions in international air travel, pent-up demand in private travel and the opening of China are key drivers, generating strong demand.

In May 2023, passenger demand (measured in revenue passenger kilometers or RPKs) was still around 3.9% below the pre-crisis figure (source: IATA, Air Passenger Market Analysis May 2023) and was thus up 39% on the prior year. Asia-Pacific is now also seeing strong growth in passenger demand, which rose by 130% year-on-year in April. The other core markets such as North America, Latin America and Europe had already returned to a growth trajectory at a much earlier stage.

Flight movements in the passenger segment reflect the recovery in demand and are currently 4% below 2019 figures. With global demand for air freight low at the moment and given the swift return of freight capacities in passenger aircraft, the freight-only segment is under pressure. However, flight movements in this segment were up 26% on the pre-crisis year of 2019 (source: FlightRadar 24, flight movements in June 2023). The proportion of active aircraft with more than 100 seats widened from 82% in December 2022 to 87% in June 2023 (source: Cirium Fleets Analyzer, proportion of active flights as of June 30, 2023). More and more of the aircraft that the airlines had parked during the pandemic are being put back into operation.

The price of a barrel of Brent oil has dropped sharply since the beginning of the year, reaching an average of U.S.$78 in the second quarter (source: US Energy Information Administration, Short Term Energy Outlook). The main reason for this was the slower economic growth in China and concerns over the consequences of the central banks' recent interest rate hikes. In 2022, the average price had stood at U.S.$101 per barrel. The lower oil price is easing the financial burden on airlines.

Despite persistent challenges along the production chains, Airbus and Boeing delivered a total of 575 civil aircraft in the first half of the year, up from 488 in the same period in 2022. At the end of June 2023, the two aircraft manufacturers Airbus and Boeing had a total of 13,329 fixed orders on their books. This marks an increase of roughly 10% over the prior year. At 209, cancellations were moderate in the first half of the year (prior-year period: 294). These positive figures reflect the strong recovery of the industry (source: Cirium Fleets Analyzer, deliveries in the first half of the year and order backlog as of June 30).

Financial situation

Information on exchange rates

The development of the U.S. dollar is also particularly important for MTU's international business. The U.S. dollar exchange rate was U.S.$1.09 per €1 as of June 30, 2023 (December 31, 2022: U.S.$1.07 per €1). The average exchange rate in the period from January 1 through June 30, 2023 was U.S.$1.08 per €1 (H1 2022: U.S.$ 1.09 per €1).

Results of operations

Reconciliation to adjusted key performance figures

The reconciliation from earnings before interest and taxes to adjusted earnings before interest and taxes and adjusted net income is as follows:

Reconciliation to adjusted key performance figures

in € million	Jan. 1 - June 30, 2023	Jan. 1 - June 30, 2022	Year-on-year change in € million	Year-on-year change in %
Earnings before interest and taxes (EBIT)	**383**	**183**	**200**	**>100**
Special item effects of purchase price allocation	9	10	−1	−8.0
Special item effects from increase in the stake in IAE/V2500	11	12	−0	−2.3
Special item impairment losses		24	−24	−100.0
Special item impairment losses / appreciation (Russia/Ukraine war)	−21	61	−82	<-100
Special item extraordinary litigation and claims	22		22	
Adjusted earnings before interest and taxes (adjusted EBIT)	**405**	**290**	**115**	**39.8**
Interest result	−1	−15	14	96.3
Interest cost on pension provisions	−13	−5	−8	<-100
Adjusted earnings before tax	**391**	**270**	**122**	**45.0**
Income taxes	−91	−63	−28	−44.4
Adjusted net income	**300**	**207**	**94**	**45.2**

The reconciliation serves to factor special items out of the key earnings figures of the Group and its business segments. In this way, the success of managing operating activities is measured. The adjusted earnings figures also support comparability over time, and between MTU and other companies.

MTU utilizes the following adjusted key performance figures in its financial reports: adjusted earnings before interest and taxes (adjusted EBIT), the adjusted EBIT margin and adjusted net income. The earnings figures do not come under the provisions of the International Financial Reporting Standards (IFRSs); they are to be seen as an addition to the key financial indicators reported pursuant to IFRS.

In the interests of ensuring comparability of the EBIT figure, it is regularly adjusted for the following special items:

"Effects of the purchase price allocation": As of January 1, 2004, MTU passed into the ownership of Kohlberg Kravis Roberts & Co. Ltd. (KKR), following the latter's purchase of 100% of the MTU shares from the then DaimlerChrysler AG. In the context of the acquisition, assets, liabilities and contingent liabilities were identified in accordance with IFRS 3 and measured at fair value. Since then, the identified intangible assets, in particular, have resulted in substantial amortization. The resulting earnings impacts are eliminated as special items in the reconciliation to adjusted EBIT.

"Effects from the increase in the stake in IAE-V2500": The increase in MTU's stake in the Pratt & Whitney IAE-V2500 program in 2012 was accounted for as the addition of a program asset. Since then, this asset has been amortized over the expected remaining useful life of the program, thereby reducing revenue, and the corresponding earnings impact is eliminated as a special item in the reconciliation to adjusted EBIT.

"Impairment losses": Significant earnings impacts resulting from asset impairment losses, especially in accordance with IAS 36, are eliminated as special items in the reconciliation to adjusted EBIT.

In the prior-year period, this category had included impairment losses recognized in connection with expected sales of the GE T408 engine program for the Sikorsky CH53-K transport helicopter. The associated earnings impacts are eliminated as special items in the reconciliation to adjusted EBIT.

"Impairment losses/reversal of impairment losses (Russian-Ukrainian war)": In the prior-year period, special items had been recognized in connection with the termination of business relationships with Russian partners as a consequence of the war in Ukraine. This concerned the stake in the PW1400G-JM program and, to a smaller extent, assets related to commercial aftermarket business. The associated earnings impacts are eliminated as special items in the reconciliation to adjusted EBIT.

In the prior year, MTU made or agreed to make compensatory payments totaling U.S.$20 million to lessors for a total of four leased engines seized by Russian business partners. MTU has relevant insurance coverage in the form of a contingent hull war insurance policy for these events. As of the end of 2022, the insurance has provided material confirmation of the coverage, however it has made its commitment subject to completion of an audit under sanction law, as is customary. This audit resulted in a positive decision for MTU in the first half of 2023. Accordingly, the conditions for recognizing the very high insurance claims on the balance sheet were satisfied. These insurance claims were therefore duly recognized. The effect on earnings of the recognition of the insurance compensation payment is offset as a special item "Russia-Ukraine war" in the calculation of adjusted EBIT and the adjusted net income.

"Credit and legal risks": In the reporting period extraordinary earnings impacts in connection with credit and legal risks from the insolvency of a key-account customer for the PW1100G-JM program were eliminated from EBIT as a special item. The aforementioned earnings impacts particularly result from the impairment of onerous assets exposed to insolvency risks. In addition, judicial and arbitration proceedings involving considerable amounts are currently pending in this connection. However, it is currently assumed that these will not result in any net payment obligations for the PW1100G-JM consortium or MTU. More details are provided in *Note 37 "Contingent liabilities and financial liabilities."* in the notes to the consolidated interim financial statements.

Further special items that did not result in any adjustments in the reporting period or the prior-year period concern "Restructuring expenses": Considerable earnings impacts due to restructuring measures as defined in IAS 37 and "Changes in the consolidated group": Considerable earnings impacts from the acquisition, divestment or discontinuation of material investments and processes of a comparable nature.

Similarly, the effect of the special items outlined above is eliminated from earnings before income taxes. To establish adjusted earnings before income taxes, net interest income/expense and the interest shares in other financial income/expense connected with provisions for pensions and liabilities from pensions and plan assets are added to adjusted EBIT. None of the other components of financial income/expense that are influenced by the U.S. dollar exchange rate, such as the effects of exchange-rate hedging, were taken into account.

The adjusted earnings before income taxes is used to determine the adjusted net income. The normalized income taxes are calculated on the basis of the expected average tax rate for the Group of 26%. The profit/loss of companies accounted for using the equity method does not form part of the tax base.

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. As of June 30, 2023, the order backlog stood at approximately €21.9 billion, corresponding to a theoretical production workload of around three and a half years.

Revenue

Revenue increased by €624 million (25.3%) year-on-year to €3,093 million in the first six months of 2023.

Revenue from commercial and military engine business rose by €251 million (31.0%) to €1,061 million. Revenue growth was driven in particular by the favorable performance of the GTF program in both new and aftermarket business as well as a slight increase in military business. As billing in U.S. dollars is customary in the aviation sector, revenue was further boosted by the U.S. dollar exchange rate, which averaged U.S.$/€1.08 in the first half of 2023 compared with U.S.$/€1.09 in the first half of 2022. Moreover, revenue benefited from the measurement of refund liabilities in connection with stakes in commercial engine programs on the basis of the closing-date exchange rate in view of the change in the closing-date exchange rate from U.S.$/€1.07 on December 31, 2022, to U.S.$/€1.09 on June 30, 2023. Revenue was particularly reduced in the reporting period by impairment losses on assets in connection with aftermarket services under the PW1100G-JM program for an insolvent key-account customer (special item arising from credit and legal risks). Furthermore, extended inspection requirements with respect to the service lives of engine components, especially within the GTF programs, were identified during the reporting period. The additional expenses arising in this connection within the programs concerned are assigned to MTU on a proportionate basis in accordance with its stake in the consortium and resulted in a corresponding addition to the relevant refund provisions.

Revenue from commercial maintenance business increased by €371 million to €2,081 million particularly as a result of additional maintenance business for the GTF engines despite slightly reduced maintenance for the V2500 engine model.

Cost of goods sold and gross profit

As a result of the increased business volume and the product mix achieved, the cost of goods sold increased by €455 million (21.5%) year-on-year to €2,573 million in the first six months of 2023. This increase was less than revenue growth. While the U.S. dollar exchange rate and inflation effects caused prices to increase, economies of scale realized in relation to the utilization of production and service capacities had the opposite effect compared to the prior-year period.

In the prior-year period, the cost of goods sold had included special effects arising from non-recurring asset impairments of €40 million in connection with the war in Ukraine and further impairment losses of €18 million on investments in connection with the stake in the T408 engine program.

The impairment losses in connection with the war in Ukraine related to the termination or dissolution of contractual relations in favor of Russian markets and the loss of assets in Russia.

The impairment losses (special item impairment losses) in connection with the stake in the GE T408 engine program, which is used in the Sikorsky CH-53K cargo helicopter, were mainly due to decisions by military authorities, including the German armed forces, in favor of alternative cargo helicopters.

At €520 million in the first six months, gross profit was €169 million (48.2%) up on the prior year. This increase was materially due to favorable business in the OEM segment, the product mix and the absence of the special effects that had exerted pressure in the prior year. The revenue growth likewise achieved in the MRO segment was countered by product-mix-related factors as well as the inflation-induced increase in the cost of goods sold. The gross margin widened to 16.8% (January through June 2022: 14.2%).

Earnings before interest and taxes (EBIT)

Earnings before interest and taxes rose by €200 million (109.0%) to €383 million in the first six months of 2023 (January through June 2022: €183 million). The year-on-year increase in EBIT particularly correlates in the OEM segment with the increase in gross profit. In the MRO segment, EBIT is influenced not only by gross profit but also by other operating profit/loss, which in the reporting period includes insurance compensation for the leased engines seized in Russia (special item impairment losses/reversals due to Russia/Ukraine war). Other factors in the MRO segment are the higher profit/loss of companies accounted for using the equity method as a result of their business performance as well as lower other functional costs.

Adjusted earnings before interest and taxes improved to €405 million (January through June 2022: €290 million), resulting in an adjusted EBIT margin of 13.1% (January through June 2022: 11.7%).

Net financial income/expense

Net financial expense came to €21 million in the reporting period (January through June 2022: €17 million). This deterioration is particularly due to interest effects in connection with the measurement of pension obligations as well as foreign-currency and commodity futures contracts. On the other hand, interest income on cash investments rose substantially over the prior year as a result of changes in interest rates.

Earnings before income taxes

Earnings before income taxes rose by €196 million to €362 million in the first six months of 2023 (January through June 2022: €166 million).

Net income

Net income increased to €256 million (January through June 2022: €120 million). Net income attributable to shareholders of MTU Aero Engines AG stood at €255 million (January through June 2022: €119 million). Adjusted net income came to €300 million, which was €94 million higher than in the same period of the prior year (January through June 2022: €207 million).

Consolidated statement of comprehensive income

In the consolidated statement of comprehensive income, the net income of €256 million (January through June 2022: €120 million) is reconciled with the total comprehensive income for the period of €288 million (January through June 2022: €206 million).

Income and expense items directly recognized in other comprehensive income in the first six months of 2023, net of deferred taxes, mainly comprised positive changes in the fair value of cash flow hedges totaling €45 million (January through June 2022: negative changes in fair value of €105 million), negative effects from currency translation of foreign Group companies totaling €9 million (January through June 2022: positive effects of €51 million) and actuarial losses from changes in interest rates in connection with the measurement of pension obligations and plan assets totaling €4 million (January through June 2022: actuarial gains of €139 million).

Of the total comprehensive income for the period of €288 million (January through June 2022: €206 million), €288 million is attributable to shareholders of MTU Aero Engines AG (January through June 2022: €199 million).

Financial position

The principles and objectives of financial management are outlined on page 56 et seq. of the Annual Report 2022 and are still applied unchanged by the Group. The following changes arose compared with the consolidated financial statements as of December 31, 2022:

The nominal outstanding amount of €46 million as of December 31, 2022 under the convertible bond issued in 2016 and maturing on May 17, 2023 was converted into shares save for a residual amount of €100,000. This residual amount was repaid at its nominal value at maturity.

The Group's primary borrowing continues to comprise bonds, notes denominated in euros and convertible bonds.

Free cash flow

MTU determines its free cash flow from the total of its cash flow from operating activities and its cash flow from investing activities, after eliminating components of the latter (non-recurring cash flows) that are outside the operational management of its core business and are eliminated for this purpose.

Following its standard practice, MTU identified the following as non-recurring cash flows:

/ Term-related payments in connection with the acquisition of stakes in OEM engine programs or MRO programs
/ Interest-bearing cash inflows in connection with sales financing arrangements and cash flows arising from cash investments for the purpose of efficient liquidity management, and
/ Payments in connection with the acquisition or sale of material shareholdings.

Accordingly, payments made under aircraft and engine financing transactions of a net €6 million (January through June 2022: €6 million) were eliminated for the purposes of calculating free cash flow. In the first half of 2023, no payments were made to acquire stakes in programs, in contrast to the prior-year period in which compensation payments of €12 million in connection with the stake in the PW812 engine program had been recognized as a non-recurring cash flow. Finally, the deferred proceeds of €-14 million from the sale of Vericor Power Systems in 2021 had been eliminated as a non-recurring cash flow in the prior year.

Free cash flow of €135 million arose on this basis in the first six months of 2023 (January through June 2022: €168 million).

Financial position

in € million	Jan. 1 - June 30, 2023	Jan. 1 - June 30, 2022	Year-on-year change in € million	Year-on-year change in %
Cash flow from operating activities	307	318	-12	-3.7
Cash flow from investing activities	-177	-155	-22	-14.3
+ Cash flow adjustments	6	4	2	43.9
Free cash flow	**135**	**168**	**-32**	**-19.2**
- Cash flow adjustments	-6	-4	-2	-43.9
Cash flow from financing activities	-181	-158	-23	-14.5
Translation differences	-1	6	-6	<-100
Change in cash and cash equivalents	**-52**	**12**	**-63**	**<-100**
Cash and cash equivalents				
at the beginning of the reporting period	823	722	101	14.0
at the end of the reporting period	771	733	38	5.2

Cash flow from operating activities

In the first six months of 2023, the cash flow from operating activities was €307 million (January through June 2022: €318 million). The slight decline over the prior year is due, among other things, to the increase in working capital, which particularly arose from disruptions to the supply chain, and greater utilization of refund liabilities compared with the prior year, which more than offset the growth in business recognized in the cash flow statement.

Cash flow from investing activities

The cash outflow from investing activities came to €177 million in the first six months of 2023 (January through June 2022: €155 million). The total amount of acquired program assets recognized in the cash flow statement in the reporting period stood at €27 million (January through June 2022: €27 million). These mainly concerned investments in the Pratt & Whitney GTFTM engine range.

Cash outflows for capital expenditure on property, plant and equipment amounted to €139 million in the reporting period (January through June 2022: €93 million). The capital expenditure relates to the expansion of MTU's production capacities, especially at its sites in Germany and Serbia, and replacements for existing technical equipment, plant and machinery as well as purchases of operating and business equipment. As well as this, investments were made in capacities for engine leasing business. Proceeds of €27 million arose from the sale of property, plant and equipment, particularly the sale of leased engines (January through June 2022: €2 million).

The net result of cash inflows and outflows relating to financial assets was an outflow of €17 million (January through June 2022: outflow of €12 million) and mainly arises from net cash outflows relating to participation in aircraft financing activities and the acquisition of e-motor developer eMoSys GmbH.

Finally, a total of €21 million (January through June 2022: €24 million) was spent in the first half of 2023 on program assets (acquisition costs to purchase and/or increase program stakes) and compensation payments for development assets relating to participation in consortia for commercial programs.

Cash flow from financing activities

Between January 1 and June 30, 2023, the cash outflow from financing activities stood at €181 million (January through June 2022: €158 million). The main drivers of the cash outflow in the reporting period were the higher dividend payment of €171 million for the 2022 fiscal year compared with the prior year (January through June 2022: €112 million) and payments of €41 million for lease liabilities. This was partially offset by the addition of other financial liabilities of €51 million.

The 2016 convertible bond was redeemed in the first half of 2023 almost solely through conversion into equity, with only a very small portion repaid.

Change in cash and cash equivalents

Changes in cash flow, including currency effects, resulted in a decline of €52 million in cash and cash equivalents (January through June 2022: increase of €12 million).

Net financial debt

Net financial debt serves as an indicator of the MTU Group's liquidity situation and is defined as the difference between gross financial debt and financial assets. As of June 30, 2023, net financial debt rose by €24 million to €777 million (December 31, 2022: €753 million).

Net financial debt

			Change against previous year	
in € million	June 30, 2023	Dec. 31, 2022	in € million	in %
Bonds and notes	612	605	6	1.1
Convertible bonds	487	531	-44	-8.3
Other financial liabilities to banks	47		47	
Financial liabilities to related companies	4		4	
Lease liabilities	148	166	-18	-11.1
Other financing liabilities (Financing component)	314	333	-19	-5.6
thereof: arising from new stakes in engine programs	95	114	-19	-16.5
thereof: from compensation payments due to program participations	219	219	0	0.1
Gross financial debt	**1,612**	**1,635**	**-23**	**-1.4**
less:				
cash and cash equivalents	771	823	-52	-6.3
Loans to third parties	64	60	4	6.8
Financial assets	**835**	**882**	**-48**	**-5.4**
Net financial debt	**777**	**753**	**24**	**3.2**

For a detailed explanation of the bonds and notes and the financial liabilities from the acquisition of stakes in engine programs and from compensation payments in connection with stakes in engine programs, please refer to the explanations on page 190 et seq. of the Annual Report 2022 of MTU Aero Engines AG and Note 28 of this Interim Financial Report.

Net assets

Changes in balance sheet items

Total assets increased by €49 million from €9,230 million as of December 31, 2022 to €9,280 million as of June 30, 2023.

Non-current assets were €16 million higher than on December 31, 2022, at €4,162 million, while current assets were €33 million higher at €5,118 million.

In the first six months of 2023, intangible assets totaling €28 million were recognized (January through June 2022: €28 million). The additions mainly comprise capitalized self-created development assets for the Pratt & Whitney Geared Turbofan™ engines.

Additions to property, plant and equipment amounted to €163 million in the first six months of 2023 (January through June 2022: €102 million).

Acquired program assets, development work and other assets increased by €17 million to €817 million. This was principally due to higher development compensation payments in connection with the Pratt & Whitney Geared Turbofan™ programs.

In the first half of 2023, trade receivables rose by €93 million to €1,203 million and current other financial assets by €57 million to €467 million. On the other hand, cash and cash equivalents dropped by €52 million to €771 million due to business performance and particularly also the higher dividend, income tax refund claims by €28 million to €7 million, contract assets by €19 million to €1,118 million, current other assets by €17 million to €39 million and inventories by €2 million to €1,512 million.

Group equity increased by €161 million compared with December 31, 2022 to €3,268 million. In the first six months of 2023, equity was increased by the net income of €256 million (January through June 2022: €120 million), the conversion of the 2016 convertible bond of €46 million (January through June 2022: €0 million) and the increase in the fair value of cash flow hedges of €45 million (January through June 2022: decline in fair value of €105 million). Equity was reduced by the distribution of the dividend of €171 million for the 2022 fiscal year (January through June 2022: €112 million), negative effects from currency translation of foreign Group companies of €9 million (January through June 2022: positive effects of €51 million), actuarial losses particularly from changes in the discount rate applicable to pension liabilities and plan assets of €4 million (January through June 2022: actuarial gains of €139 million) and dividend payments to minority interests of €1 million (January through June 2022: €12 million). The equity ratio was 35.2% (December 31, 2022: 33.7%).

Pension provisions were €14 million higher than on December 31, 2022, mainly because of a slightly lower discount rate.

Other provisions declined by €68 million to €201 million. This was primarily attributable to the net decline in provisions for bonuses and one-time payments and for trailing costs.

Financial liabilities dropped by €67 million compared with December 31, 2022, to €1,863 million. This decline was mainly due to the conversion of the 2016 convertible bond.

At €393 million as of June 30, 2023, trade payables were €109 million higher than on December 31, 2022, primarily as a result of business performance.

Compared with December 31, 2022, refund liabilities dropped by €88 million to €1,953 million due to lower invoice corrections/trailing costs.

Compared with December 31, 2022, contract liabilities decreased by €30 million to €682 million. Advance payments received are recognized as contract liabilities if they exceed the associated contract assets.

Compared with December 31, 2022, other liabilities dropped by €10 million to €99 million. The decline in liabilities from other taxes was partially offset by higher personnel-related liabilities.

Employees

MTU had 11,823 employees on June 30, 2023 (December 31, 2022: 11,273).

Employee numbers increased at all sites, particularly in Germany and Poland, for business-related reasons.

Events after the reporting date

Events after the reporting date (June 30, 2023)

After the reporting date and prior to the preparation of this report, MTU learned from the OEM Pratt & Whitney of the need for an extended inspection program to validate the service lives of engine components, particularly of the GTF engine family. The expenses expected to arise from this will be assigned to MTU on a proportionate basis in accordance with its stake in the relevant commercial programs. The corresponding effects on MTU's net assets, financial position and results of operations have been taken into account in this report on the basis of the best possible estimates.

There were no further events of specific importance with a significant impact on the net assets, financial position and results of operations of the MTU Group between the date of the interim report and the preparation of this half-year financial report on July 21, 2023.

Forecast, risk and opportunity report

In order to take best advantage of market opportunities and to identify and manage the risks involved, the Executive Board has established an integrated opportunity and risk management system. This 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 includes the internal control system for the accounting process in accordance with Sections 289 (5) and 315 (2) No. 5 of the German Commercial Code (HGB). For a more detailed description of the attributes of this system and the methods applied, please refer to the Annual Report 2022, page 91 et seq.

Forecast

Macroeconomic conditions

In April, the International Monetary Fund adjusted its forecast for global economic growth slightly downwards. The persistently high inflation is of particular concern to the IMF. Its new economic forecast assumes that global growth will slow to 2.8% this year (source: IWF WEO April 23). In January, it had projected global growth of 2.9% (source: IMF Blog, January 2023). The Organization for Economic Co-operation and Development (OECD) has issued a similar forecast for global growth of 2.7% (source: OECD Economic Outlook, Volume 2023 Issue 1). A figure of 3.4% has been reported for 2022 (source: IMF, WEO April 23).

According to the IMF, economic growth will remain historically low. The financial risks have heightened, while there has been no decisive turn in inflation. The central banks' restrictive monetary policies are slowly taking effect, albeit to a lesser extent that initially forecast. Moreover, there is a risk of the interest rate hikes placing a damper on the economy. If, for example, pressure in the financial sector persists, economic growth could slow to 2.5% this year. According to the IMF, this would be the weakest growth since the global downturn in 2001 - with the exception of the financial crisis in 2009 and the coronavirus pandemic in 2020.

Sector-specific conditions within the aviation industry

Passenger traffic is benefiting from a sustained recovery in demand. IATA projects year-on-year growth of 28.3% for 2023 (source: IATA, Fact Sheet, June 2023). In this case, passenger traffic would reach 87.8% of the pre-crisis figure recorded in 2019. Tourism Economics and IATA forecast that global passenger traffic will take until 2024 to return to 2019 figures. In North and Latin America, this is likely to be the case as early as in 2023. Staff shortages at airports and airlines as well as delayed deliveries of new orders continue to pose challenges on the capacity side.

The positive outlook for demand and airfares points to further growth in airline revenue. IATA assumes that the sector will generate global revenue of U.S.$803 billion in 2023, marking a year-on-year increase of 9.7% (IATA forecast, June 2023). This would result in annual profit of around U.S.$ 9.8 billion and a modest margin of 1.2%, equivalent to a slight improvement over 2022 (annual loss of U.S.$3.6 billion and a margin of -0.5%).

The sharp recovery in demand is reflected in announcements that Airbus and Boeing are stepping up production of new aircraft (source: Cirium News Dashboard, various articles on production plans). At the same time, they are struggling with supply chain constraints. Airbus plans to increase production by 8%, with 720 aircraft deliveries announced for this year. On this basis, total output is to be additionally boosted step by step. The production rate of the A320 family is to rise from 45 to 75 aircraft per month in 2026. With respect to the A220 family, Airbus has reaffirmed its target of building 14 aircraft per month by the middle of the decade. Boeing intends to increase monthly deliveries of the 737 MAX from 31 to 36 by the end of the year. Production of the 787 Dreamliner is expected to increase from 2 to 5 per month in 2023, with a monthly rate of 10 to be achieved by 2025/26. Embraer also expects an increase in E-Jet deliveries and has specified a full-year target of 65 to 70 for 2023 (prior year: 57). As demand is strong and new production is still being ramped up, delays in the retirement of older aircraft are continuing.

Future performance of MTU

MTU has given more precise details of its guidance for 2023 compared with the Annual Report 2022.

It now expects revenue of between €6,100 and 6,300 million, based on an assumed exchange rate of U.S.$ 1.10 per €1.

This revenue forecast is based on the following assumptions: In the commercial OEM business, MTU expects to report growth in business in both new components and spare parts.

The expansion of the commercial new engine business is mainly dependent on a further rise in deliveries under the new Geared Turbofan™ programs and the GEnx. Organic growth of 30% is projected.

The expansion of spare parts business will be driven by engines for narrowbody aircraft, the consistently strong demand for engines for cargo planes and heightened demand in connection with larger passenger aircraft. Overall, this business should post organic percentage growth between the high teens and the low twenties.

Revenue in military business should climb by a percentage rate in the mid teens in 2023. Previously, MTU had been expecting growth of 10%.

For the commercial MRO business, MTU is forecasting organic growth in the high-teens percentage range. The proportion of maintenance of the Geared Turbofan™ programs is expected to account for a percentage in the mid to high thirties.

MTU projects operating earnings (adjusted EBIT) of slightly over €800 million in 2023. Until now, it had expected the margin to remain stable over the prior year.

MTU still expects that adjusted net income will rise analogously to EBIT in 2023.

Investment spending will increase further in 2023. However, MTU plans to offset these expenses through its operating business.

Free cash flow in 2023 is expected to slightly exceed the prior year.

Risks

In view of its business activities, its involvement in a globally networked market with a wide range of different economic and political conditions and its business relationships dominated by consortia, MTU is exposed to risks that could influence its economic development.

No direct risks caused by the Covid-19 pandemic in the aviation industry and air travel are known. International flight traffic is recovering thanks to the abolition of the restrictions imposed by individual governments, and this has been duly taken into account in segment planning for 2023. Consequently, MTU continues to monitor the development of the Covid-19 pandemic so that it can continue to detect any risks at an early stage.

Russia's war of aggression in Ukraine and its impact on the global economy could also have a negative impact on the MTU Group's business. The extensive economic sanctions imposed on Russia as a result of the war are holding back MTU's business, especially with regard to stakes in commercial engine programs for a Russian system (Irkut MS-21 with the PW1400G-JM engine) and existing long-term contracts with Russian MRO customers. Generally speaking, MTU had only very limited MRO business in Russia and no presence in the region. Even so, it has been able to very largely absorb the related risks and thus improve its risk situation. MTU unreservedly supports all sanction regulations and is in full compliance with them. Accordingly, the company has suspended all deliveries, data transfers and payment transactions in the region covered by applicable sanction law.

MTU has been able to mitigate the structural challenges in the gas market caused by the Russian war of aggression and its consequences by implementing a short-term emergency plan. Accordingly, it is not exposed to any medium- or long-term risks. As things currently stand, MTU does not see any further risks as operations can be maintained even in the event of reduced gas supplies by means of restrictions at individual sites or planned compensation measures.

In addition to the factors already described, risks for MTU arise from the uncertainty over the general availability of oil and gas and the disruption of global manufacturing and supply chains. Through proactive risk management, MTU has so far managed to mitigate most of the impact of high raw material prices and the high market volatility of non-energy raw materials. If the present tense situation on the commodity markets continues for a prolonged period, high raw material prices could adversely affect MTU's margins. The effects of inflation, driven by rising personnel and energy costs, have so far largely been avoided thanks to fixed-price agreements in long-term contracts. If prices continue to rise, the tension caused by procurement costs will gradually rise due to the application of price escalation clauses and the expiry of fixed prices. Irrespective of the current situation, MTU is already using a mixture of renewable and non-renewable energy and selects its energy resources on the basis of reliability of supply, cost efficiency and ecological considerations.

MTU is also exposed to market and program risks. In the OEM segment, the market and program risks continue to relate to risk-and-revenue-sharing contracts with OEM partners and include the risk of adverse effects from business performance if capacities and the supply of parts required to meet higher maintenance requirements for the GTF fleet cannot be increased sufficiently fast. In the reporting period, MTU identified as additional program risks extraordinary credit and legal risks (special items) in connection with the insolvency proceedings of a key-account customer of the PW1100G-JM consortium.

Furthermore, MTU learned in mid-July 2023 from the OEM Pratt & Whitney of the need for further inspections to validate the service lives of engine components, particularly within the GTF engine family. The impact of this on MTU as a risk- and revenue-sharing partner, had to be estimated in the preparation of this interim report, but this estimate takes account of experience gained with comparable measures in stakes in other commercial engine program, such as the V2500 program. Nevertheless, the need for estimates in this connection gives rise to measurement uncertainties with regard to the effects on MTU's net assets, financial position and results of operations.

Otherwise, MTU currently sees the same potential risks as outlined in the Annual Report 2022. For a full overview of the opportunities, please refer to the Annual Report 2022, page 75 et seq. (Risks and Opportunity Report).

Opportunities

MTU's business model, which focuses on the commercial engine business, military business and commercial maintenance, and its balanced product mix give it a good market position in each of its business areas. New opportunities regularly arise from continuous investment in research, development and new technologies, strengthening risk- and revenue-sharing partnerships and extending the maintenance business.

Despite the consequences of the Covid-19 pandemic and the disruption resulting from the geopolitical crisis in connection with Russia's war of aggression and the other risks described, MTU sees opportunities in all business areas. In commercial engines business, the company sees particular opportunities to play an above-average part in the ongoing recovery and growth of the aircraft industry through its stake in efficient GTF engine technology. Given the limited production capacity for this, there are additional opportunities for OEM and MRO business in connection with established programs such as the V2500. With respect to the military engine programs, the European FCAS program in particular offers potential for MTU in terms of development, technology and business performance. Similarly, opportunities may arise through the replacement of existing military engine fleets to participate in additional sales and related MRO business. In the medium term, additional potential for the military business could come from the supplementary funding allocated to the German armed forces and the resulting increase in the defense budget, which could benefit MTU.

Otherwise, MTU currently sees the same potential opportunities as outlined in the Annual Report 2022. For a full overview of the opportunities, please refer to the Annual Report 2022, page 88 et seq. (Opportunity report).

Overall assessment of the risk and opportunity situation at MTU

Thanks to its extensive risk and opportunity management system, MTU is able to identify risk areas and potential opportunities at an early stage, so that it can take suitable measures to actively manage and mitigate risks and exploit opportunities. There has only been marginal change in the MTU Group's risk and opportunity situation compared with the assessment as of December 31, 2022, and MTU still classifies its risk management system as effective to counter present and future challenges.

Despite the effects of the Covid 19 pandemic, the impact of the Russian war of aggression and the other risks already mentioned, particularly in connection with efficient capacity expansion for the GTF engine family, in the light of the dynamic requirements in new parts and aftermarket business, MTU is convinced that it can effectively and efficiently master the challenges it currently faces and considers itself to be well prepared and positioned for future developments. As things currently stand, the risk position is seen as being manageable particularly in view of the compensatory measures that continue to be developed, meaning that the MTU Group's going-concern status is intact.

Report on material transactions with related parties

For information on the main transactions with related companies and individuals, please refer to *Note 38 to the condensed consolidated interim financial statements ("Related party disclosures").*

Condensed consolidated interim financial statements

Consolidated income statement

Consolidated income statement

in € million	(Note)	Jan. 1 - June 30, 2023	Jan. 1 - June 30, 2022
Revenue	**(1.)**	**3,093**	**2,469**
Cost of goods sold	(2.)	-2,573	-2,118
Gross profit		**520**	**351**
Research and development expenses	(3.)	-54	-47
Selling expenses	(4.)	-70	-83
General administrative expenses	(5.)	-57	-51
Other operating income		35	17
Other operating expenses		-32	-31
Profit/loss of companies accounted for using the equity method	(7.)	41	27
Profit/loss of equity investments			0
Earnings before interest and taxes (EBIT)		**383**	**183**
Net interest income/expense	(8.)	-1	-15
Other financial income/expense	(9.)	-21	-3
Net financial income/expense		**-21**	**-17**
Earnings before income taxes		**362**	**166**
Income taxes	(10.)	-106	-46
Net income		**256**	**120**
thereof:			
Owners of MTU Aero Engines AG		255	119
Non-controlling interests		1	1
Earnings per share in €			
Basic (EPS)	(11.)	4.75	2.23
Diluted (DEPS)	(11.)	4.65	2.19

Consolidated statement of comprehensive income

Consolidated statement of comprehensive income

in € million	(Note)	Jan. 1 - June 30, 2023	Jan. 1 - June 30, 2022
Net income		**256**	**120**
Translation differences arising from the financial statements of foreign entities		–9	51
Financial instruments designated as cash flow hedges		45	–105
Items that may subsequently be recycled to profit or loss		36	–54
Actuarial gains and losses on pension obligations and plan assets		–4	139
Items that will not be recycled to profit or loss		–4	139
Other comprehensive income after taxes	**(24.)**	**32**	**86**
Total comprehensive income		**288**	**206**
thereof:			
Owners of MTU Aero Engines AG		288	199
Non-controlling interests		–1	7

Consolidated balance sheet – assets

Assets

in € million	(Note)	June 30, 2023	Dec. 31, 2022
Non-current assets			
Intangible assets	(14.)	1,154	1,151
Property, plant and equipment	(15.)	1,406	1,384
Financial assets accounted for using the equity method	(16.)	605	628
Other financial assets	(16.)	117	100
Acquired program assets, development work and other assets	(17.)	817	800
Deferred taxes		64	84
Total non-current assets		**4,162**	**4,146**
Current assets			
Inventories	(19.)	1,512	1,514
Trade receivables	(20.)	1,203	1,110
Contract assets	(21.)	1,118	1,137
Income tax receivables		7	34
Other financial assets	(16.)	467	410
Other assets	(17.)	39	56
Cash and cash equivalents	(23.)	771	823
Total current assets		**5,118**	**5,085**
Total assets		**9,280**	**9,230**

Consolidated balance sheet – equity and liabilities

Equity and liabilities

in € million	(Note)	June 30, 2023	Dec. 31, 2022
Equity	**(24.)**		
Subscribed capital		54	53
Capital reserves		576	531
Retained earnings		2,763	2,680
Treasury shares		−13	−13
Accumulated other comprehensive income		−182	−216
Owners of MTU Aero Engines AG		**3,198**	**3,034**
Non-controlling interests		70	72
Total equity		**3,268**	**3,107**
Pension provisions		675	661
Other provisions	(27.)	46	53
Financial liabilities	(28.)	1,493	1,610
Contract liabilities	(30.)	4	5
Other liabilities	(32.)	14	14
Deferred taxes			0
Total non-current liabilities		**2,232**	**2,343**
Current liabilities			
Pension provisions		46	46
Income tax liabilities		99	70
Other provisions	(27.)	155	217
Refund liabilities	(31.)	1,953	2,041
Financial liabilities	(28.)	370	319
Trade payables		393	284
Contract liabilities	(30.)	678	708
Other liabilities	(32.)	85	95
Total current liabilities		**3,779**	**3,780**
Total equity and liabilities		**9,280**	**9,230**

Consolidated statement of changes in equity

For information on the components of equity, please refer to Note 24 “Equity” in the selected explanatory notes to the financial statements.

Consolidated statement of changes in equity

	Subscribed capital	Capital reserves	Revenue reserves	Treasury shares	Accumulated other equity				**Owners of MTU Aero Engines AG**	Non-controlling interests	Total equity
in € million					Translation differences arising from the financial statements of foreign entities	Changes in the fair value of equity investments	Actuarial gains/losses[1]	Financial instruments designated as cash flow hedges			
Carrying amount as of Jan. 1, 2022	**53**	**529**	**2,461**	**-17**	**19**		**-321**	**-43**	**2,681**	**79**	**2,760**
Net income			119						119	1	120
Other comprehensive income					45		139	-105	79	6	86
Total comprehensive income			**119**		**45**		**139**	**-105**	**199**	**7**	**206**
Dividend payment			-112						-112	-12	-124
Investment by minority shareholders										0	0
Restricted Stock Plan		-0		0					0		0
Carrying amount as of June 30, 2022	**53**	**529**	**2,468**	**-16**	**64**		**-182**	**-148**	**2,768**	**74**	**2,842**
Carrying amount as of Jan. 1, 2023	**53**	**531**	**2,680**	**-13**	**32**		**-170**	**-77**	**3,034**	**72**	**3,107**
Net income			255						255	1	256
Other comprehensive income					-7		-4	45	34	-2	32
Total comprehensive income			**255**		**-7**		**-4**	**45**	**288**	**-1**	**288**
Dividend payment			-171						-171	-1	-172
Convertible bond 2016	0	45							46		46
Restricted Stock Plan		0		0					0		0
Carrying amount as of June 30, 2023	**54**	**576**	**2,763**	**-13**	**24**		**-175**	**-32**	**3,198**	**70**	**3,268**

[1] Refers to pension obligations and plan assets

Consolidated cash flow statement

Consolidated cash flow statement

in € million	(Note)	Jan. 1 - June 30, 2023	Jan. 1 - June 30, 2022
Operating activities			
Net income		**256**	**120**
Non-cash amortization (including impairment) of acquired program assets and development work		23	85
Depreciation/appreciation, amortization and impairment of other non-current assets		132	121
Profit/loss of companies accounted for using the equity method	(7.)	-41	-27
Profit/loss of equity investments			-0
Gains/losses on the disposal of assets		-0	-0
Change in pension provisions		8	2
Change in other provisions	(27.)	-69	-40
Change in refund liabilities (not included in working capital)	(31.)	86	139
Change in working capital		-205	-168
Other non-cash items		14	32
Interest result	(8.)	1	15
Interest received (paid)		12	-8
Dividends received		30	50
Income taxes	(10.)	106	46
Income taxes paid		-45	-46
Cash flow from operating activities		**307**	**318**
Investing activities			
Capital expenditure on:			
Intangible assets	(14.)	-27	-27
Property, plant and equipment	(15.)	-139	-93
Financial assets	(16.)	-20	-19
Acquired program assets and development assets	(17.)	-21	-24
Proceeds from disposal of:			
Intangible assets/property, plant and equipment	(14.)/(15.)	27	2
Other financial assets		3	7
Cash flow from investing activities		**-177**	**-155**
Financing activities			
Cash outflow from other bonds and notes	(28.)	-0	-0
Settlement of lease liabilities	(28.)	-41	-27
Settlement of purchase price liabilities for stakes in programs		-19	-11
Increase in other financial liabilities	(28.)	51	4
Repayment of other financial liabilities	(28.)		
Dividend paid to shareholders of MTU AG/ to non-controlling interests		-172	-124
Sale of treasury shares under the employee stock option program (MAP) / Restricted stock program			0
Cash flow from financing activities		**-181**	**-158**
Net change in cash and cash equivalents during the period		**-51**	**6**
Effect of translation differences on cash and cash equivalents		-1	6
Cash and cash equivalents at beginning of the year (January 1)		823	722
Cash and cash equivalents at end of period (June 30)		**771**	**733**

Notes to the interim consolidated financial statements

Consolidated segment report

Segment information

For information on the activities of the individual operating segments, please refer to the notes in the Annual Report 2022, page 223 et seq. There was no change in the segmentation in the first six months of 2023.

The segment information is as follows:

Consolidated segment report

in € million	Commercial and military engine business (OEM) Jan. 1 - June 30, 2023	Commercial and military engine business (OEM) Jan. 1 - June 30, 2022	Commercial maintenance business (MRO) Jan. 1 - June 30, 2023	Commercial maintenance business (MRO) Jan. 1 - June 30, 2022	Total reportable segments Jan. 1 - June 30, 2023	Total reportable segments Jan. 1 - June 30, 2022	Consolidation/ reconciliation Jan. 1 - June 30, 2023	Consolidation/ reconciliation Jan. 1 - June 30, 2022	MTU Group Jan. 1 - June 30, 2023	MTU Group Jan. 1 - June 30, 2022
External revenues	1,027	778	2,066	1,691	3,093	2,469			3,093	2,469
Revenues from intersegment sales	34	32	15	19	49	51	−49	−51		
Total revenues	**1,061**	**810**	**2,081**	**1,711**	**3,142**	**2,520**	**−49**	**−51**	**3,093**	**2,469**
Gross profit	**348**	**182**	**171**	**169**	**519**	**351**	**1**	**−0**	**520**	**351**
Amortization	24	21	4	3	28	24			28	24
Non-cash amortization of capitalized program assets and acquired development work	23	24			23	24			23	24
Depreciation	56	56	45	37	101	93			101	93
Impairment losses		65	2		2	65			2	65
Total depreciation/amortization/ impairment losses	**103**	**166**	**51**	**40**	**154**	**207**			**154**	**207**
Earnings before interest and taxes (EBIT)	**223**	**67**	**159**	**116**	**382**	**183**	**1**	**0**	**383**	**183**
thereof: special item depreciation/ amortization effect of purchase price allocation	9	9	0	1	9	10			9	10
thereof: special item effects from increase in the stake in IAE-V2500	11	12			11	12	−0		11	12
thereof: special item impairment losses (appreciation) (Russia/ Ukraine war)		53	−21	8	−21	61	0		−21	61
thereof: special item impairment losses on program assets		24				24				24
thereof: special item litigation and claims	19		3		22				22	
Adjusted earnings before interest and taxes (adjusted EBIT)	**262**	**165**	**141**	**124**	**404**	**289**	**1**	**0**	**405**	**290**
Profit/loss of companies accounted for using the equity method	9	4	32	24	41	27			41	27
Carrying amount of companies accounted for using the equity method (June 30, 2023/Dec. 31, 2022)	307	311	298	317	605	628			605	628
Assets (June 30, 2023/Dec. 31, 2022)	**7,798**	**7,793**	**2,907**	**3,056**	**10,705**	**10,849**	**−1,425**	**−1,619**	**9,280**	**9,230**
Liabilities (June 30, 2023/Dec. 31, 2022)	**5,177**	**5,247**	**1,933**	**2,158**	**7,110**	**7,406**	**−1,098**	**−1,282**	**6,012**	**6,124**
Material non-cash items	**−5**	**16**	**18**	**15**	**14**	**32**			**14**	**32**
Capital expenditure:										
Intangible assets	28	27	0	1	28	28			28	28
Property, plant and equipment	101	41	62	61	163	102			163	102
Acquired program assets and development assets	21	24			21	24			21	24
Total capital expenditure	**150**	**92**	**62**	**62**	**212**	**155**			**212**	**155**
Key segment data:										
EBIT in % of revenues	21.0	8.3	7.6	6.8	12.2	7.3	−2.3	−0.9	12.4	7.4
Adjusted EBIT in % of revenues	24.7	20.4	6.8	7.3	12.9	11.5	−2.3	−0.9	13.1	11.7

The material 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, 2023	Jan. 1 - June 30, 2022
Earnings before interest and taxes (EBIT)	**383**	**183**
Interest income	12	1
Interest expenses	-13	-15
Financial result on other items	-21	-3
Earnings before tax	**362**	**166**

Accounting principles and policies

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

MTU's commercial and military engine business 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 commercial maintenance segment comprises maintenance, repair and overhaul as well as logistics support for commercial engines.

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

The condensed consolidated interim financial statements were approved for publication by the Executive Board of MTU Aero Engines AG, Munich, on July 21, 2023.

Accounting

In accordance with the provisions of Section 115 of the German Securities Trading Act (WpHG), the half-year financial report of MTU comprises condensed consolidated interim financial statements, an interim Group management report and a responsibility statement. The condensed, unaudited consolidated interim statements were prepared in accordance with the International Financial Reporting Standards (IFRSs) for interim reporting, as applicable in the EU, and the interim Group management report was prepared in accordance with the applicable regulations of the German Securities Trading Act (WpHG).

Statement of compliance

The condensed consolidated interim financial statements as of June 30, 2023, have been prepared in accordance with International Accounting Standard (IAS) 34 "Interim Financial Reporting." MTU applied all International Financial Reporting Standards (IFRSs) issued by the International Accounting Standards Board (IASB) that were in effect at the time when the condensed consolidated interim financial statements were prepared and had been endorsed by the European Commission for use in the EU.

The same accounting policies were applied in the condensed consolidated interim financial statements as in the consolidated financial statements as of December 31, 2022. All amounts are stated in millions of euros (€ million), unless otherwise specified. Due to rounding, some of the rounded figures presented in these consolidated financial statements may not correspond exactly to the sum of the individual figures, and it may not be possible to calculate some of the individual percentages from the rounded absolute figures presented. "0" represents amounts of between zero and half a million euros, while "–0" represents amounts between zero and minus half a million euros. Amounts of exactly €0.00 are shown by an empty field in tables.

The condensed interim consolidated financial statements do not contain all information and disclosures required for consolidated financial statements at the end of the fiscal year so they should be read in conjunction with the consolidated financial statements of MTU as of December 31, 2022.

In the opinion of the management, the half-year financial report contains all customary ongoing accounting adjustments that are necessary for a fair presentation of the results of operations, financial position and net assets of the MTU Group. The accounting policies used for the consolidated financial statements are explained in the notes to the consolidated financial statements as of December 31, 2022, starting on page 144.

Consolidated Group

As of June 30, 2023, the Group including MTU Aero Engines AG, Munich, comprised 34 companies.

Estimation uncertainties

The approach to estimation uncertainties is essentially based on the principles outlined in the Annual Report 2022, page 154 et seq. In the event of deviations, these are presented in the relevant note.

Notes to the consolidated income statement

1. Revenue

Revenues

in € million	Revenue recognized at a point in time	Revenue recognized over time	Jan. 1 - June 30, 2023	Revenue recognized at a point in time	Revenue recognized over time	Jan. 1 - June 30, 2022
Commercial engine business	832		832	596		596
Military engine business	158	71	229	149	64	213
Commercial and military engine business (OEM)	**990**	**71**	**1,061**	**746**	**64**	**810**
Commercial maintenance business (MRO)	**106**	**1,975**	**2,081**	**88**	**1,622**	**1,711**
Consolidation	-34	-15	-49	-32	-19	-51
Total revenue	**1,062**	**2,030**	**3,093**	**802**	**1,667**	**2,469**

Revenue increased by €624 million (25.3%) year-on-year to €3,093 million in the first six months of 2023.

Revenue from commercial and military engine business rose by €251 million (31.0%) to €1,061 million. Revenue growth was driven in particular by the favorable performance of the GTF program in both new and aftermarket business as well as a slight increase in military business. As billing in U.S. dollars is customary in the aviation sector, revenue was further boosted by the U.S. dollar exchange rate, which averaged U.S.$/€1.08 in the first half of 2023 compared with U.S.$/€1.09 in the first half of 2022. Moreover, revenue benefited from the measurement of refund liabilities in connection with stakes in commercial engine programs on the basis of the closing-date exchange rate in view of the change in the closing-date exchange rate from U.S.$/€1.07 on December 31, 2022, to U.S.$/€1.09 on June 30, 2023. Revenue was particularly reduced in the reporting period by impairment losses on assets in connection with aftermarket services under the PW1100G-JM program for an insolvent key-account customer (special item arising from credit and legal risks). Furthermore, extended inspection requirements with respect to the service lives of engine components, especially within the GTF programs, were identified during the reporting period. The additional expenses arising in this connection within the programs concerned are assigned to MTU on a proportionate basis through its stake in the consortium and resulted in a corresponding addition to the relevant refund provisions.

Revenue from commercial maintenance business increased by €371 million to €2,081 million particularly as a result of additional maintenance business for the GTF enginers despite slightly reduced maintenance for the V2500 engine model.

2. Cost of goods sold

Cost of goods sold

in € million	Jan. 1 - June 30, 2023	Jan. 1 - June 30, 2022
Cost of materials	–2,078	–1,578
Personnel expenses	–453	–400
Depreciation, amortization or impairment	–127	–170
Other cost of goods sold	39	–8
Capitalized development costs	47	37
Total cost of goods sold	**–2,573**	**–2,118**

As a result of the increased business volume and the product mix achieved, the cost of goods sold increased by €455 million (21.5%) year-on-year to €2,573 million in the first six months of 2023. This increase was less than revenue growth. While the U.S. dollar exchange rate and inflation effects caused prices to increase, economies of scale realized in relation to the utilization of production and service capacities had the opposite effect compared to the prior-year period.

In the prior-year period, the cost of goods sold had included special effects arising from non-recurring asset impairments of €40 million in connection with the war in Ukraine and further impairment losses of €18 million on investments in connection with the stake in the T408 engine program.

The impairment losses in connection with the war in Ukraine related to the termination or dissolution of contractual relations in favor of Russian markets and the loss of assets in Russia.

The impairment losses in connection with the stake in the GE T408 engine program, which is used in the Sikorsky CH-53K cargo helicopter, were mainly due to decisions by military authorities, including the German armed forces, in favor of alternative cargo helicopters.

The other cost of goods sold particularly result from currency-translation effects arising from trade payables and changes in inventories of finished goods and assets under construction.

At €536 million in the first six months, gross profit was €185 million (52.8%) up on the prior year. This increase was materially due to favorable business in the OEM segment, the product mix and the absence of the special effects that had exerted pressure in the prior year. The revenue growth likewise achieved in the MRO segment was countered by product-mix-related factors as well as the inflation-induced increase in the cost of goods sold. The gross margin widened to 17.2% (January through June 2022: 14.2%).

3. Research and development expenses

Research and development expenses

in € million	Jan. 1 - June 30, 2023	Jan. 1 - June 30, 2022
Cost of materials	–29	–25
Personnel expenses	–23	–21
Depreciation and amortization	–1	–1
Other development costs	–1	–0
Research and development costs recognized as expense	**–54**	**–47**

4. Selling expenses

Selling expenses

in € million	Jan. 1 - June 30, 2023	Jan. 1 - June 30, 2022
Cost of materials	–14	–14
Personnel expenses	–43	–39
Depreciation and amortization	–1	–1
Other selling expenses	–11	–29
Total selling expenses	**–70**	**–83**

Alongside marketing and advertising expenses, selling expenses contain loss allowances and impairments for direct receivables from customers, which are included in other selling expenses.

5. General administrative expenses

General administrative expenses

in € million	Jan. 1 - June 30, 2023	Jan. 1 - June 30, 2022
Cost of materials	-5	-5
Personnel expenses	-40	-37
Depreciation and amortization	-2	-2
Other administrative expenses	-10	-8
Total general administrative expenses	**-57**	**-51**

General administrative expenses are expenses incurred in connection with administrative activities that cannot be directly allocated 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, 2023	Jan. 1 - June 30, 2022
Associated companies	9	4
Joint ventures	32	23
Profit/loss of companies accounted for using the equity method	**41**	**27**

8. Net interest income/expense

Net interest income/expense

in € million	Jan. 1 - June 30, 2023	Jan. 1 - June 30, 2022
Interest income:		
Income from banks	10	0
Income from related and third parties	3	0
Other interest income	0	0
Interest income	**12**	**1**
Interest expense:		
Bonds and notes	-10	-10
Convertible bonds	-2	-2
Liabilities to banks	-0	-0
Lease liabilities	-1	-2
Other interest expense	-1	-2
Capitalized borrowing costs for qualifying assets	1	1
Interest expense	**-13**	**-15**
Net interest income/expense	**-1**	**-15**

9. Other financial income/expense

Other financial income/expense

in € million	Jan. 1 - June 30, 2023	Jan. 1 - June 30, 2022
Effects of currency translation: exchange rate gains/losses on:		
Currency holdings	-1	8
Financing transactions	6	4
Lease liabilities	2	-5
Fair value gains/losses on derivatives		
Currency derivatives	0	-1
Commodity forwards	-9	-1
Interest included in measurement of assets and liabilities		
Pension obligations and plan assets	-13	-5
Receivables, other provisions and liabilities	-5	-1
Miscellaneous other financial income/expense		-1
Other financial income/expense	**-21**	**-3**

10. Income taxes

Analysis of current and deferred income taxes

in € million	Jan. 1 - June 30, 2023	Jan. 1 - June 30, 2022
Current income taxes	-102	-49
Deferred income taxes	-3	2
Income tax expense	**-106**	**-46**

Management is closely following the developments related to the implementation of the international tax reforms to introduce a global minimum tax in each country in which the Group operates.

Since the end of the last reporting period, the International Accounting Standards Board has issued amendments to IAS 12 that provide for a temporary mandatory exemption from accounting for deferred tax for the minimum tax and require new disclosures in the financial statements. However, as of the date on which these interim financial statements were authorized for issue, tax legislation relating to the minimum tax had not been enacted and is not expected to be enacted in any of the countries in which the Group operates, there is no impact on the Group's interim financial statements. In view of the exemption from deferred tax accounting, management is focusing its assessment on the potential actual tax effects of the minimum tax. As soon as the amendments to tax legislation apply or will soon apply in the countries in which the Group operates, it may be subject to the minimum tax. As of 30 June 2023, the Group did not yet have sufficient information to reliably determine the potential quantitative impact

11. Earnings per share

To determine diluted earnings per share, the average number of common shares that could potentially be issued through the granting of equity instruments in connection with financial instruments outstanding as of the reporting date is added to the weighted average number of outstanding shares.

In the first six months of 2023, the net income attributable to the shareholders of MTU Aero Engines AG stood at €255 million (January through June 2022: €119 million). The weighted average number of outstanding shares in the period January through June 2023 was 53,611,952 (January through June 2022: 53,356,240 shares). This results in basic earnings per share of €4.75 in the first six months of 2023 (January through June 2022: €2.23).

Diluted earnings per share were €4.65 (January through June 2022: €2.19). Diluting effects arose from 1,469,572 shares that could potentially be issued through the convertible bonds issued in May 2016 and in September 2019.

12. Reconciliation from EBIT to adjusted EBIT

MTU reports adjusted earnings before interest and taxes (adjusted EBIT).

In the interests of ensuring comparability of the EBIT figure, it is regularly adjusted for the following special items:

"Effects of the purchase price allocation": As of January 1, 2004, MTU passed into the ownership of Kohlberg Kravis Roberts & Co. Ltd. (KKR), following the latter's purchase of 100% of the MTU shares from the then DaimlerChrysler AG. In the context of the acquisition, assets, liabilities and contingent liabilities were identified in accordance with IFRS 3 and measured at fair value. Since then, the identified intangible assets, in particular, have resulted in substantial amortization. The resulting earnings impacts are eliminated as special items in the reconciliation to adjusted EBIT.

"Effects from the increase in the stake in IAE-V2500": The increase in MTU's stake in the Pratt & Whitney IAE-V2500 program in 2012 was accounted for as the addition of a program asset. Since then, this asset has been amortized over the expected remaining useful life of the program, thereby reducing revenue, and the corresponding earnings impact is eliminated as a special item in the reconciliation to adjusted EBIT.

"Impairment losses": Significant earnings impacts resulting from asset impairment losses, especially in accordance with IAS 36, are eliminated as special items in the reconciliation to adjusted EBIT.

In the prior-year period, this category had included impairment losses recognized in connection with the development of expected sales of the GE T408 engine program for the Sikorsky CH53-K transport helicopter. The associated earnings impacts are eliminated as special items in the reconciliation to adjusted EBIT.

"Impairment losses/reversal of impairment losses (Russian-Ukrainian war)": In the prior-year period, special items had been recognized in connection with the termination of business relationships with Russian partners as a consequence of the war in Ukraine. This concerned the stake in the PW1400G-JM program and, to a smaller extent, assets related to commercial aftermarket business and the PW1100G-JM. The associated earnings impacts are eliminated as special items in the reconciliation to adjusted EBIT.

“Credit and legal risks”: In the reporting period extraordinary earnings impacts in connection with credit and legal risks from the insolvency of a key-account customers for the PW1100G-JM program were eliminated from EBIT as a special item. The aforementioned earnings impacts particularly result from the impairment of onerous assets exposed to insolvency risks. In addition, judicial and arbitration proceedings involving considerable amounts are currently pending in this connection. However, it is currently assumed that these will not result in any net payment obligations for the PW1100G-JM consortium or MTU. More details are provided in Note 37 “Contingent liabilities and financial liabilities.” in the notes to the consolidated interim financial statements.

Further special items that did not result in any adjustments in the reporting period or the prior-year period concern “Restructuring expenses”: Considerable earnings impacts due to restructuring measures as defined in IAS 37 and “Changes in the consolidated group”: Considerable earnings impacts from the acquisition, divestment or discontinuation of material investments and processes of a comparable nature.

Reconciliation of EBIT to adjusted EBIT, depreciation/amortization expense and non-recurring items

in € million	Jan. 1 - June 30, 2023	Jan. 1 - June 30, 2022
Earnings before interest and taxes (EBIT)	**383**	**183**
thereof: special item depreciation/ amortization effect of purchase price allocation	9	10
thereof: special item effects from increase in the stake in IAE-V2500	11	12
thereof: special item impairment losses (appreciation) (Russia/ Ukraine war)	–21	61
thereof: special item impairment losses on program assets		24
thereof: special item extraordinary litigation and claims	22	
Adjusted earnings before interest and taxes (adjusted EBIT)	**405**	**290**

Notes to the consolidated balance sheet

14. Intangible assets

The intangible assets are program-independent technologies, development assets, technical software and acquired goodwill.

In the first six months of 2023, intangible assets amounting to €28 million were recognized (January through June 2022: €28 million). These included self-created development assets and related borrowing costs of €27 million (January through June 2022: €26 million).

Amortization of intangible assets came to €28 million in the first six months of 2023 (January through June 2022: €27 million).

15. Property, plant and equipment

In the period from January 1 to June 30, 2023, additions to property, plant and equipment amounted to €163 million (January through June 2022: €102 million) and mainly comprised operational and office equipment and assets under construction. As well as this, investments were made in capacities for engine leasing business. Depreciation of property, plant and equipment was €103 million in the first six months of 2023 (January through June 2022: €94 million).

16. Financial assets

Financial assets accounted for using the equity method

The financial assets accounted for using the equity method are described in the Annual Report 2022, page 175 et seq.

Other financial assets

Breakdown of other financial assets

in € million	Total		Non-current		Current	
	June 30, 2023	Dec. 31, 2022	June 30, 2023	Dec. 31, 2022	June 30, 2023	Dec. 31, 2022
Financial assets measured at purchase cost	**531**	**466**	**78**	**71**	**453**	**395**
Loans to third parties[1]	64	60	64	60		
Loans to related companies[1]	9	6	9	6		
Receivables from employees	2	1	0	0	2	1
Receivables from suppliers	9	4			9	4
Miscellaneous other financial assets	446	396	5	6	442	390
Financial assets measured at fair value through other comprehensive income	**12**	**4**	**12**	**4**		
Other interests in related companies	12	4	12	4		
Derivatives without hedging relationship	**0**	**5**		**1**	**0**	**4**
Derivatives with hedging relationship	**41**	**34**	**28**	**24**	**14**	**11**
Total other financial assets	**584**	**510**	**117**	**100**	**467**	**410**

[1] Included in net financial debt

Loans to third parties are primarily attributable to the stakes in consortia granting financing for aircraft and engines as part of commercial OEM programs.

Miscellaneous other financial assets amounting to €446 million (previous year: €396 million) relate to numerous individual items. The increase is primarily due to the accrual of compensation payment components to consortia leaders (OEM) for maintenance and repair business for stakes in commercial OEM engine programs.

Other interests in related companies primarily concern shares held in non-consolidated companies as well as shares in associated companies. The increase in shares in non-consolidated subsidiaries is for the most part due to the acquisition of e-motor developer eMoSys GmbH.

17. Acquired program assets, development work and other assets

In the first six months, MTU spent €0 million (January through June 2022: €12 million) on the acquisition of program assets. The total amount of acquired program assets recognized in profit or loss in the reporting period was €19 million (January through June 2022: €19 million).

MTU acquired development assets amounting to €21 million in the first six months of 2023 (January through June 2022: €12 million). In the reporting period, compensation payments for development work in an amount of €4 million (January through June 2022: €5 million) paid to consortia leaders (OEM) were offset against revenue. Moreover, no impairment losses were recognized on development compensation payments as a result of ad-hoc impairment testing, as prescribed by IAS 36 (January through June 2022: €62 million in connection with the PW1400G-JM (€38 million) and T408 (€24 million) engine programs).

As well as claims to tax refunds, the other assets include prepaid maintenance charges, insurance premiums and rents.

19. Inventories

Inventories

in € million	June 30, 2023	Dec. 31, 2022
Raw materials and supplies	692	719
Work in progress	551	501
Finished goods	255	247
Advance payments	13	47
Total inventories	**1,512**	**1,514**

20. Trade receivables

Trade receivables

in € million	June 30, 2023	Dec. 31, 2022
Third parties	667	536
Related companies	536	574
Total trade receivables	**1,203**	**1,110**

21. Contract assets

A contract asset is a contractual right to consideration in exchange for goods or services that the entity has transferred to a customer, but for which there is not yet an unconditional right to payment. The changes in the reporting period result from business performance and, in particular, the change in the U.S. dollar exchange rate from U.S.$1.07 per €1 at year-end 2022 to U.S.$1.09 per €1 as of June 30, 2023.

23. Cash and cash equivalents

Cash and cash equivalents comprise cash in hand and bank balances. This item also includes foreign-currency holdings with an equivalent value of €243 million (December 31, 2022: €170 million).

24. Equity

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

The Company’s subscribed capital increased from €53 million at year-end 2022 to €54 million as of June 30, 2023 due to conversions and is divided into 54 million non-par-value registered shares.

The capital reserves contain premiums from the issue of shares and the equity component (net of proportional transaction costs and taxes) of the bond issued in 2007 and redeemed or converted in 2012, the convertible bond issued in 2016, which was partially redeemed in 2019 and repaid or converted by May 2023, and the convertible bond issued in 2019.

A total of 53,760,323 shares in MTU Aero Engines AG, Munich, were in circulation as of June 30, 2023 (June 30, 2022: 53,356,799 shares). The company held 64,166 treasury shares as of June 30, 2023 (June 30, 2022: 79,249 shares).

In the first six months of 2023, no shares were repurchased under the authorization of the Annual General Meeting of April 11, 2019, (January through June 2022: no shares repurchased) to implement the restricted stock plan.

27. Other provisions

The other provisions take account of obligations arising from warranty and liability risks, personnel obligations and invoices not yet received. The €68 million decrease in other provisions to €201 million results mainly from the utilization of provisions for personnel obligations for bonuses and one-time payments as well as the utilization of provisions for outstanding invoices.

28. Financial liabilities

Financial liabilities

in € million	Total June 30, 2023	Total Dec. 31, 2022	Non-current June 30, 2023	Non-current Dec. 31, 2022	Current June 30, 2023	Current Dec. 31, 2022
Bonds and notes	612	605	597	596	15	9
Convertible bond	487	531	487	485	0	46
Financial liabilities to banks	47				47	
Financial liabilities to related companies	4				4	
lease liabilities	148	166	104	109	43	57
Other financing liabilities (Financing component)	314	333	209	288	106	45
thereof: arising from new stakes in engine programs	95	114	70	69	26	45
thereof: from compensation payments due to program participations	219	219	139	219	80	
Total gross financial debt	**1,612**	**1,635**	**1,396**	**1,478**	**215**	**158**
Derivatives without hedging relationship	4	0	1	0	3	0
Derivatives with hedging relationship	76	128	21	54	55	74
Personnel-related financial liabilities	113	112	74	79	39	33
Miscellaneous other financial liabilities	57	54			57	54
Total other financial liabilities	**251**	**294**	**96**	**133**	**155**	**161**
Total financial liabilities	**1,863**	**1,929**	**1,493**	**1,610**	**370**	**319**

Bonds and notes

For full details of the registered bond with a nominal value of €100 million and the corporate bond with a nominal value of €500 million, please refer to the Annual Report 2022, page 190.

Convertible bonds

On May 17, 2016, MTU Aero Engines AG issued a senior unsecured convertible bond with a total nominal value of €500 million. This bond is convertible into new and/or existing registered non-par-value shares in the issuing company. This convertible bond matured on May 17, 2023. Due to partial redemption in 2019 and conversions since then, the remaining nominal value of €100,000 was repaid on the maturity date.

Furthermore, in 2019, MTU Aero Engines AG issued a senior unsecured convertible bond with a total nominal value of €500 million. This bond is convertible into non-par-value common shares in MTU from September 18, 2024.

For a full description of the convertible bonds, please refer to the Annual Report 2022, page 167 et seq.

Financial liabilities to banks

This item arises from the temporary use of contractual credit facilities for the execution of payments.

Miscellaneous other financial liabilities

Financial liabilities arising from acquisition of stakes in engine programs

This item includes the deferred payment components arising from the increase in the stake in IAE V2500 and the acquisition of stakes in engine programs. These are deemed to represent financing transactions in view of the structure of the underlying agreements. The purchase price agreement signed by MTU in 2012 in order to increase its stake in the IAE V2500 engine program by 5 percentage points to 16% made it necessary, among other things, to recognize a deferred financial liability contingent upon the number of flight hours performed over the next 15 years by the fleet of V2500 engines in service at the time of the stake increase.

The other financial liabilities arising from the acquisition of stakes in programs mainly concern financial liabilities from program lifetime-related payments in the form of compensation payments to the consortia leaders independent of engine development work for the acquisition of shares in commercial engine programs.

Compensation payments within the scope of stakes in programs

This item reflects the required compensation payment agreements in connection with stakes in engine programs. These are deemed to represent financing transactions in view of the structure of the underlying agreements.

In 2022, an agreement had been entered into with the OEM Pratt & Whitney to repay the cumulative production-related compensation payments within the scope of MTU's membership in the consortium for the PW1100G-JM engine program by the end of 2021. In previous periods, the above-mentioned compensation payment obligation was accounted for as a component of current refund liabilities, taking account of the estimations regarding amount and maturity. In addition to a fixed repayment amount of a nominal U.S.$265 million, the agreement entered into with the OEM in the prior year now reflects a payment plan over six years at a fixed interest rate. Taking account of the closing exchange rate as well as an interest rate in line with the risks and maturities concerned, the amount capitalized under other financial liabilities totals €219 million as of the closing date.

The company has a framework credit facility of €500 million that has been provided by nine banks. It has a term of five years, expiring on June 29, 2027, and can be extended twice by one year at a time at the company's request.

The credit facility utilized is subject to interest at the customary market reference rate plus an additional margin. The unused amount of the revolving credit facility is subject to a loan commitment fee.

Lease liabilities

Lease liabilities concern liabilities under leases calculated using the effective interest method.

For a description of the main leased assets, please refer to the Annual Report 2022, page 174 et seq. and page 215 et seq.

Liabilities from derivatives

The derivatives of €80 million with and without hedging relationships recognized as financial liabilities as of the reporting date (December 31, 2022: €128 million) are used to offset currency and commodity price risks. The increase in liabilities is mainly attributable to an increase in the fair value of forward foreign exchange contracts due to changes in the U.S. dollar exchange rate as of the reporting date relative to the agreed hedging rates

Personnel-related financial liabilities

The personnel-related financial liabilities mainly comprise entitlements to pension capital totaling €77 million (December 31, 2022: €92 million) resulting from direct commitments through the company pension plan, claims to vacation pay, Christmas pay and collectively agreed one-time payments totaling €20 million (December 31, 2022: €0 million), claims arising from the employee stock option program (MAP) of €9 million (December 31, 2022: €12 million) and claims granted under restructuring measures of €2 million (December 31, 2022: €2 million).

Miscellaneous other financial liabilities

The contract liabilities contain advance payments for the delivery of engine modules and components and for maintenance and repair services.

Where there are corresponding contract assets, these are offset in accordance with IFRS 15. In the reporting period, contract liabilities amounting to €395 million (December 31, 2022: €337 million) were offset against the corresponding contract assets.

30. Contract liabilities

The contract liabilities contain advance payments for the delivery of engine modules and components and for maintenance and repair services.

Where there are corresponding contract assets, these are offset in accordance with IFRS 15. In the reporting period, contract liabilities amounting to €395 million (December 31, 2022: €337 million) were offset against the corresponding contract assets.

31. Refund liabilities

Refund liabilities

in € million	Total		Non-current		Current	
	June 30, 2023	Dec. 31, 2022	June 30, 2023	Dec. 31, 2022	June 30, 2023	Dec. 31, 2022
Warranty und liability risks	216	203	0	0	216	203
Invoice corrections / Subsequent costs	1,737	1,838	0	0	1,737	1,838
Total refund liabilities	**1,953**	**2,041**	**0**	**0**	**1,953**	**2,041**

The refund liabilities for warranty and liability risks correspond to the compensation obligations due to the consortium leader (OEM) or program company as a result of defective workmanship, and the share of the expenses of the engine program under risk- and revenue-sharing models for commercial engine programs. The increase in the reporting period particularly correlates with business growth. Moreover, the decrease in the obligations due to the change in the U.S. dollar exchange rate has to be taken into account.

The refund liabilities for invoice corrections/trailing costs relate primarily to retroactive adjustments to the prices in contracts with customers, for which retroactive price corrections are carried out regularly in keeping with the invoicing practices for commercial engine program shares. Settlement of these price corrections was still outstanding as of the reporting date. Another significant portion of these liabilities comprises marketing expenses for commercial engine programs for which a final invoice has not yet been issued by the consortium leader (OEM) but which already have economic substance. The decline in the reporting period correlates with utilization due to the settlement of corresponding transactions in the reporting period. As well as this, the U.S. dollar exchange rate on the reporting date caused a reduction. This was offset by additions resulting from the growth in business as well as from the extended inspection requirements for the service lives of engine components identified in the reporting period, especially within the GTF programs.

32. Other liabilities

Other liabilities

in € million	Total		Non-current		Current	
	June 30, 2023	Dec. 31, 2022	June 30, 2023	Dec. 31, 2022	June 30, 2023	Dec. 31, 2022
Personnel-related liabilities						
Social security	2	1			2	1
Other personnel-related liabilities	57	34			57	34
Other tax liabilities	26	59			26	59
Miscellaneous other liabilities	14	14	14	14	0	0
Total other liabilities	**99**	**109**	**14**	**14**	**85**	**95**

Personnel-related liabilities

The other personnel-related liabilities are mainly due to employees' unused vacation entitlements and flextime credits.

Other tax liabilities

The tax liabilities of €26 million (December 31, 2022: €59 million) relate to wage and church taxes and transactional taxes payable in Germany and other countries.

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, regardless whether the instruments fall within the scope of IFRS 7 or IFRS 9. In addition, the carrying amounts are compared to the fair values.

Disclosures relating to financial instruments
Carrying amounts, measurement/recognition methods and fair values as of June 30, 2023

in € million	Carrying amount June 30, 2023	**Amount carried in balance sheet** Measured at amortized cost	Fair value through other comprehensive income	Fair value through profit or loss	Not allocable to a measurement category acc. to IFRS 9	Financial instruments not within the scope of IFRS 9 or IFRS 7	Total	Fair value as of June 30, 2023
ASSETS								
Financial assets								
Loans and receivables	531	526				5	531	531
Other interests in related companies	12		12				12	12
Trade receivables	1,203	1,203					1,203	1,203
Derivative financial assets								
Derivatives without hedging relationship	0			0			0	0
Derivatives with hedging relationship	41				41		41	41
Cash and cash equivalents	771	771					771	771
EQUITY AND LIABILITIES								
Refund liabilities	1,953	1,953					1,953	1,953
Trade payables	393	393					393	393
Financial liabilities								
Bonds and notes	612	612					612	593
Convertible bond 2019	487	487					487	452
Financial liabilities to banks	47	47					47	47
Financial liabilities to related companies	4	4					4	4
Lease liabilities	148				148		148	
Financial liabilities arising from increased or new stakes in engine programs	95	95					95	92
Financial liabilities arising from compensation payments due to program participations	219	219					219	216
Derivative financial liabilities								
Derivatives without hedging relationship	4			4			4	4
Derivatives with hedging relationship	76				76		76	76
Other financial liabilities	171	57				113	171	171

Disclosures relating to financial instruments
Carrying amounts, measurement/recognition methods and fair values as of Dec. 31, 2022

in € million	Carrying amount as of Dec. 31, 2022	Amount carried in balance sheet: Measured at amortized cost	Amount carried in balance sheet: Fair value through other comprehen-sive income	Amount carried in balance sheet: Fair value through profit or loss	Not allocable to a measurement category acc. to IFRS 9	Financial instruments not within the scope of IFRS 9 or IFRS 7	Total	Fair value as of Dec. 31, 2022
ASSETS								
Financial assets								
Loans and receivables	466	461				5	466	466
Other interests in related companies	4		4				4	4
Trade receivables	1,110	1,110					1,110	1,110
Derivative financial assets								
Derivatives without hedging relationship	5			5			5	5
Derivatives with hedging relationship	34				34		34	34
Cash and cash equivalents	823	823					823	823
EQUITY AND LIABILITIES								
Refund liabilities	2,041	2,041					2,041	2,041
Trade payables	284	284					284	284
Financial liabilities								
Bonds and notes	605	605					605	593
Convertible bonds (2016 and 2019)	531	531					531	522
Lease liabilities	166				166		166	
Financial liabilities arising from increased or new stakes in engine programs	114	114					114	111
Financial liabilities arising from compensation payments due to program participations	219	219					219	219
Derivative financial liabilities								
Derivatives without hedging relationship	0			0			0	0
Derivatives with hedging relationship	128				128		128	128
Other financial liabilities	166	54				112	166	166

The financial assets and liabilities carried at amortized cost contain cash and cash equivalents, trade receivables, other receivables, trade payables and other liabilities which are generally due within a relatively short time. The carrying amounts of these assets and liabilities therefore correspond approximately to their fair value at the reporting date.

The fair value of the financial assets and liabilities measured at fair value was derived from stock market prices or, alternatively, using a discounted cash flow method.

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

To take account of the relevance of the estimated parameters used in the measurement of financial assets and liabilities measured at fair value, MTU's financial assets and liabilities are allocated to three levels.

The three levels of the fair-value hierarchy are described below, together with their utilization to measure financial assets and liabilities:

Level 1 Quoted prices in active markets for identical assets or liabilities;

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 convertible bonds (2019), which are traded on the stock exchange and are measured at amortized cost, and the corporate bond were assigned to Level 1, the equity investments measured at fair value through other comprehensive income were assigned to Level 3, and all other qualifying financial instruments were assigned to Level 2.

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 2023 and 2022:

Classification within the fair-value hierarchy as of June 30, 2023

in € million	Level 1	Level 2	Level 3	Total
Financial assets measured at fair value				
Derivative financial instruments		42		42
Other interests in related companies			12	12
Total financial assets		**42**	**12**	**53**
Financial liabilities measured at fair value				
Derivative financial instruments		80		80
Total financial liabilities		**80**		**80**

Classification within the fair-value hierarchy for fiscal year 2022

in € million	Level 1	Level 2	Level 3	Total
Financial assets measured at fair value				
Derivative financial instruments		39		39
Other interests in related companies			4	4
Total financial assets		**39**	**4**	**44**
Financial liabilities measured at fair value				
Derivative financial instruments		128		128
Total financial liabilities		**128**		**128**

The fair value of the derivative financial instruments and securities assigned to Level 2 is measured using a discounted cash flow (DCF) method. This includes derivative financial instruments used for cash flow hedges. Equity investments, which are allocated to Level 3, are also measured using a DCF method based on internal planning figures. The discount rate is calculated using both internal planning data and available market data.

Within the scope of its participation in consortia for commercial engine programs, MTU is a party to aircraft financing agreements for the purpose of promoting sales. In principle, such commitments are made jointly with other members of engine consortium in favor of the consortium leader (OEM). They are provided in two basic forms: predelivery payments (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 (OEM).

MTU classifies loan offers received up to the reporting date totaling a nominal amount, translated into euros, of €755 million (December 31, 2022: €776 million) as part of its gross liquidity risk in accordance with the requirements of IFRS 7. However, based on experience, it is considered to be very unlikely that all these nominal loan amounts will actually be utilized to their full extent. In the event that they are utilized, MTU considers the associated liquidity and credit risks to be manageable. For further explanations, especially of the structure of financing offers, please refer to the Annual Report 2022, page 202.

In addition, there were unutilized financing commitments for equity investments in the form of capital contributions or shareholder loans totaling €149 million as of the reporting date (December 31, 2022: €142 million).

37. Contingent liabilities and other financial obligations

As of June 30, 2023, contingent liabilities amounted to €282 million (December 31, 2022: €185 million).

The contingent liabilities and other financial obligations are not significant for MTU's financial position. In the reporting period, as in previous periods, no amounts were due and payable. No material claims are expected in the 2023 fiscal year. The increase in the reporting period largely correlates with potential obligations under credit and legal risks in connection with stakes in commercial engine programs. For information and disclosures regarding the composition of contingent liabilities and other financial obligations, please refer to the Annual Report 2022, page 218.

Purchase commitments for intangible assets and property, plant and equipment amounted to €234 million as of June 30, 2023 (December 31, 2022: €190 million).

38. Related party disclosures

Related companies

Transactions between Group companies and joint ventures or associates were, without exception, entered into in the normal course of business and on an arm's length basis.

Transactions between consolidated companies were fully eliminated for consolidation purposes and are therefore not disclosed separately in this Note.

Business with related companies

In the reporting period, intragroup 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).

Receivables from these companies were valued at €536 million as of June 30, 2023 (December 31, 2022: €574 million). Liabilities stood at €145 million (December 31, 2022: €13 million). Income came to €1,349 million in the first six months of 2023 (January through June 2022: €1,224 million). Expenses equaled €676 million (January through June 2022: €672 million).

Related persons

No Group companies entered into any material transactions with members of the Group's Executive Board or Supervisory Board or with any other individuals in key management positions, or with companies of whose governing or supervisory bodies these individuals are members. The same applies to close members of the families of those individuals.

Events after the reporting date (June 30, 2023)

After the reporting date and prior to the preparation of this report, MTU learned from the OEM Pratt & Whitney of the need for an extended inspection program to validate the service lives of engine components, particularly of the GTF engine family. The expenses expected to arise from this will be assigned to MTU on a proportionate basis in accordance with its stake in the relevant commercial programs. The corresponding effects on MTU's net assets, financial position and results of operations have been taken into account in this report on the basis of the best possible estimates.

There were no events of specific importance with a significant impact on the net assets, financial position and results of operations of the MTU Group between the interim reporting date and the adoption of this half-year financial report on July 21, 2023.

Publication of the half-year financial report

The half-year financial report of MTU Aero Engines AG, Munich, for the period from January 1 through June 30, 2023, has been published on the internet (www.mtu.de).

Munich, July 21, 2023

Signed
Lars Wagner
Chief Executive Officer

Signed
Peter Kameritsch
Chief Financial Officer and Chief Information Officer

Signed
Michael Schreyögg
Chief Program Officer

Signed
Dr. Silke Maurer
Chief Officer for OEM Operations

Responsibility statement

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

Munich, July 21, 2023

Signed
Lars Wagner
Chief Executive Officer

Signed
Peter Kameritsch
Chief Financial Officer and Chief Information Officer

Signed
Michael Schreyögg
Chief Program Officer

Signed
Dr. Silke Maurer
Chief Officer for OEM Operations

Review Report

To MTU Aero Engines AG, Munich

We have reviewed the condensed interim consolidated financial statements of MTU Aero Engines AG – comprising the consolidated income statement, the consolidated statement of comprehensive income, the consolidated balance sheet, the consolidated statement of changes in equity and the consolidated cash flow statement – together with the interim group management report of MTU Aero Engines AG, Munich, for the period from 1 January to 30 June 2023 that are part of the semi annual report according to § 115 WpHG [“Wertpapierhandelsgesetz“: “German Securities Trading Act”]. The preparation of the condensed interim consolidated financial statements in accordance with International Accounting Standard IAS 34 “Interim Financial Reporting” as adopted by the EU, and of the interim group management report in accordance with the requirements of the WpHG applicable to interim group management reports, is the responsibility of the Company’s management. Our responsibility is to issue a report on the condensed interim consolidated financial statements and on the interim group management report based on our review.

We performed our review of the condensed interim consolidated financial statements and the interim group management report in accordance with the German generally accepted standards for the review of financial statements promulgated by the Institut der Wirtschaftsprüfer (IDW). Those standards require that we plan and perform the review so that we can preclude through critical evaluation, with a certain level of assurance, that the condensed interim consolidated financial statements have not been prepared, in material respects, in accordance with IAS 34, “Interim Financial Reporting” as adopted by the EU, and that the interim group management report has not been prepared, in material respects, in accordance with the requirements of the WpHG applicable to interim group management reports. A review is limited primarily to inquiries of company employees and analytical assessments and therefore does not provide the assurance attainable in a financial statement audit. Since, in accordance with our engagement, we have not performed a financial statement audit, we cannot issue an auditor’s report.

Based on our review, no matters have come to our attention that cause us to presume that the condensed interim consolidated financial statements have not been prepared, in material respects, in accordance with IAS 34, “Interim Financial Reporting” as adopted by the EU, or that the interim group management report has not been prepared, in material respects, in accordance with the requirements of the WpHG applicable to interim group management reports.

Munich, 25 July 2023

KPMG AG
Wirtschaftsprüfungsgesellschaft

Huber-Straßer	Hanshen
Wirtschaftsprüfer	Wirtschaftsprüfer
[German Public Auditor]	[German Public Auditor]

Additional information

Financial calendar

Interim financial report as of June 30, 2023 .... July 26, 2023

Quarterly statement as of September 30, 2023 .... October 27, 2023

Contacts

MTU Aero Engines AG
Dachauer Strasse 665
80995 Munich, Germany
Phone: +49 89 1489-0
Fax: +49 89 1489-5500
Email: info@mtu.de
www.mtu.de

Thomas Franz
Vice President Investor Relations
Phone: +49 89 1489-4787
Fax: +49 89 1489-95583
Email: Thomas.Franz@mtu.de

Claudia Heinle
Investor Relations
Phone: +49 89 1489-3911
Fax: +49 89 1489-95139
Email: Claudia.Heinle@mtu.de

Matthias Spies
Investor Relations
Phone: +49 89 1489-4108
Fax: +49 89 1489-95139
Email: Matthias.Spies@mtu.de

MTU Aero Engines AG on the internet

- You can find further information about MTU Aero Engines AG on the internet at www.mtu.de
- The Investor Relations site can be accessed directly at www.mtu.de/investor-relations
- You can find information on the products of MTU Aero Engines AG at www.mtu.de/engines

Translation

The German version takes precedence.

MTU Aero Engines AG
Dachauer Strasse 665
80995 Munich • Germany
Phone +49 89 1489-0
Fax +49 89 1489-5500
info@mtu.de
www.mtu.de